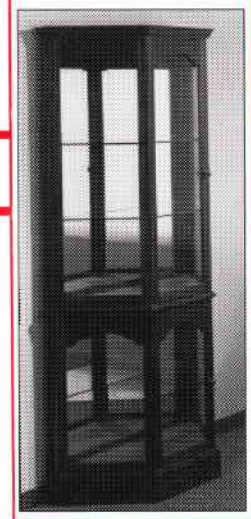


## Display Cabinet

A spectacular way to show off both your favourite treasures and your woodworking skills, this classic glazed cabinet will repay the choice of a fine furniture timber, such as the Tasmanian Blackwood of our example.

Although delicate and complex in appearance, the cabinet is based on simple rectangular frames, assembled with mortice and tenon joints; all its angles and facets are simply formed with a single router bit. All the mouldings are similarly made with a single decorative router bit. Both a 1/2" router and an Extension Table are essential for the project.



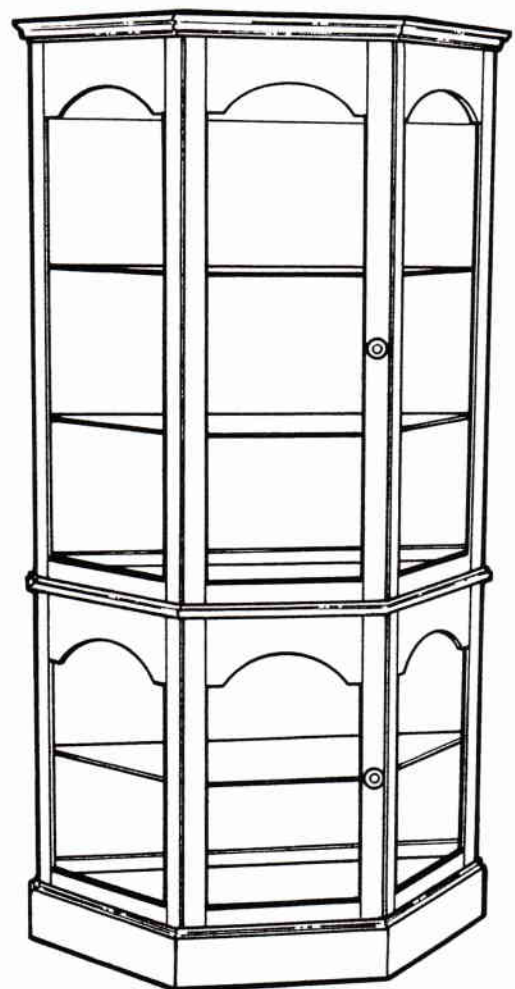
### Component Specifications

All dimensions are in mm.

Part	Description	Quantity	Width	Thickness	Length
A	Rear Frame side	2	42	19	1060
B	Rear Frame side*	2	42	19	740
C	Mullion	6	42	19	1060
D	Mullion*	6	42	19	740
E	Top Rail	6	135	19	339
F	Bottom Rail	6	42	19	339
G	Rear Top Rail	2	135	19	896
H	Rear Lower Rail	2	42	19	896
I	Cabinet Back	1	896	6	903
J	Cabinet Back*	1	896	6	464
K	Plinth	5 pieces fitted after assembly			
L	Fixing Block	3 as required			
M	Centre Moulding	5 pieces fitted after assembly			
N	Top Moulding	10 pieces fitted after assembly			
O	Top and Base	4 pieces of 19mm veneered material			

\* Indicates lower cabinet component.

NOTE: Plinth and mouldings are measured and cut to suit after cabinet assembly. Cabinet tops and bases (O) are marked using the cabinet frame itself as a template.



### Tool Requirements

**1. ESSENTIAL** Triton Workcentre and your power saw; Triton Router and Jigsaw Table; 1/2" router and bits as follows: 6.5mm (1.4") straight bit; rabbeting bit; large vee groove bit (40mm dia.); small-radius rounding over bit; 10mm or larger straight bit for removing waste material; Triton Extension Table; electric drill and Triton Woodbits; countersink bit; jigsaw; sash or bar clamps; hammer; nail punch; screwdriver; hand plane; measuring tape; square; pencil; sanding block or finishing sander.

**2. USEFUL** Routing and bevel cutting platform (see Jig Guide); drill press or stand for electric drill; large square; marking or mortice gauge; sliding bevel gauge; small tack hammer; extra clamps, or band clamps; Forstner bit and matching plug cutter.

# Construction Details

## Material Shopping List

**1. WOOD** The brilliance of the glass and mirror backs suggest a dark, rich timber for contrast and to highlight the delicacy of the framing. Many of the native cabinet timbers will be suitable, but it is important to ensure that your timber is straight and square before dressing to size, and that it is thoroughly seasoned.

The veneered material should be chosen to match or complement the cabinet timber; the plywood for the backs can be an inexpensive grade, as it is entirely covered by the mirrors.

Shop for:

**Seasoned hardwood cabinet grade timber DAR:**

135 x 19mm 3 @ 2.1m  
90 x 19mm 3 @ 1.5m  
42 x 19mm 8 @ 1.8m, 2 @ 2.1m

Matching or contrasting **19mm veneered particle board:** 4 pieces approximately 900mm x 300mm

**Interior grade plywood:** 1 sheet 1800 x 900 x 6mm

About 1m of **19 x 19mm solid timber** to match the veneered material is also required for filler blocks and cleats, plus one metre of **19mm wide iron-on veneer tape.**

**Glass retaining bead:** Usual sizes of window glass bead are too large, being wider than the glass rebates of the cabinet. A 6mm x 8mm quad section moulding is needed to retain the glass.

(Available in Victoria from A.J. Lewis & Co., Ormond, in cedar. Elsewhere, try timber suppliers specializing in mouldings).

Approximately 6 lengths @ 2.1m is required.

**2. FASTENING** We used a combination of screws and glue to attach the side frames to the rear of the cabinet, and glue alone for the tenons. Resorcinol glue was chosen for strength, and because its dark colour matched the timber we used.

The remainder of the cabinet was fastened using power-driven Phillips-head screws, or round-headed screws and washers where movement due to humidity changes might occur.

16 brass screws 6g x 38mm long  
30 countersunk steel screws 8g x 45mm  
40 countersunk steel screws 8g x 30mm

24 countersunk steel screws 6g x 16mm  
16 round-headed steel screws 8g x 30mm

Small pins to attach glass beading.

Silicone mastic for bedding glass and mirrors.

**3. OTHER** For the cabinet backs, two sheets of 4mm mirror glass approximately 875mm x 882mm and 875mm x 443mm respectively will be required. The cabinet fronts require 3mm window glass approximately 958mm x 320mm and 520 x 320mm respectively, but the exact sizes are determined after the cabinet frames are completed.

6mm plate glass shelves with "sanded" edges are cut to a template and supported on suitable shelf brackets. The number and disposition of these is up to individual requirements, but we fitted three shelves, supported on brass-plated angle brackets that fitted into drilled holes in the cabinet sides.

Internal lighting is optional, but enhances the appearance of the displayed objects considerably. We used two small, inexpensive cylindrical light fittings sold by IKEA (intended to illuminate hanging pictures), screwed to the top of each cabinet, towards the rear.

Two pairs of brass hinges, two small (10mm) ball catches, and knobs or handles to suit your taste complete the cabinet. It is preferable to use solid brass extruded hinges, rather than the stamped brass-plated hinges sold in hardware stores; a brass piano hinge could be substituted if desired.

**4. FINISHING** A high-gloss varnish or French polish would be the most suitable treatment, but both tend to highlight minor imperfections in surface finish. We found that two coats of Cabot's Danish Oil, with the second coat rubbed on with a "Scotchbrite" plastic scouring pad, gave a pleasant, soft lustre without accentuating small surface blemishes.

Both internal and external surfaces must be finished, to guard against warping due to humidity changes.

A quality furniture wax will maintain a soft sheen on the exterior without attracting dust, and is easier to apply without smearing the glass than silicon spray products.

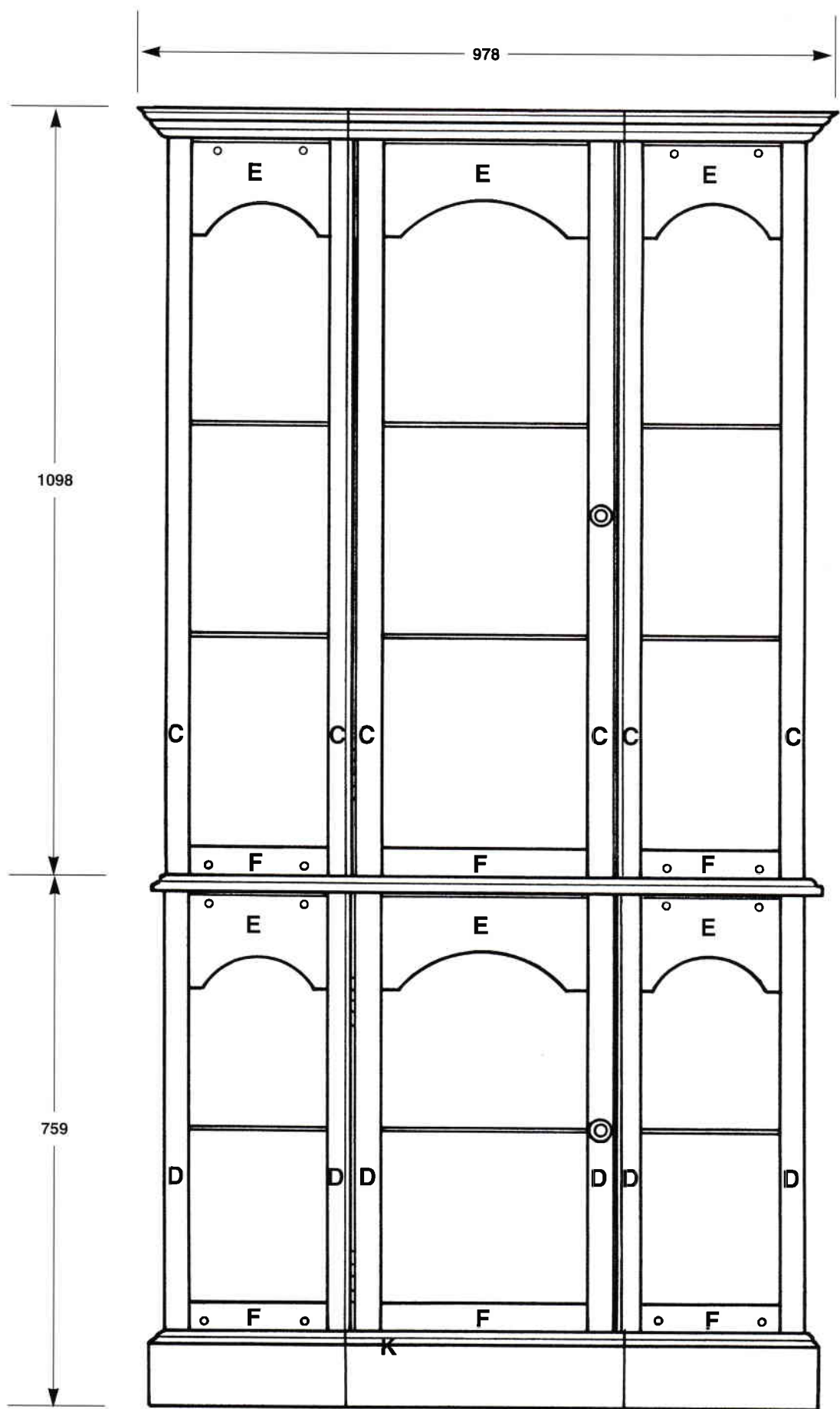
## General Points

**1.** Each cabinet consists of three similar rectangular frames, the outermost two of which are bevelled on their vertical edges and attached to the rear assembly. The cabinet tops and bottoms screw into place and stiffen the structure in the horizontal plane.

**2.** All the machine work is straightforward, but care in marking out the mortices is required, and

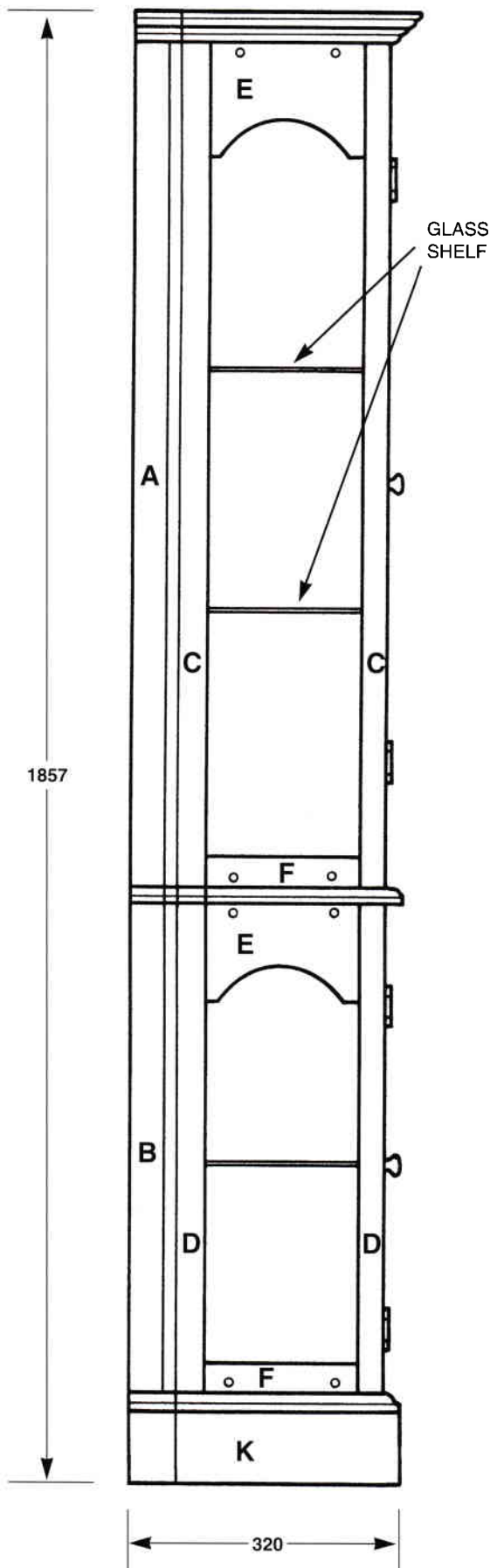
will be amply repaid in the reduced amount of sanding required on the finished frames.

**3.** Note that the back is screwed, not glued in place. This is to allow the glass shelves, which are too long to fit through the front door, to be fitted in the completed cabinet.



FRONT ELEVATION

# Construction Details



SIDE ELEVATION

**1** Cut the solid material for the frame sides, the mullions, and the top and bottom rails to length (**A, B, C, D, E, F, G, H**). The remaining solid material is for the plinth and mouldings.

**2** Carefully mark the positions of the mortises as shown in **Figure 1**. Note that the mortises in the sides of the rear frames (**A**) and (**B**) are only 11mm deep, and that the components are handed left and right. The remaining mortises in the glazed frame mullions (**C**) and (**D**) are 20mm deep, and are central in the edge of the material.

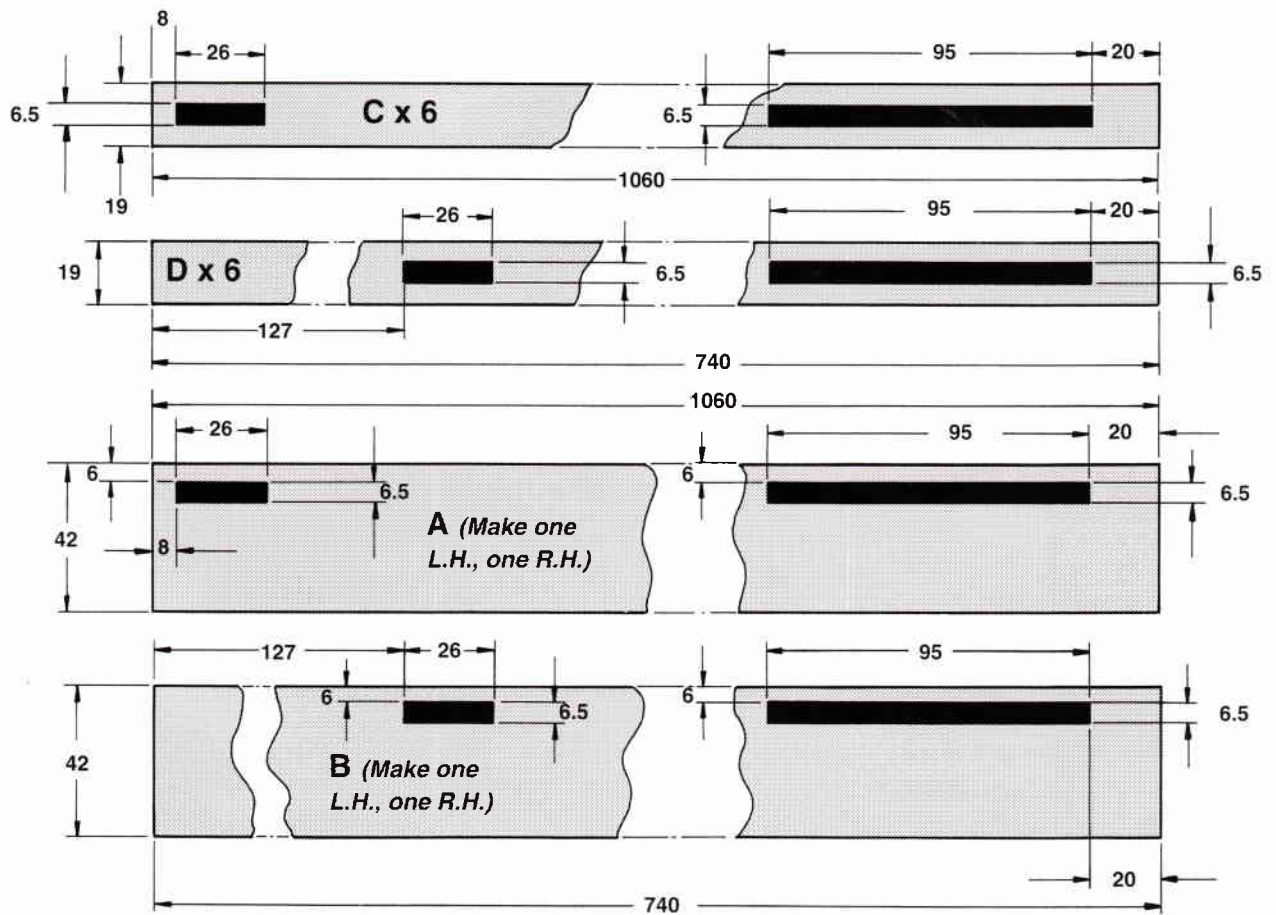
**3** Using either stops on long fence extensions, or pencil marks on your router and jigsaw table as a guide, make all the mortises with a 6.5mm straight bit. Do not attempt the deeper mortises in one pass of the material, use two or three passes.

**4** Using the Table Saw mode, make tenons on 6 rails (**E**) and 6 rails (**F**) as shown in **Figure 2**. Similarly make tenons on 2 long rails (**G**) and two long rails (**H**), noting that these tenons are only 10mm long. Round the ends of the tenons, or chisel the ends of your mortises square, and test fit the components together.

**5** Glue together rear frames for the top and bottom cabinets, as in **Figure 3**, using the handed components (**A and B**), and the top and bottom rails (**G and H**). Bar or sash clamps will be necessary, and care should be taken to keep the frames square. When the glue has set drill and counterbore four holes in the rear edge of each side of the frames, for the screws which hold the cabinet sides in place.

**Figure 4** shows a section of a screw hole and counterbore. The exact position of the holes is not important, but note that the counterbores should not be too shallow, or the screw heads will prevent the rear edges of the frames being rebated for the plywood back; neither should they be too deep, or the points of the screws will come through the angles front face of the side frames.

**6** Glue together three top frames from (**C, E and F**), and three bottom frames from (**D, E and F**). These will form the sides and doors of the cabinet, and again, care should be taken to keep them square. **Figure 5** shows both top and bottom frames. When the glue is dry select and mark the frames, choosing the straightest and squarest for the doors. The "legs" will be cut off the lower door frame later.



NOTE: MORTICES IN (C) AND (D) ARE 20mm DEEP,  
MORTICES IN (A) AND (B) ARE 11mm DEEP.

FIGURE 1: LOCATION OF MORTICES

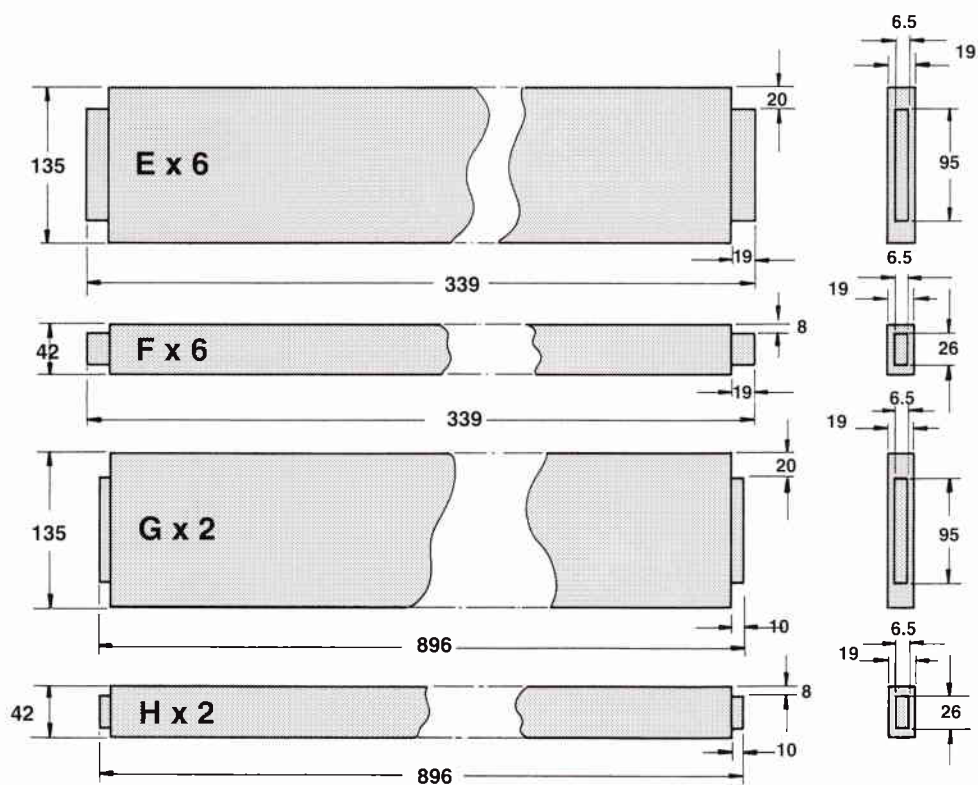


FIGURE 2: TENONS

# Construction Details

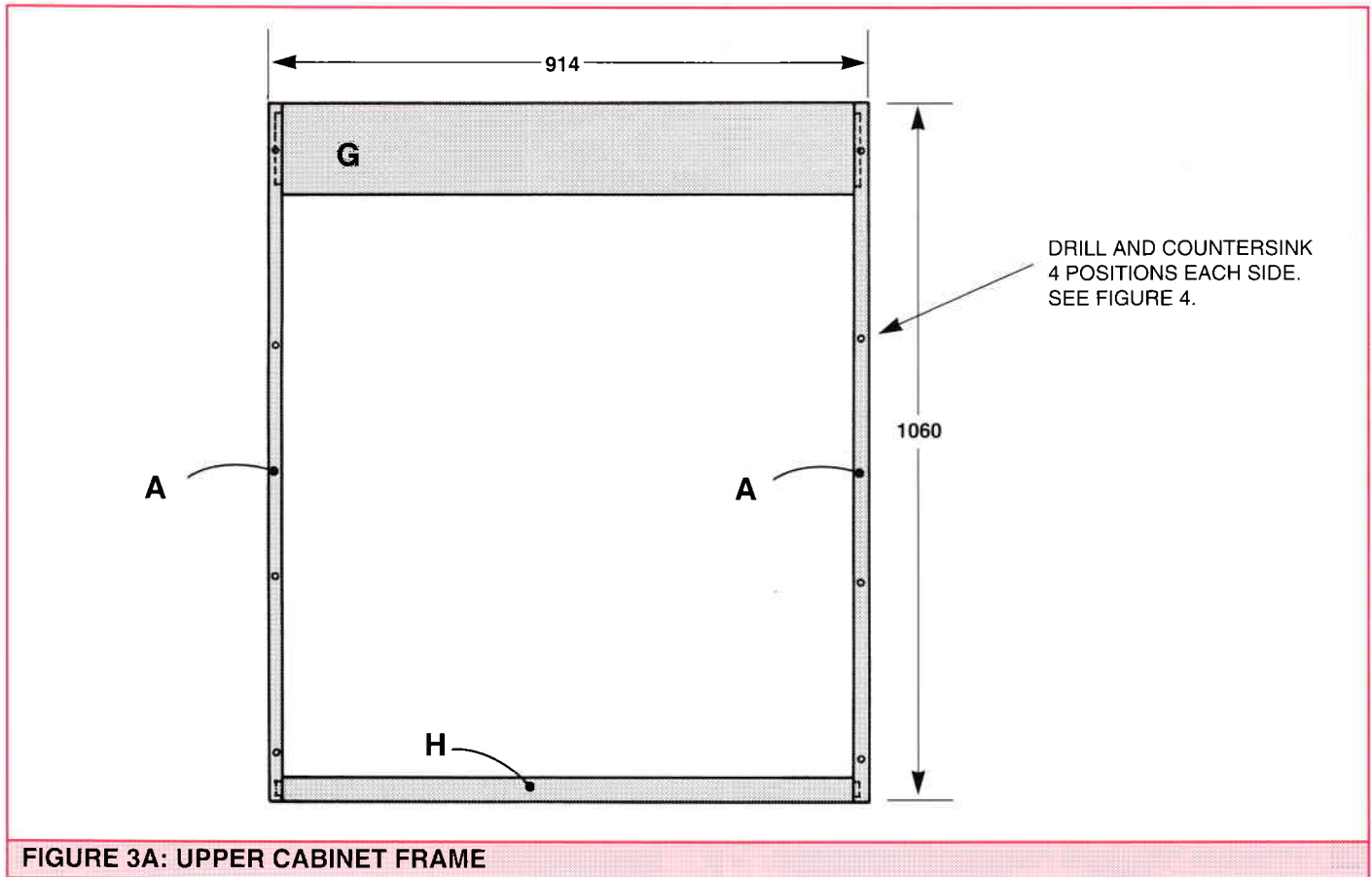


FIGURE 3A: UPPER CABINET FRAME

**7** Using a trammel bar, or a suitably radiused object as a guide, mark the curved decorative cutouts on the top rails (**E**), as in **Figure 6**. Cut out the curves with a power jigsaw or a padsaw, taking care to follow the line smoothly.

**8** The inside edges of the rectangular frames are now rounded over on the outer face, for better appearance, and rebated on the inner face to take the glass panes. Using your Shaper

Table and a small radius rounding-over bit with guide bearing, round the edges (including the curved section) with the outer faces of the frames down.

Now turn the frames over, face up, and with a rabbeting bit make a 10mm wide and 10mm deep rebate on the inside face, including the curved top section. Chisel the lower corners of the rebate square, and sand the outside corners where the rounding over bit did not reach. (**Figure 7**).

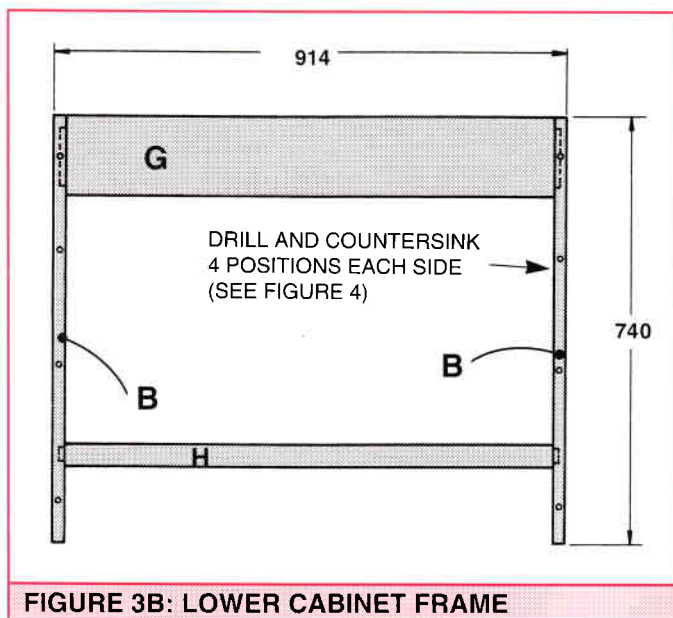


FIGURE 3B: LOWER CABINET FRAME

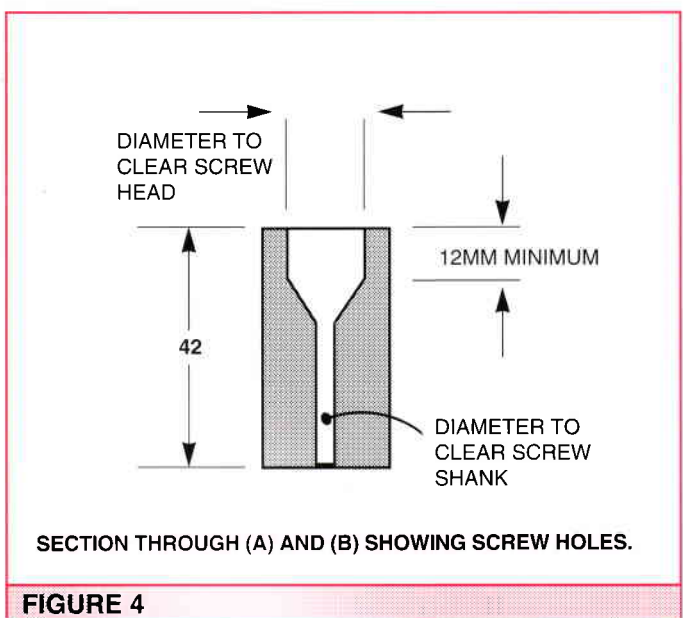
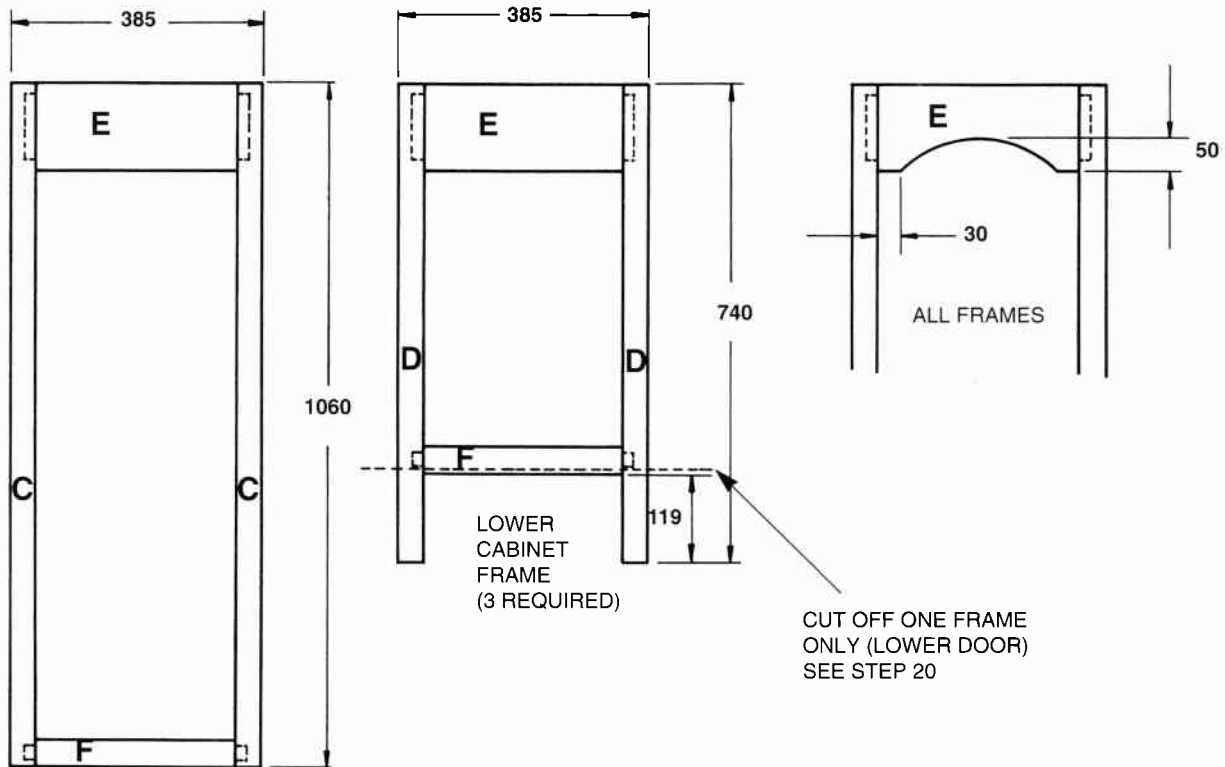


FIGURE 4



UPPER CABINET FRAME (3 REQUIRED)

CUT OFF ONE FRAME ONLY (LOWER DOOR) SEE STEP 20

FIGURE 5: GLAZED CABINET FRAMES

FIGURE 6: DECORATIVE CUT-OUTS

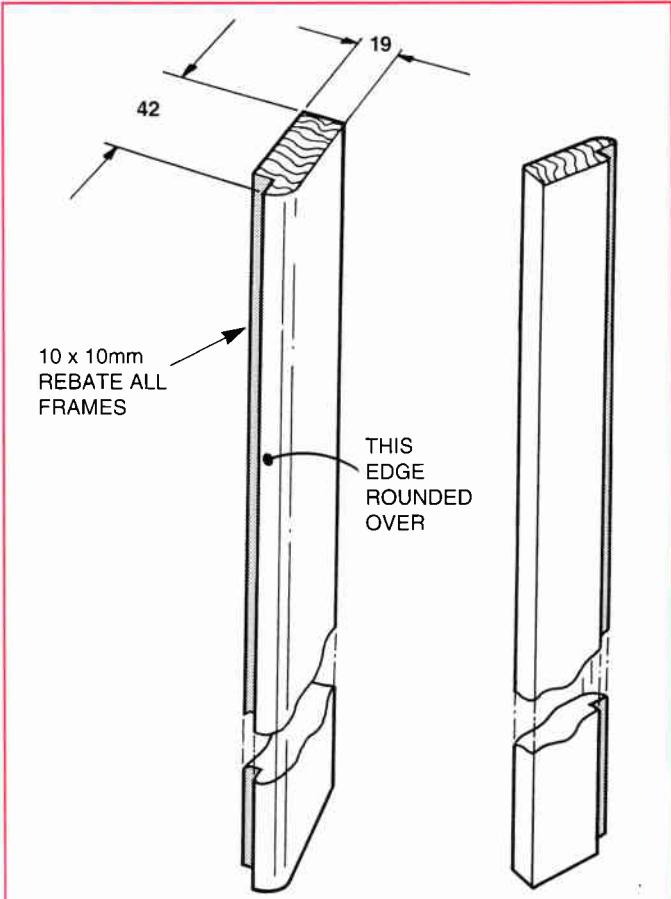
Reset the rabbeting bit and make a 10mm wide x 6mm deep rebate in the rear frames, for the plywood backs. Chisel the corners square in the same way.

**9** So that a simple rectangular pane of glass can be fitted, the rebates are now extended behind the curved section, as shown in the shaded area of **Figure 8**. Use a straight cutter bit, 10mm diameter or larger, set to suit the same depth as the rebate.

It will be necessary to mark the limits of the cutter bit on your router table top with a pencil, and/or use stops to limit the travel of the frame. The fence must be moved by the width of your cutter bit, for each cut. When all the material has been removed, chisel the upper corners square. Set aside the frames chosen for the two doors.

**10** The side frames now have their outer long edges bevelled at 45 degrees. This is done with a large vee groove bit, making several passes of the frames to avoid splintering, until the edges are a full 45 degree bevel. The frames are placed face up on the table for this operation.

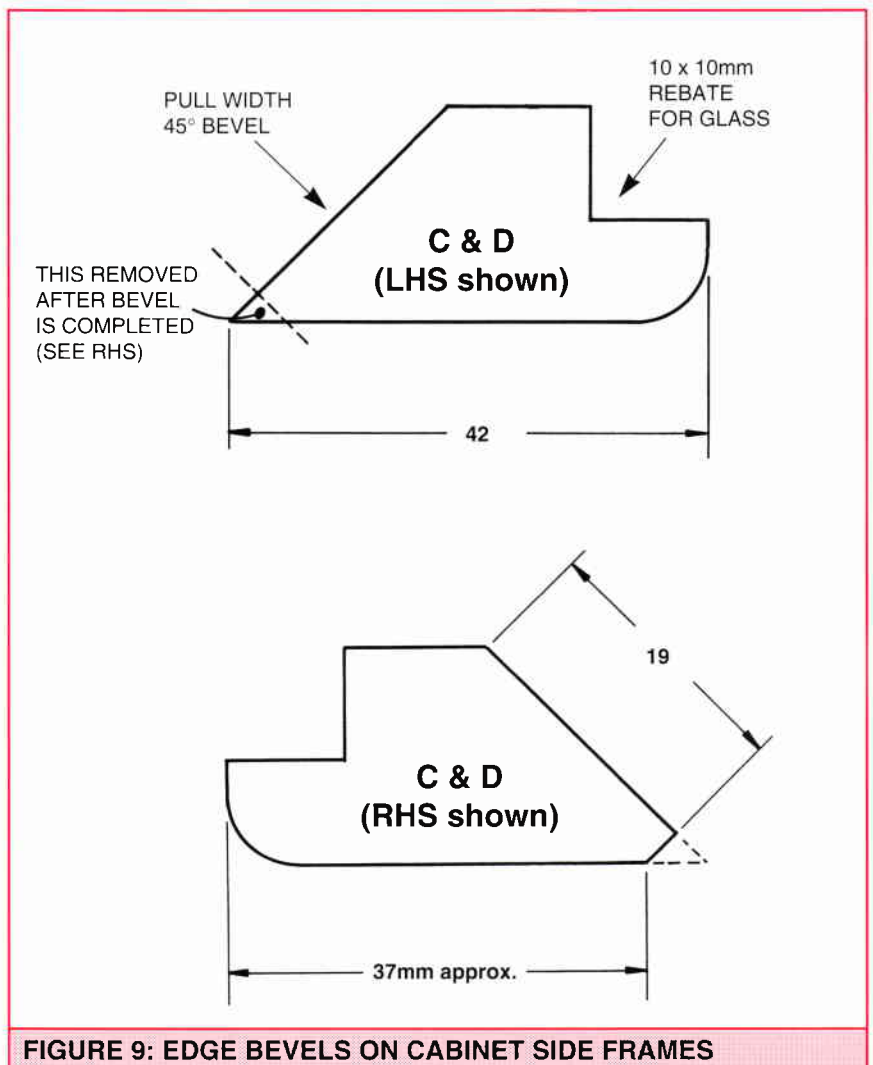
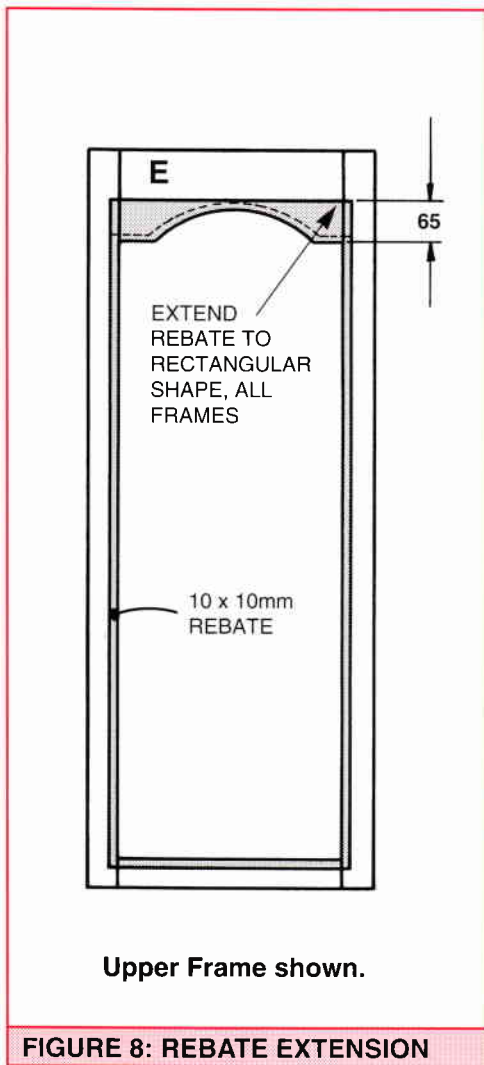
The frames are now turned over, face down, and the fence reset to take a small cut. Using the same bit the "point" is now taken off each bevelled edge



SECTION THROUGH (C) AND (D) SHOWN.

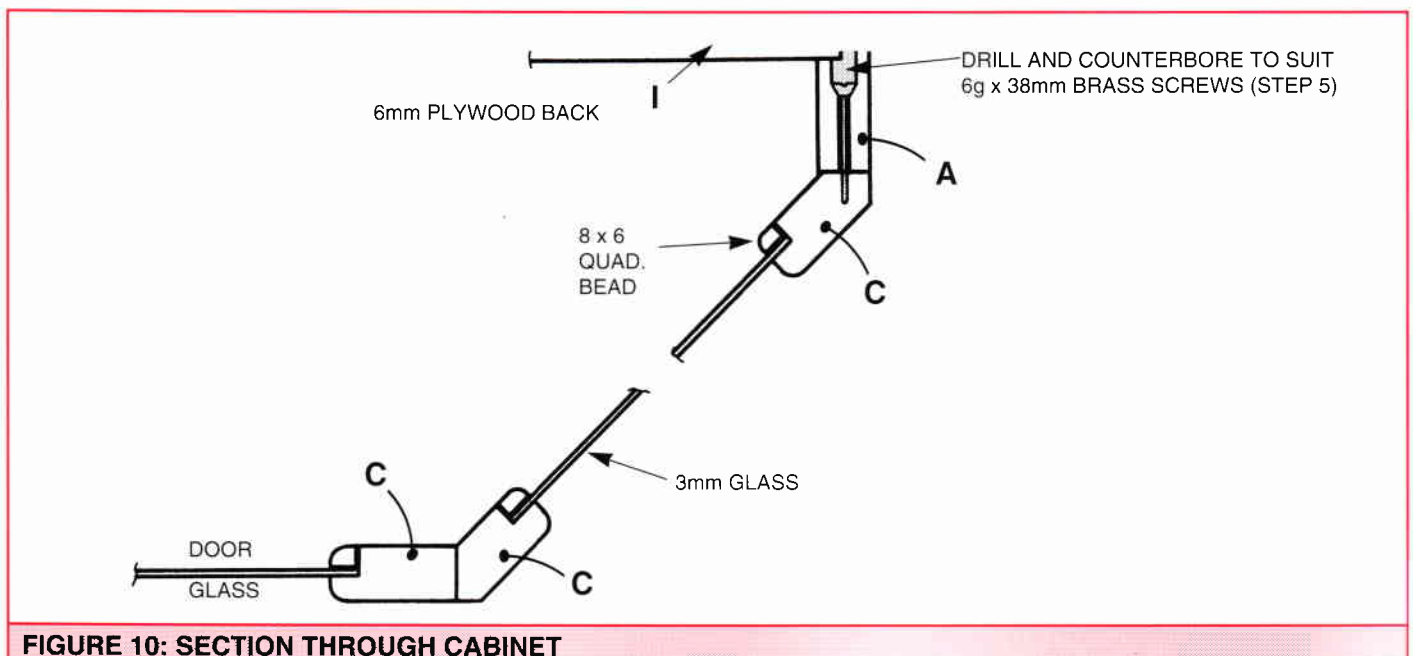
FIGURE 7

# Construction Details



until the angled face is 19mm wide. This latter face will be adjacent to the rear frame and the door on either side of the cabinet. Refer to **Figures 9 and 10** for clarity.

|| This is the most convenient time to drill holes in the inner face of the side frames for shelving brackets. Measure down from the top edge of each frame, equally, to ensure the shelves will be level.





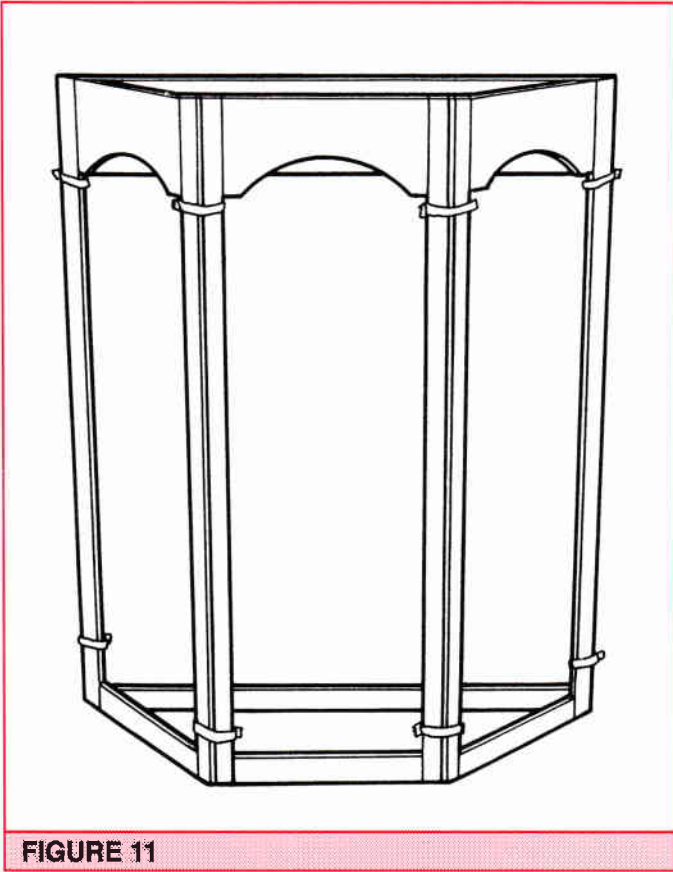


FIGURE 11

You may also find it convenient to drill the top and bottom rails (**E and F**) of the cabinet sides (not the doors!), for the screws which will hold the cabinet tops and bottoms (components **O**) in place.

Two equally spaced screw holes in each rail are sufficient, 9.5mm from the top and bottom edges respectively — see the front elevation drawing for location. Countersink or counterbore for wooden plugs as required. This is also the best time to finish sand both inside and outside faces of all the components.

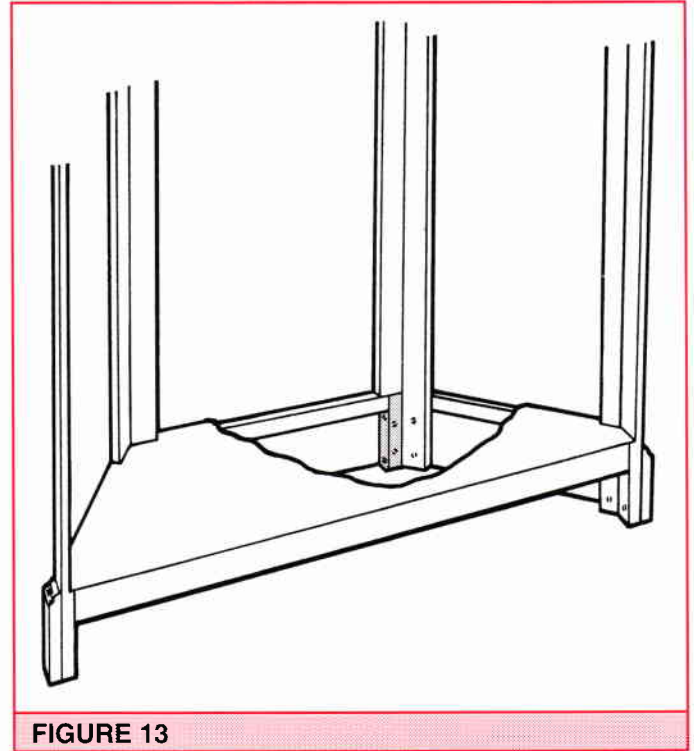


FIGURE 13

**12** The rear frames, sides and door of each cabinet can now be clamped together, using band clamps, or masking or duct tape. (**Figure 11**).

Drill the pilot holes for the screws which will fasten the rear frames to the sides through the counterbores in the rear frames (made in Step 5). Remember to place about 2mm packing either side of the doors, to allow for clearance and the thickness of the hinges, and take care not to drill the pilot holes too deeply or you will break through the front face of the side frames.

When happy with the fit, coat the mating edges with glue and screw the sides to the rear frame, leaving the doors clamped or taped in place while the glue sets to align the cabinet.

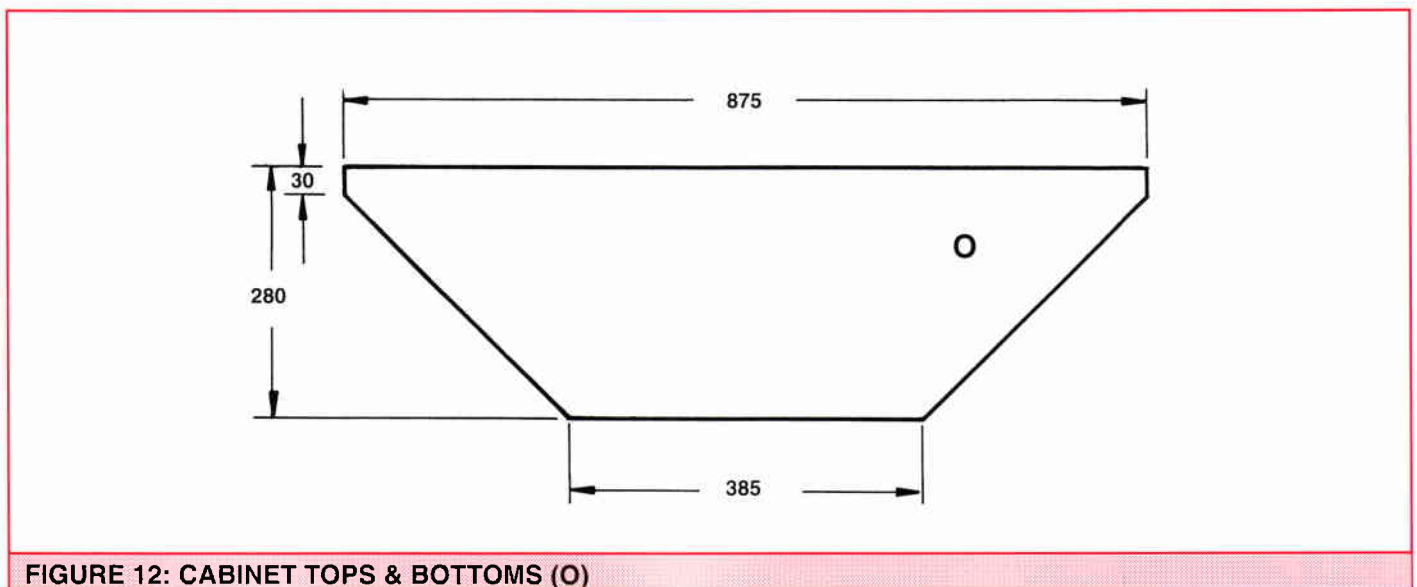


FIGURE 12: CABINET TOPS & BOTTOMS (O)

# Construction Details

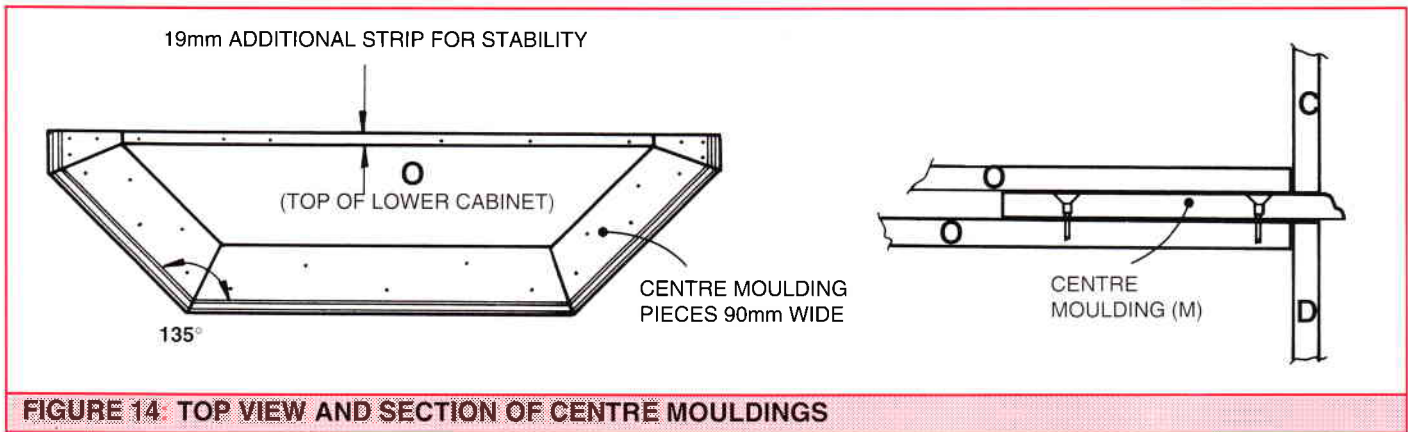


FIGURE 14: TOP VIEW AND SECTION OF CENTRE MOULDINGS

**13** With the basic cabinet shape now established, the upper cabinet assembly can now be stood over a piece of the veneered material, and the shape of the cabinet tops and bottoms (O) scribed from inside. Figure 12 shows the approximate shape and size; the angle of the sides may differ slightly from 45 degrees, depending how much of the material was removed when the sides were bevelled. Our example was about 43 1/2 degrees.

The components are cut first to a rectangular shape, and then the angled cuts are made in the crosscut mode using the protractor as a guide.

**14** The components (O) are now screwed into place inside the cabinets, flush with the upper and lower edges of the rails (E and F). Plug or fill the screw holes, remove the clamps or tape and take out the door frames. Cover the exposed particle board edge with matching iron-on veneer tape.

**15** Prepare the remaining material for the plinth and mouldings by forming a suitable edge, using your Shaper Table. We formed a large Roman Ogee profile on one edge of all the material.

Rip about 12mm off the width of the 135mm material for the plinth so that when fitted the upper moulded edge just overlaps the lower edge of the bottom rail (F) (by one to two mm).

**16** Set up your saw in the crosscut mode with some sheet packing material or your Routing and Bevel Cutting platform. Angle the saw to a setting of 22 1/2 degrees on its bevel scale, and using some scrap, fairly wide, 19mm thick material, make test cuts and adjustments as necessary until you are satisfied with the fit of the plinth mitres. Cut the material for the plinth.

You will note that you must cut from alternate sides of the platform for the bevels on each end of the centre and side pieces, and you may find it

necessary to clamp the material being cut down to the table. Cut the front piece of the plinth first, clamp it temporarily in position, and then fit each side section to it.

The small “return” pieces are bevel cut on each end of a longer piece of material for safety, and after scribing in situ, crosscut to length when the saw is returned to the vertical.

**17** Fit the hinges and the bottom door, still with its lower “leg” extensions, and plane the sides and top as required for a good closing fit. It is convenient to fit the top door also at this time.

Hold the front piece of the plinth in position and scribe a line across its top edge, on the face of the lower door. This line indicates the amount of material to be removed from the bottom of the lower door. Remove the door.

**18** The plinth can now be finally fitted all round. The front piece is held on by screwing to two small blocks of 19mm square material, which are first screwed to the inner edges of the side frame extension “legs”.

The side plinth pieces are screwed to the side and rear frame extensions from the inside. Round headed screws and washers in oversize screw shank holes allow some slight adjustment for a good fit. Figure 13 shows a rear view of the blocks in position.

You will also find a 19mm gap visible between the front of the lower cabinet bottom component (O), and the rear of the plinth, when the door is open. This is most conveniently filled with a long filler block of 19 x 42mm material, screwed or glued to the underside of the veneered particle board.

Veneer tape can be applied if your filler block is not of the same material as your cabinet.

**19** The mouldings that separate the two cabinets are now fitted to the top of the lower unit. The 90mm wide material is cut in the crosscut mode with the protractor set at 22 1/2 degrees, and the mitred pieces screwed to component (O).

The amount by which the moulding projects is a matter for personal choice, but we aligned the bottom of the upper cabinet with the end of the curved section of the roman Ogee. **Figure 14** shows a top and section view of the moulding in place on the lower cabinet. Add a 19mm thick strip of material at the back of the moulding for stable support of the top cabinet.

**20** The upper crown moulding is fitted in a similar way, but in inverted and of double thickness. The topmost pieces are displaced so that the profile is that of a single large section moulding. **Figure 15** shows a section of the moulding in position.

**21** Using the Extension Table, trim the "leg" extensions off the lower door to the previously made mark. Measure the recesses in the cabinet backs, and cut two plywood backs (I and J) to fit. Drill and countersink for 16mm x 6g screws, and temporarily fit the backs. Scribe a pencil mark around the inner recess to act as a guide for fitting the mirrors, and remove the backs.

**22** Complete the details of the cabinet hardware, such as drilling for ball catches, knobs or handles etc. Check the fit of the shelf brackets in the holes, measure the recesses and order the glass and mirrors. Make a cardboard template similar in shape to component (O), but a little smaller, from which to have cut the bevelled glass shelves. Make sure the template will clear the mirror at the rear.

**23** Finish sand the outer faces of the components as necessary, fit and check the doors and apply two coats of the chosen finish both inside and out. When thoroughly dry, fit the mirrors to the cabinet backs, as follows.

**24** The mirrors are held to the plywood backs with a good quality silicone adhesive. They can be glued to the plywood backs inside the pencilled rectangles, or if they are cut to be a close fit in the rear aperture it is safer to fit them as follows.

With the cabinet upright, place the mirror through the rear aperture into the cabinet. The angled sides will prevent it from moving very far forward. Coat the area on the plywood back which will be in contact with the mirror liberally with silicone adhesive, and fit the back.

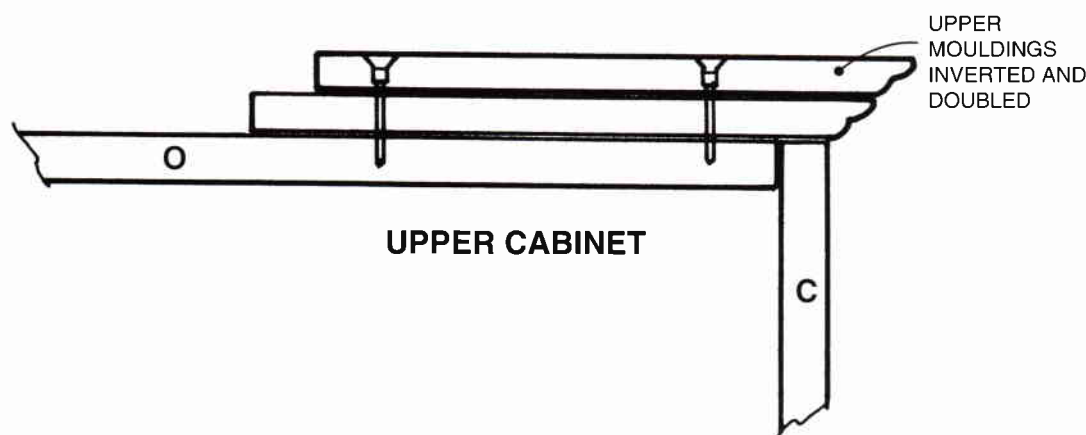
Carefully tip the cabinet backwards and lay it down on its back, holding the mirror through the open side frames. Slide the mirror into place so that it drops into the recess, and place some weights on to it until the silicone has set.

Remove the back and mirror by undoing the screws and put it aside in a safe place.

**25** Glaze the doors and sides of the cabinets, working through the open back for convenience. The glass panes are bedded on a thin bead of silicone, and held in position with small-section quad beading.

If using the suggested 8mm x 6mm beading, note which way round it fits. The 6mm dimension allows for a glass thickness of up to 4mm in the 10mm deep rebate.

When cutting the corner mitres, ensure that the 8mm wide face is downwards at all times, or they will not fit! You may find it more convenient to pre-coat the beading with the chosen finish before cutting.



**FIGURE 15: SECTION THROUGH TOP MOULDING**

## Construction Details

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Fix the beading with small pins, using a small hammer and fine punch, and remove any excess silicone with a razor blade after it has set.

**26** Fit the internal light fittings, if required, drilling through the upper back rails **(E)** close to one side for the power cable.

The two cabinets are aligned and lightly clamped together by three screws driven up through the top of the lower cabinet into the bottom of the one above. Place the upper cabinet in place and drill the necessary holes and pilot holes, countersinking if desired. Separate the cabinets.

**27** Finally, thoroughly clean the inside of the cabinets and the glass. Fit the shelf supports, and clean and fit the glass shelves. Clean and fit the mirrored backs, polish the exteriors and screw clamp the two cabinets together in their final location. Now you can enjoy arranging your displays.