

## Dining Room Setting



Designed and Constructed by  
 Jamie Gleeson and John Holman

The dining room setting consists of a round table and six comfortable, sturdy chairs. The table features an open pedestal formed by four central legs. Choose the timber to suit your personal taste, and the fabric for the chair coverings to complement your decor.

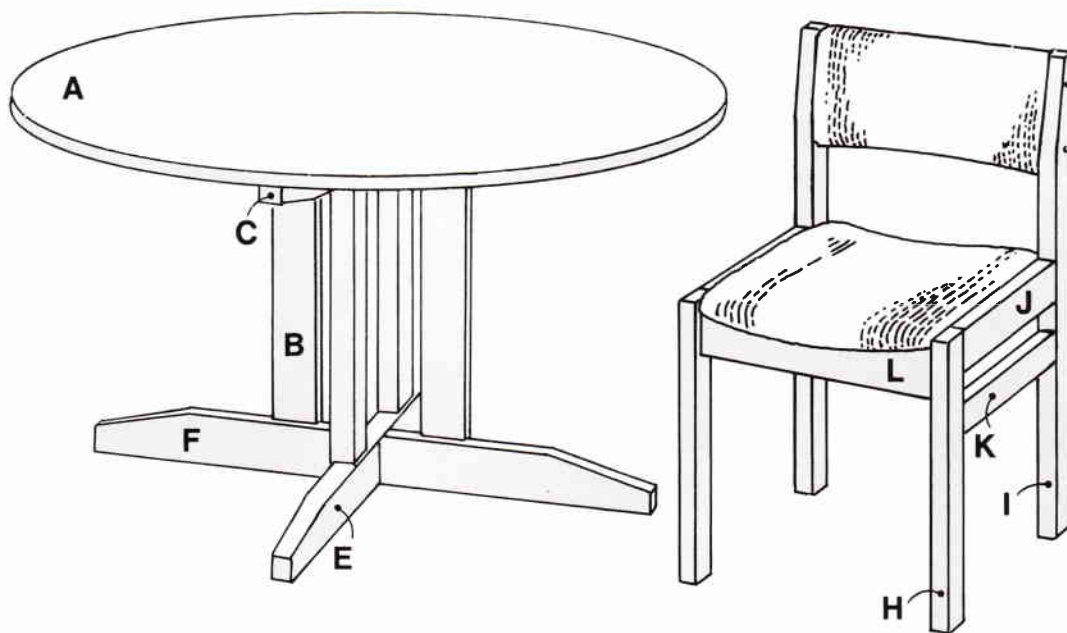
The table top is keyed together with "blind" plywood splines, and is secured to the legs by means of wooden buttons which run in grooves in the top cross arms. This allows the top to expand and contract with humidity changes without warping or splitting.

The chair seats and backs are formed by laminating plywood. The butt joints in the table and chairs are dowelled for strength and appearance.

### Component Specifications *All dimensions are in mm*

Part	Description	Quantity	Width	Thickness	Length	Part	Description	Quantity	Width	Thickness	Length
<b>TABLE</b>						<b>PER CHAIR</b>					
A	Table Top	1	1260 dia	35		H	Front Legs	2	65 x	35	x 470
B	Table Legs	4	90 x	45	x 510	I	Rear Legs	2	65 x	35	x 800
C	Top Cross Arm	1	90 x	45	x 1050	J	Top Side Rails	2	65 x	35	x 350
D	Top Cross Arm	1	90 x	45	x 1050	K	Bottom Side Rails	2	55 x	35	x 350
E	Bottom Cross Arm	1	90 x	45	x 1050	L	Seat Support Rails	2	65 x	35	x 390
F	Bottom Cross Arm	1	90 x	45	x 1050	M	Seat	1	380 x	9*	x 455
G	Buttons	8	45 x	19	x 50	N	Backrest	1	175 x	18*	x 390

\*Depends upon thickness of plywood used for laminations.



### Tool Requirements

- ESSENTIAL** Triton Workcentre and your power saw, power jigsaw; electric drill and drill bits (3/8", 1/4", 3/16", 1/8", countersink bit, 11/16" spade bit for counterbores); belt and/or orbital sander; bar or pipe clamps (to clamp up to 1260mm); tape measure; pencil; square; dowelling jig, sharp knife or scissors. A taper ripping jig is also required (see the Jig Guide).
- USEFUL** Router and 3/8" (9.5mm) rounding-over bit, Triton Router & Jigsaw table; extra clamps; staple gun with 1/4" staples; electric carving knife; drill press; bevel cutting and routing platform (as per Jig Guide); length gauge (Jig Guide).

# Construction Details

## Material Shopping List

### 1. WOOD

The Table: We used furniture grade Radiata Pine. Timber chosen for the top must be straight and "dressed-all-round".

**140 x 35mm** – 4 @ 2.7m, 1 @ 0.9m (top)

**90 x 45mm** – 1 @ 2.1m, 2 @ 2.4m (legs and crossmembers)

**42 x 19mm** – 1 @ 0.9m (for buttons... backsawn material is essential for this purpose).

**3mm thick plywood** – about 8m of 25mm wide strips (for splines; offcuts from making the chair seat and back components are suitable).

For six chairs:

**65 x 35mm** – 13 @ 2.4m (square dressed, for frames, includes extra for test cuts).

**3mm plywood (3 ply)** – 5 sheets of 1800 x 900mm (for laminations).

**2. FASTENING:** PVA or equivalent wood glue (about 2 litres is needed);  $\frac{3}{8}$ " dowelling rod – about 8m, sufficient for (160) 40 – 50mm dowels; coach screws for the table: 1 @ 75mm, 3 @ 100mm; woodscrews for the table: 8 @ 30mm/6g; for the chairs: particle board screws (countersunk posidrive or Phillips head): 48 @ 50mm/10g.

### 3. OTHER:

\* High density foam rubber: seat base, 38mm (1½") thick – 6 @ 495 x 410mm; back rest, 12.7mm (½") thick – 6 @ 400 x 375mm.

\* Coverings: Material to choice: seat base, 6 @ 700 x 550mm; back rest, 6 @ 500 x 480mm.

\* Screw hole plugs: Wooden buttons, 9.5mm dia. – 24 required.

**4. FINISHING** Satin polyurethane was used to provide an attractive durable finish on both table and chairs.

## General Points

**1.** Measure and mark out the seat/backrest requirements onto your plywood sheets before cutting out the splines required for the table top.

**2.** The dowelling operations are not covered in detail. We suggest the use of a dowelling jig to aid accuracy; better brands have basic instructions for use.

**3.** Likewise, upholstery is not discussed in detail. There are numerous reference books available to assist you in this area.

## The Table Top

**1** With the Workcentre in the crosscut mode, halve your 2.7m lengths of material. You should then have eight boards, 140 x 35 x 1350mm and one 140 x 35 x 900mm (as bought), for the top.

**2** Lay out the boards for the top, alternating the boards so that the "heart side" is alternately face up and down (look at the end grain). This minimizes warping tendencies. At the same time, select for best appearance the top faces which will be visible. Place the boards, edge to edge, good face down.

Use a light timber batten, about 700mm long, as a trammel bar. Drill a hole in one end to take a pencil, and a hole at the other end to serve as a pivot point. Use a nail or woodscrew in the centre board to hold your trammel bar while you scribe a circle onto your boards.

Scribe a circle about 1270mm in diameter (this oversize circle won't quite fit edge to edge over your boards, but at this stage, is only used as a guide).

Number or otherwise mark your boards for later identification, and cut off any excess timber for easier handling.

**3** The stopped grooves (for the plywood splines) are cut next into the top board edges. Convert to the table saw mode, set the fence at 16mm, and set the saw blade height to 14mm – to ensure the splines do not bottom out in the grooves. To prevent the plywood or the saw cut from being visible, the grooves need to be stopped well short.

Mark on your worktable the extremities of the saw blade arc to act as a guide for starting and stopping the grooves. Make sure your cuts stop at least 25mm short of the part of the circle scribed onto each board.

## Safety Notes

To commence the stopped groove, the edge of the board must be lowered onto the spinning blade (plunge cut). When doing this, the workpiece will tend to be flung towards you. It is very important to maintain a firm control of the workpiece. Hold the end where the cut is to commence above the blade, with the other end angled down to contact the table top. With the workpiece firmly against the fence, lower it slowly and steadily onto the blade. Do not stand behind the workpiece.

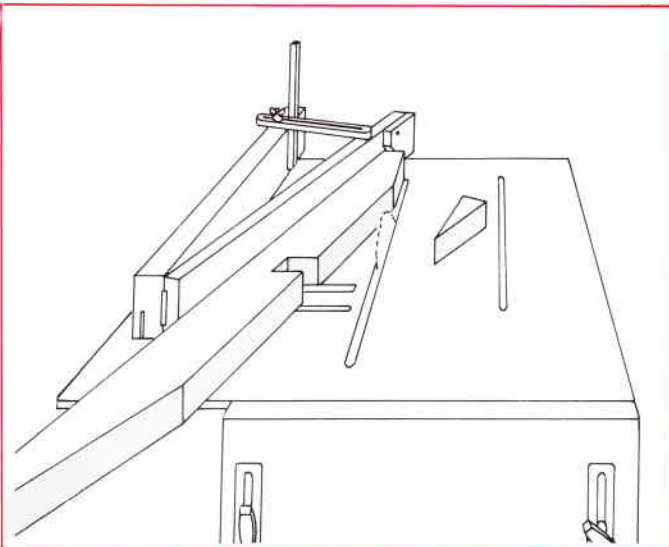
When the cut is completed, stop the saw and do not remove the workpiece until the blade is stationary.

Groove both edges of all boards except for the two outer pieces which only require a groove on their inner faces. Ensure that the same face of all boards (either top or bottom) is held against the fence.

**4** Rip sufficient 3mm plywood tongues, 25mm wide, to fill the grooves. The tongues do not need to be continuous. Also there is no need to deepen the grooves towards the ends of the saw cut; just make sure the tongues are only located in the full depth portion of the grooves.

Coat the splines and meeting edges of the boards with glue, and clamp together in stages, lining up the original circle marks. Use weights or extra clamps to keep the table top flat.

**5** When the glue has set, clean up any excess glue. Use your trammel bar to this time draw a 1260mm diameter circle. It is possible to cut the circle using a hand held jigsaw, but it is preferable to



**FIGURE 1**

use the trammel bar to guide your cut. Clamp or otherwise fasten your jigsaw to the trammel bar to cut a perfect circle.

Round the edges of your top for appearance. You can use a rounding over bit (with pilot bearing) and your router hand held.

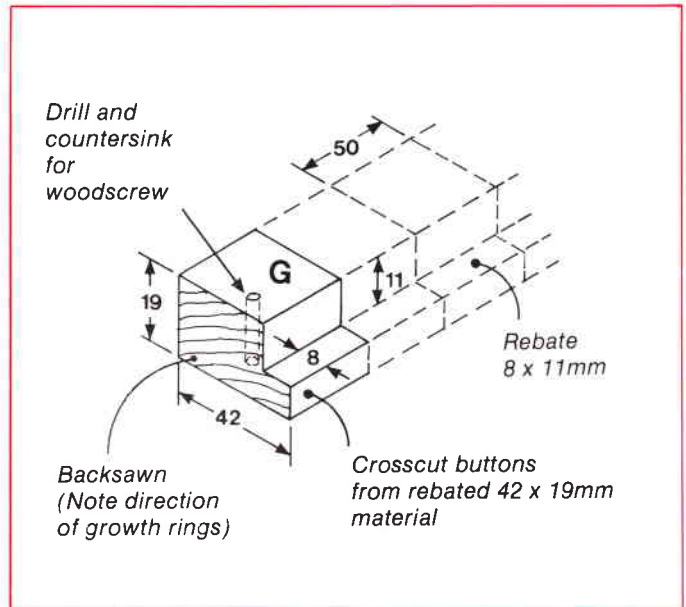
Use a belt and/or an orbital sander to prepare the top surface for finishing.

## The Table Legs

**1** Convert to the crosscut mode, and cut to exact length the four legs (**B**) and the four crossmember components (**C, D, E, F**). Use a length gauge, or tape your components together, to ensure identical components.

To cut the halved cross-over joints in the crossmembers, the Workcentre table will need to be lowered. Adjust the saw blade height so that it cuts half-way through the 90mm dimension (check on offcuts). Carefully mark out one crosspiece for the centre rebate, tape or clamp all four components together and cut the rebates simultaneously.

**2** Convert to the tablesaw mode. Mark out one of the tapers on a crosspiece, and use it to set the angle of the taper ripping jig. Rip the tapers on both ends of all four cross pieces, noting that the tapers



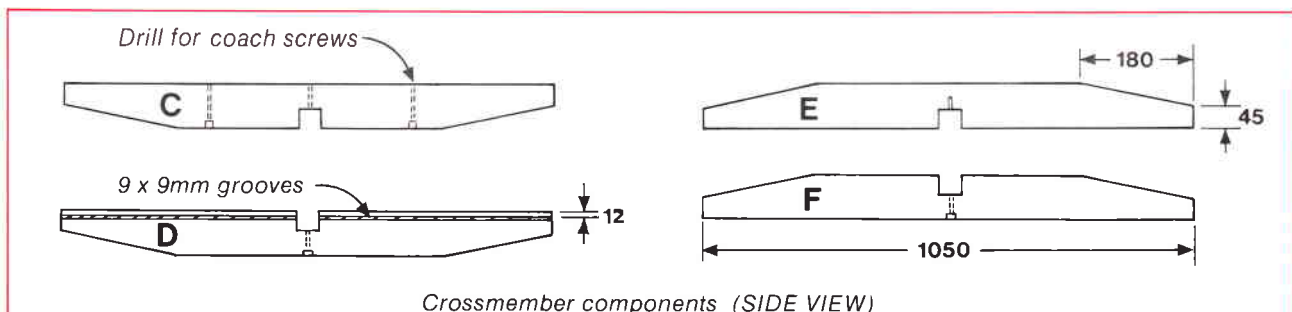
**FIGURE 3**

are not on the same edge as the centre rebate for one of each pair. **Figure 1** shows the procedure, **Figure 2** the correct rebate locations.

**3** Select component **D**, set the fence to 12mm and blade height to 9mm, and rip a groove on both sides of the workpiece, 12mm from the top edge. Progressively move the fence out the width of your saw kerf, until you have a 9 x 9mm groove, for the button tongues to fit into.

**4** Prepare the 42 x 19 material for the buttons. Note that backsawn material is needed to ensure the buttons have sufficient cross grain strength. Reset the fence and blade height to rip the rebate shown in **Figure 3**. Your workpiece must be at least 900mm long for safe handling. Follow the safety procedures outlined in your Operating Manual when rebating. The buttons can be crosscut to 50mm lengths in the tablesaw mode by using your protractor set at 90 degrees.

**5** Use a sander or rounding-over bit in your router to round the top edges of the crossmembers. If you have a Router and Jigsaw Table, this operation is easily done in the



**FIGURE 2**

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**FIGUR**

shaper table mode. Stop the rounding over short of the leg locations on the crossmembers. (Refer **Figure 4**).

## Dowelling and Assembly

**1** Place your table top face down. The crossmember **C** runs down the centre of the middle board of the top, and along the grain. The crossmember **D** runs at 90 degrees to **C** and thus across the width of the boards. Timber moves very little in length, but significantly across its width, which is why button-slot fastening is used with **D**. **Figure 5**.

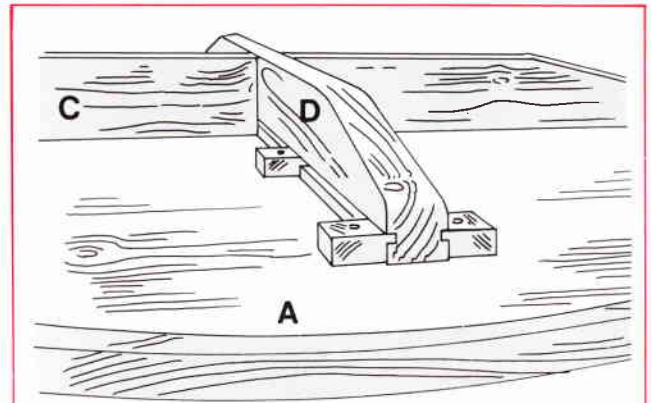
Component **C** is located centrally on your table top, and attached to the top with recessed 100mm coachscrews; refer to **Figure 2** for details of screw locations. You will need to drill clearance holes for the shanks through the crossmembers ( $\frac{1}{4}$ " drill for  $\frac{1}{4}$ " coachscrews) and pre-drill the corresponding holes in the top ( $\frac{3}{16}$ " drill, about 20mm deep).

**2** Component **D** is attached on top of **C**. Glue the halving joint, and component **C** onto the tabletop, but do not apply glue to the top edge of **D**; the table top must be free to move.

Drill and countersink the buttons centrally, and then fit them in the groove of **D**, one pair at the outer extremity and the other towards the centre. Attach to the tabletop with 6G screws.

Note that the depth of the recess on the button is about 1mm less than the distance of the groove from the table top underside, so that the button has a clamping action, but the top is still free to slide. Do not overtighten the buttons.

**3** Assemble **E** and **F** together, using glue and a single recessed 75mm coach screw. Mark and drill the  $\frac{3}{8}$ " dowel holes in the crosspieces and both ends of the legs. **Figure 4**



**FIGURE 5**

shows their locations. Use a dowelling jig to reference your hole positions. Coat the meeting faces of the legs and crossmembers with glue, add dowels also coated with glue and assemble the legs and crossmembers.

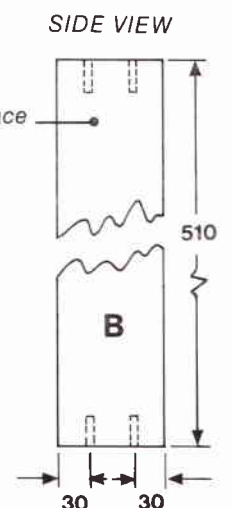
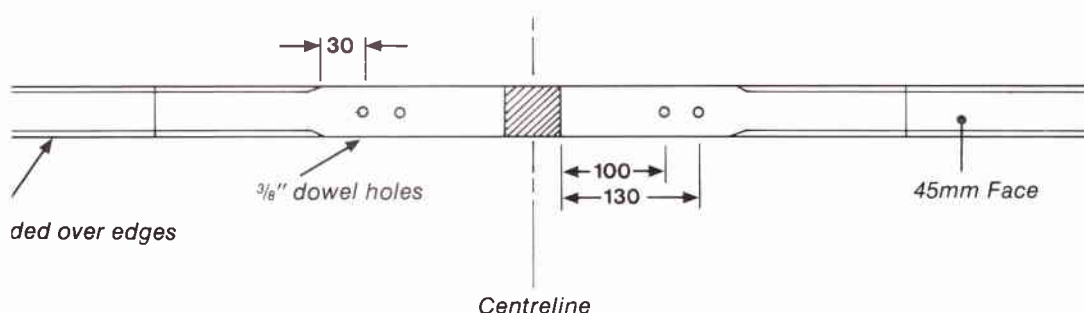
Tap the legs and dowels home with a wooden mallet, while checking that the table is square to the legs.

## The Chair Frames

**1** Cut to exact length components **H**, **I**, **J**, **K** and **L**. Label each part on its end. Mark out the taper required on the top of the rear legs (**I**), and cut the taper using a taper ripping jig. The side elevation (**Figure 6**) gives the dimensions for marking out the tapers.

**2** Use your dowelling jig to drill the dowel holes needed in the frame components. **Figure 7** (**K** joined to **H**) shows typical dowel locations - they should be evenly spaced and on the centreline of the edge of your material. Mark

tion of dowel holes in crossmembers  
legs - component 'F' shown viewed  
above



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out the locations by holding the components in their correct location and scribing a fine pencil line 90 degrees across the faces. Always reference your dowelling jig from these marked out faces and the resulting joints should be flush and square.

Use a piece of thick walled tubing or similar as a depth stop on your drill bit. Depth of dowel holes in the faces of **H** and **I** should be 20mm; all other dowel holes are 30mm.

**3** Cut your dowels to length using either a jigsaw or handsaw. Don't attempt to cut the dowels on the Workcentre – they could fall into the saw slot and jam.

If the dowels are not fluted or grooved, you will need to provide a slot in each dowel to allow glue to escape from the bottom of the holes.

Make the side frames of each chair first. Apply glue generously to the dowels, holes and meeting faces of your components. Check that the frame is square. Clamping is essential until the glue sets.

## Seat Support Rails

Mark out the curve on components **L** (Figure 8 gives dimensions). Spring a flexible batten to provide a fair curve. The curve can be cut either using a hand-held jigsaw, or with the jigsaw mounted into the accessory Router and Jigsaw table. Save the small curved offcut.

## Seat Base and Backrest

The seat base comprises 3 layers of 3 ply, and the backrest 6 layers of 3 ply. The same technique is used to make both, but it is easiest to make two backrests at one time (i.e. make a lamination from which two backrests can be cut).

Two seat support rails (**L**) and their small curved offcuts are used to provide the jig needed for the laminations. Cut the plywood for the laminated panels 10mm oversize in both dimensions, to allow for slight shifting while gluing. They will be trimmed to exact size later.

**2** Liberally spread glue between the plywood panels required for the laminations, and clamp down securely as shown in Figure 9. Clamp the edges of the panels as well; the more clamps the better. Don't remove from your clamping jig until the glue is well set.

A particle board platform is needed on top of your Workcentre table in order to trim the laminations to size once the glue is dry. (The Bevel Cutting and Router Platform, as per the Jig Guide, would be perfect). This prevents the edge of your curved components falling into the saw slot. Set your saw so that it just cuts into the surface of the particle board packing, and trim the laminations (concave face down) to the dimensions given in Figure 8. (Larger saws may need to plunge cut. See the Operating Manual for details).

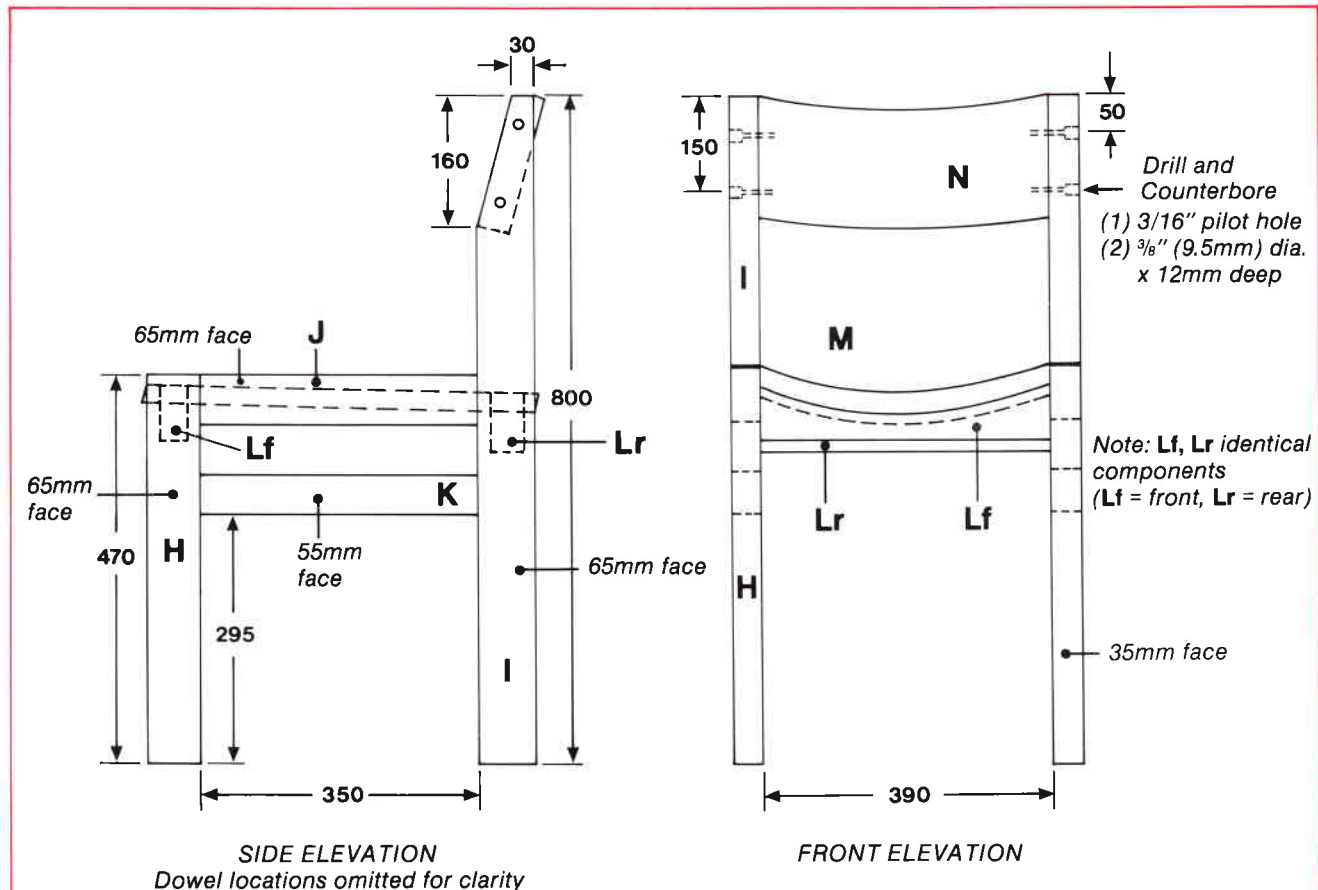


FIGURE 6

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## Chair Assembly

Round all the arrises of the chair side frames at this stage. This can be conveniently done with a router mounted in the Router and Jigsaw Table, using a  $\frac{3}{8}$ " radius rounding over bit (with pilot bearing) in the shaper table mode. Alternatively, use sandpaper.

It is unnecessary to round the arrises on the seat support rails (L) as they are fully covered by the seat base.

If you have not already done so, prepare the dowel holes in L and their mating locations in H & I. Note the exact locations of the front and rear support rails (designated Lf and Lr) in Figure 7.

Glue and clamp the seat support rails and the side frames together, checking for square. You can use temporary spacers (390mm long) between the top and bottom of the rear legs to ensure that the chair remains square and true until the glue sets.

**2** Sufficient clearance is needed between the top side rails (J) and the seat base (M) for 2 thicknesses of foam and fabric. If the fit is too tight, a small amount may need to be trimmed off the width of (M). Likewise, the seat back (N) requires clearance for 4 widths of fabric. Again, trimming may be required.

The seat base is attached to the seat support rails by screwing from below. You will need to counterbore approximately 10mm deep. Check that your screws do not break through the upper surface of the seat!

The backrests are attached as shown in the front elevation drawing (Figure 6), with the required counterbored large holes hidden by inserting matching timber plugs.

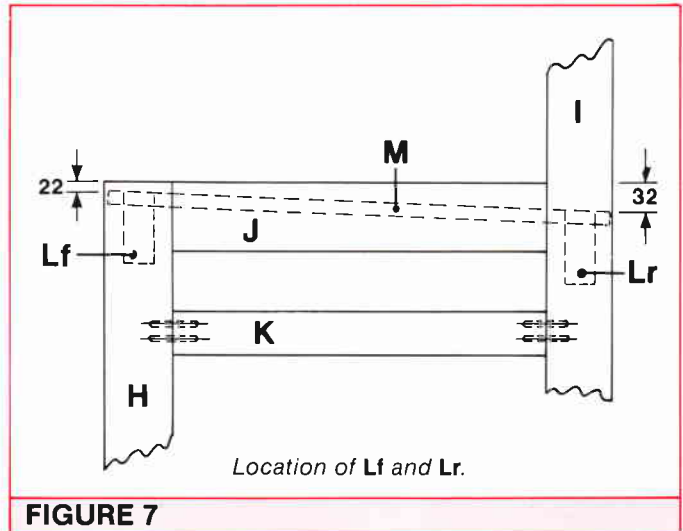


FIGURE 7

It is best to predrill the holes in the backrests themselves, prior to upholstering. Otherwise it is possible that the drill bit will snag on the fabric, and cause damage to the fabric upholstery.

## Upholstery Hints

- The foam is wrapped around all edges of the seat. (20mm overlap front and back, 10mm overlap on sides).
- The back rest foam is folded over the top of the backrest, but trimmed flush on the other three edges.
- The fabric is overlapped 50mm all round the seat.
- The fabric for the backrest is folded over the backrest, and then trimmed so that it meets neatly along the side edges and the bottom edge.
- If using fabric material, check the direction of "stretch". This is often only in one direction, and for these chairs it is preferable to have the stretch across the width of the backrest, and the length of the seat.
- An electric carving knife is excellent for cutting foam rubber. Alternatively, use a sharp knife or scissors.
- A staple gun is very useful when attaching either the foam or the fabric.
- The finish on the chair frames should be applied with the upholstered seat and backrest removed.

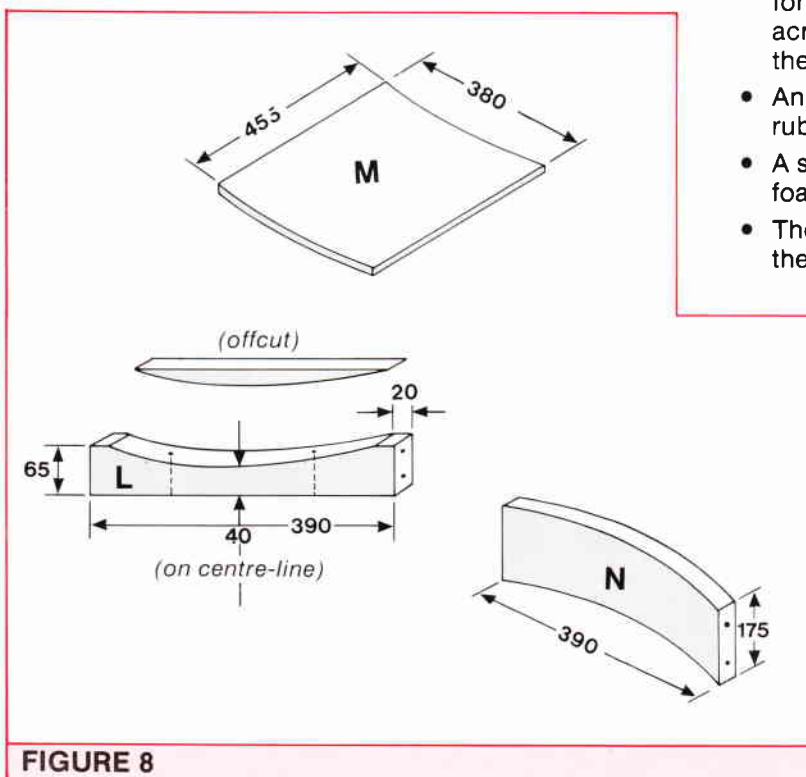


FIGURE 8

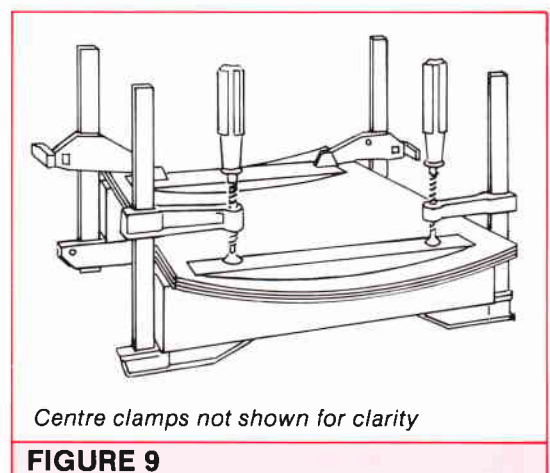


FIGURE 9