Pedestal Table

Router jig makes easy work of shaping round and curved parts

BY JOHN ZEITOUN

I love flipping through books of antique furniture and looking over pieces at garage sales, and I jump at the challenge of reproducing an antique in my shop. Such was the case when a client showed me a picture of a 160-year-old French Regency pedestal table from the book *The Furniture of Old Ontario* (Macmillan, 1973) and asked if I could make it for him.

The picture didn't explain construction techniques, but using generally accepted proportions, as well as considering the space it was to occupy, I was able to reproduce the table. According to the book, the original table had a hardwood base with bird's-eye maple veneer and a pine tabletop. But I chose to make mine out of walnut.

Work from the bottom up

The table offers a few challenges. For one, each piece either is curved or has a compound angle. I was able to simplify the construction process by breaking it down into small steps and by using a few jigs.

Prepare a trammel jig— The curved parts that make up the triangular base of the table are shaped using a router mounted to a large trammel device. The workpieces first are cut to rough size on the bandsaw and then are screwed to the base of the trammel jig (see p. 62), where a router is used to cut the inside and outside edges of each piece.

Before shaping the walnut, use the jig to make a particleboard template. You will use this template to rough-cut the triangular frame parts on the

Photos: Matt Berger

TABLE ANATOMY

Constructed out of walnut, this Regency-style round pedestal table is drawn together by a threaded rod, with a locking nut at each end. Three cross-grain cleats on the underside of the tabletop add strength and prevent the top from warping. The table rolls on three brass casters.

Drawings: Bob La Pointe

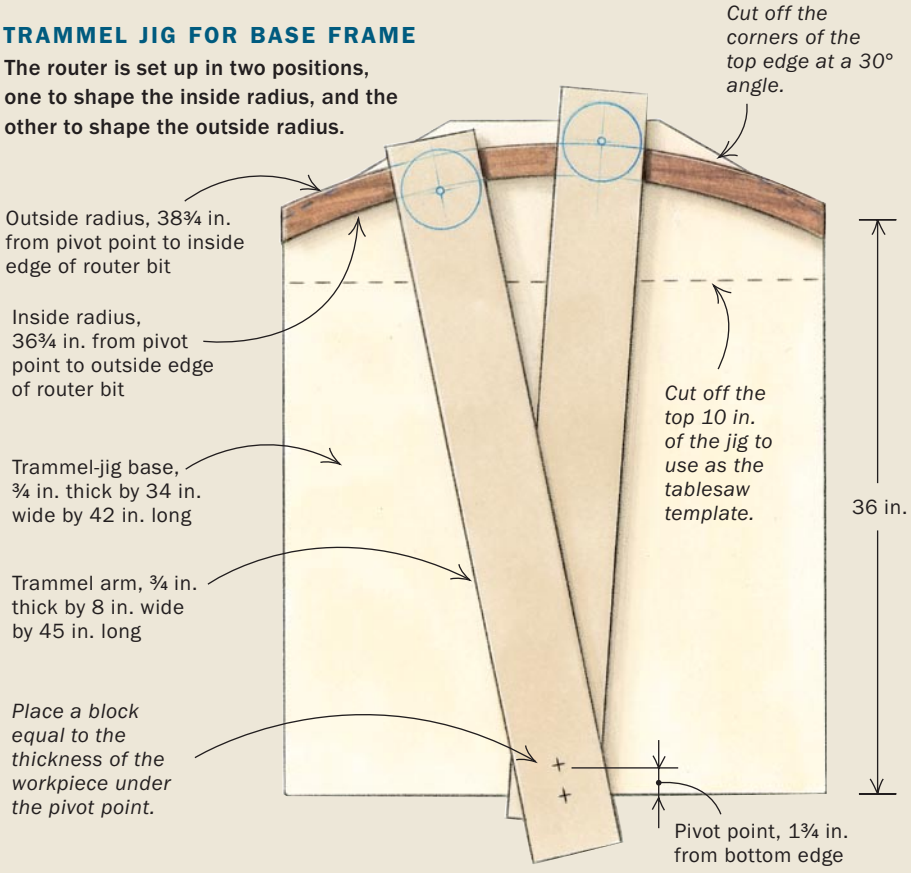
Router jig simplifies base-frame construction

The base frame of the table is made from three curved segments. A trammel jig is used to cut the inside and outside curves. The jig later will be cut down for use as a tablesaw template to cut the joining edges on the frame parts (facing page).

Routing the frame parts. *Use a template to mark out the piece on the rough material (above) and then cut to about 1/16 in. from the line on the bandsaw. Screw the workpiece to the trammel jig's base from underneath and rout the inside and outside radii. Take multiple passes with the router until you reach final depth (right).*

TRAMMEL JIG FOR BASE FRAME

The router is set up in two positions, one to shape the inside radius, and the other to shape the outside radius.



bandsaw. Mount a 6¼-in.-wide by 34-in.-long piece of particleboard to the trammel jig with two screws driven into the underside of the jig's base. Then position the router trammel on the jig, ensuring that the height of the pivot point is equal to the thickness of the workpiece being cut. Set the trammel to the distance of the inside radius and make several passes with the router, increasing the depth of the bit with each pass to prevent tearout and ease wear on the cutter and router. Reposition the router trammel to the distance of the outside radius and repeat this process.

Once the template is prepared, trace its shape onto the walnut and rough-cut three pieces on the bandsaw to within 1/16 in. of the line. Then attach each workpiece to the base of the trammel jig and follow the same procedure used to rout the template.

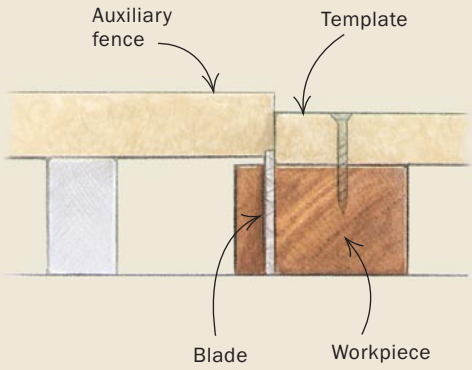
Cut flat surfaces on the three frame parts where they join—Use the tablesaw with a template and an auxiliary fence that acts as a template guide.

To make the template, lop off the top

Use the jig base to miter the frame

Cut off the top of the trammel jig. *This portion of the jig's base is now a template for cutting the frame joinery on the tablesaw.*

Cut to the template on the tablesaw. *Set the tablesaw blade in line with an auxiliary fence so that any material extending past the template is removed when it is run across the saw.*



10 in. of the trammel jig. This section, with its top corners cut at 30°, becomes your template. Attach the auxiliary fence to the tablesaw (see the right photo above). Set the blade in line with the edge of the auxiliary fence and raise it until it just begins to cut into the fence above it (see the drawing above).

One at a time, screw the frame workpieces to the jig using the same screw holes from the routing process. Place the straight edge of the template against the auxiliary fence, and run it past the blade to remove any material that extends beyond the template.

On the resulting flat edges, use a biscuit joiner to cut slots into the inside edge, about 1 in. from the top edge. Locate the slots 2½ in. from the corners, and also cut one at the center of each piece. These slots will house cleats that fasten the triangular center panel to the frame.

To assemble the base, simply glue and clamp together the frame pieces with the flat edges registered against each other and the screw holes facing down. Put the frame aside while the glue dries and get started on the triangular panel.

Glue up the triangle frame. *After cutting slots along the inside edge of the frame (used to attach the panel), glue and clamp the parts on a flat surface.*

Shape the triangular panel—The curved triangular center panel is shaped similarly to the three frame parts. On the underside of a glued-up panel, lay out an equilateral triangle with sides that measure 30½ in. Locate its center point, then mount the panel to another trammel jig (see the drawing on p. 64) good side down so that it pivots on its center. I drilled a 1⁄16-in. hole in the center of the panel as well as at the center point of the jig and aligned them with a 1⁄16-in. drill bit.

First, use a pencil in the trammel to mark the radius on each side of the triangular panel. To ensure that the triangle is properly aligned in the jig when marking the radius, double-check that the measurement from the trammel's pivot point to each corner of the triangle is equidistant. Remove the panel from the jig and cut it out on the bandsaw to within 1⁄16 in. of the line.

Remount the panel on the trammel jig and set up the router to cut the radius on all three sides. Before routing, be sure that two corners of the triangle are equidistant from the trammel's pivot point. Screw the panel to the base of the trammel jig to

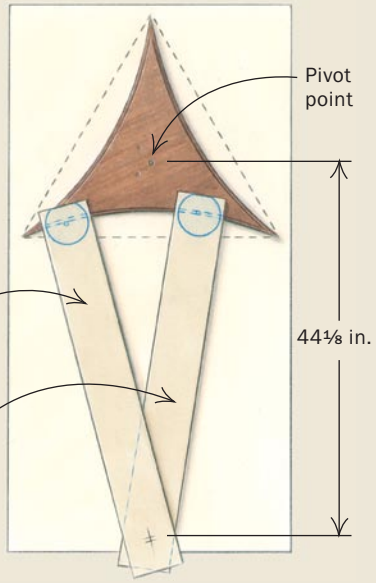
Curved panel and feet complete the base

The base panel is cut using a router mounted in a trammel jig. The panel rotates on a drill bit at its center and is screwed in place for layout and routing.

Lay out and rough-cut the triangular panel. *Align the glued-up panel on the trammel jig using the center point of the triangle as the pivot point. Then mark the radius on the three edges with the pencil trammel.*

TRAMMEL JIG FOR PANEL

Rout the radius curve on each side of the panel, rotating it and screwing it to the jig before each cut. Reset the pivot distance for the rabbet.



Rout the curves and rabbets. *After rough-cutting the panel on the bandsaw, reposition the panel on the trammel jig and screw it in place. Then take multiple passes with the router (above). Finally, adjust the length of the trammel to rout a ⅜-in. rabbet on the bottom edge of the panel (left).*

prevent the router from knocking it out of position. Rout the edge in several passes, exposing more of the bit with each pass. Unscrew the panel, rotate it to cut the next side, and continue the process until the radius is cut on all three edges.

The panel has a ⅜-in. rabbet to fit to the frame. Set up for this cut by extending the radius of the router trammel by ⅜ in. Again, screw the panel to the jig to prevent it from moving while you rout each edge. Last, turn over the panel and run a ¼-in. roundover along each edge with a hand-held router and a bearing-guided bit. Also, cut the three tips of the panel by hand to 16½ in. from the center and round them over with sandpaper.

Assemble the base—The center panel is secured to the triangular frame using cleats housed in slots in the frame. Screw the cleats to the underside of the panel so they align with the slots on the inside edge of the frame.

Once the panel is attached to the base, drill out the ends of the base for the feet. Measure and mark the location of the feet 18⅞ in. from the center point of the base. Drill the holes on the drill press with a 2½-in. sawtooth cutter, centered on the mark. Lop off the excess material with a handsaw just past the centerline of the hole (19⅛ in. from center). I marked this line with my pencil trammel, using the center of the base as the pivot point.

Build up the feet—If you own a lathe, constructing the feet is straightforward. But I don't have a lathe, so I assembled the feet from individual pieces cut using a circle cutter on the drill press.

The circle cutter bores a ¼-in.-dia. center hole in a workpiece while a spinning blade cuts the perimeter of the circle. The three circles in each foot require a roundover on

one edge: ⅜ in. on the two lower circles and 3⁄16 in. on the top one. For safety, I secured the small workpieces to my bench by driving a screw through the ¼-in. center hole so that the piece would stay put as I routed. The center hole also comes in handy for sanding: Fit a ¼-in. bolt through the hole and then tighten a butterfly nut from the other side. Now you can chuck the bolt in the drill press and sand the workpiece as it spins.

The feet are topped with rosettes cut on the drill press using a rosette cutter. Once the circles and rosettes have been prepared, glue the parts into stacks. Align the three circles with a ¼-in. dowel fitted through the center holes. To prevent the rosette from creeping when clamping pressure is applied, drill a few clearance holes in the top of the foot, cut off the heads of ¾-in. finishing nails, and insert the nails upside down into the holes so that the points stick out by 1⁄16 in. Center the rosette on the foot and apply pressure.

After the feet are assembled, apply glue only to the adjoining surfaces on the feet and base, and clamp the feet in place. The brass casters are installed after a finish has been applied.

Prepare the column staves

Constructing the hexagonal tapered column is another challenging part of this project. Each of the six staves tapers toward the top, and all four edges of each stave are beveled. The top and bottom edges of each piece are crosscut at 1½° parallel to each other so that they join flush to the base and tabletop. The side edges are beveled at 30°.

Start with six pieces of material, each measuring ¾ in. thick by 5 in. wide by 23 in. long. Cut a 1½° bevel on the ends, parallel to each other, so that the finished length of the stave is 22⅝ in. (measured from toe to heel on the face). Next, make and fasten a template (see p. 66) to the inside face of each stave, one at a time, and trim the workpieces on the tablesaw with the template guide attached to the saw fence.

Finally, cut the staves to width with the blade tilted to 30° (the 1½° taper changes this bevel angle, in theory, but not enough

Elegant feet without a lathe

Make a stack of disks. *The foot sections were cut with a circle cutter on the drill press (left). Each piece was rounded over with a router and sanded. A dowel aligns the three parts during glue-up (above left). The rosette, cut on the drill press with a rosette cutter, is glued to the top of the foot and aligned with nails with the heads clipped off (above right).*

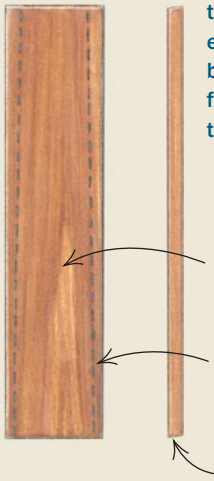
Attach the feet. *Drill the holes in the base, then saw off the excess material just past the centerline (left). Apply glue only to the surfaces that join, and then clamp each foot to the triangular frame (above right).*

Tapered column requires accurate bevels

The six-sided tapered column requires that each piece has compound beveled edges. Zeitoun came up with a method to cut the taper and the beveled edge in three steps at the tablesaw, using a template guide.

1 CUT A 1½° BEVEL ON EACH END

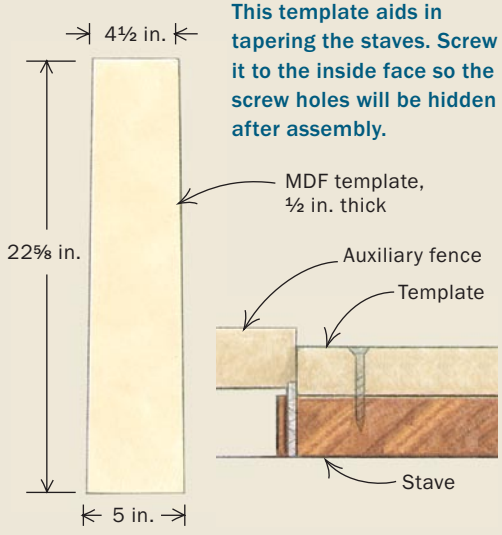
Because the column tapers, the top and bottom edges of each stave must be angled so that they are flush with the base and tabletop.



Bevel the stave ends. *Begin with a 23-in.-long board and crosscut it to its final dimension of 22⅝ in., with parallel bevels on each end.*

2 TAPER WITH A TEMPLATE

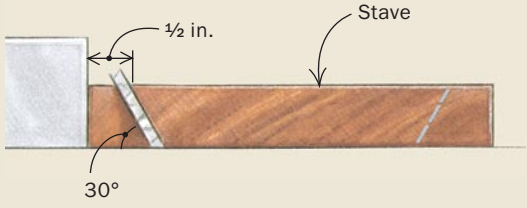
This template aids in tapering the staves. Screw it to the inside face so the screw holes will be hidden after assembly.



Taper the edges. *Screw a template to the inside face of the stave, then set up the template guide on the tablesaw fence and cut the pieces to size.*

3 BEVEL BOTH EDGES

Tilt the tablesaw blade to 30° and rip the staves to their final width with the inside facedown.



Cut the beveled edge. *Each stave is 1 in. oversize in width. Remove ½ in. from each side with the blade tilted to 30°.*

to matter in a practical sense). Set the fence to remove ½ in. of material, measured from the edge on the outside face. Once you are happy with your setup, run each workpiece across the tablesaw with each edge registered against the fence. My tablesaw has a right-tilting blade, so the bevels are cut with the screw-hole side of each stave facing the table.

Assemble the column—The column should go together easily. Place the pieces edge by edge with the outside face up and run several strips of tape across them to keep them aligned. Turn over the pieces, apply glue to the joining edges, and roll up the whole column.

Finally, apply clamping pressure to the column with strap clamps. Insert cauls between the column and the straps to spread the clamping pressure.

At the bottom of the column is a ¾-in.-thick by 9½-in.-dia. disk. Use the router trammel to cut this piece, then round it over with a ⅜-in. bearing-guided bit.

Keep the tabletop flat

To make the 48-in.-dia. tabletop, I glued up 5-in.-wide boards into a panel. I alternated the direction of the growth rings and

paid close attention to the grain to prevent warping or twisting.

I cut the panel round with the router trammel pivoting in a hole drilled into the underside of the table at the center. On the round top, I cut the edge profile with a bearing-guided router bit, creating a profile similar to the table in the photo. If you're not interested in buying what is likely to be a one-time-use router bit, you can use any profile you choose.

The original table did not appear to have an apron around the underside of the top. However, a top at those dimensions could not have withstood much weight across its grain without additional support. My solution was to attach long cleats, running across the grain, to the underside of the table. To allow for wood movement, the cleats are screwed in three locations (three on each side for the center cleat) and fitted into oversize screw holes with washers.

Assemble with a center rod

With the exception of the top, all of the table parts are sandwiched together using a ⅜-in.-dia. threaded rod with a washer and nut at both ends. The nut at the top of the rod is set into a ⅜-in.-deep square-bottom clearance hole in the center cleat. Countersink ⅜ in. into the tabletop, as well, to accommodate the remainder of the nut and washer. Use Loctite Thread Lock to keep the top nut from spinning when tightening the other end; however, before you assemble the table, finish all of the parts and install the brass casters.

Lay the top upside down on the workbench with the threaded rod extending up out of the tabletop, and drop the column and base over the threaded rod. Center all of the parts and tighten the nut on the bottom end of the threaded rod. Finally, flip it over, stand back, and take a well-deserved look. □

Finished table. *Apply finish to the unassembled table parts, then install the brass casters before putting the table back together and securing the threaded rod.*

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Roll up and clamp the column. *Lay all of the staves with their outside faces up and tape them together. Then flip them over in concert and apply glue to the joining edges. Roll up the column (left) and apply pressure to the joints with strap clamps. Zeitoun also uses steel pinch dogs from Lee Valley to help draw together the pieces at the joints (above).*

Assemble the table. *A threaded steel rod feeds through each section of the table. Secure the nut at the top with Thread Lock, then tighten the nut at the bottom.*