

# Gate Leg Drop Leaf Table Plans



### Preparing the table top blanks:

Cut and glue enough 3/4" stock to make three panels 40" long by 24" wide (they will be cut to final size at a later time). While the glue dries we will work on the legs.

### Preparing the table legs:

After squaring the stock for the legs to 1-3/4", cut the legs to a finished length of 29". Using a taper jig (MLCS #9008), set the angle to 2 degrees to cut the taper on the faces of the legs that will be on the inside of the table frame (*Figure 44A*). Start the taper 14" from the top of the leg.



**Figure 44A**

Mark each leg at the top to indicate which corner will be facing into the center of the completed table frame (this is to indicate which faces of the legs will be mortised to accept the tenon on the apron). Using a 3/8" diameter forstner bit (MLCS #9203), cut overlapping holes 1/2" deep to remove the bulk of the mortise in each leg. The mortise starts 1/2" from the top and stops 3" from the top of the leg (*Figure 44B*).



**Figure 44B**

The four table legs that will make up the base will get two faces mortised, while the two gate legs will only have one face mortised (place the gate legs in the position they will be mounted to determine which face to mortise). After the drilling has been done it is now time to finish the mortises using a router and either a 1/2" diameter spiral up-cut bit or straight cutting bit. (It may be easier to mark the starting and stopping points on the opposite side faces of the legs to the faces being mortised as they will not be visible when routing). Rout the remaining material from the mortises in each leg (*Figure 44C*).



**Figure 44C**

### Preparing the aprons:

Cut the aprons to the finished dimensions given in the parts list. The gate leg apron will still be left at the 19-1/4" length and be cut to final length at a later step. Using a 1/2" deep rabbeting bit (MLCS #5393, 7693 or Katana #17691) to cut the tenons on each end of the table frame aprons. The gate leg apron will only have a tenon cut on one end (*Figure 45D*). Use a piece of scrap stock the same thickness as your aprons to adjust the bit height. The rabbetting bit should be 1/8" above the router table as the starting point. Make a test cut on the scrap piece and check the width of the tenon for a snug fit. Adjust the bit as needed until you achieve an acceptable fit.

After cutting the rabbet, the shoulder of the tenon must be made to allow the tenon to fit into the mortise. This is easiest to do on a table saw using the miter gauge (*Figure 45E*). Set the table saw blade to 3/4" and remove the shoulders up to the rabbeted cut. Dry fit the table base to make sure the mortise and tenon fit together properly.

Then using a 1/4" diameter edge beading bit (MLCS #5531,7831 or Katana #17831), rout the full length of the bottom edge of each apron (*Figure 45F*). Also, rout the end grain of the gate leg apron that does not have the tenon cut on it. Before cutting the profile on the gate leg apron, make sure that it is properly orientated so the bead ends up on the bottom edge of the apron.

Apply glue to the mortise and tenon on each leg and table apron. Fit these together and clamp up this assembly, checking to make sure that it is square. While this assembly is clamped up, glue the table mounting cleats in their position between the long table aprons. As the glue in this assembly dries, it is time to complete the tabletop panels.

### Completing the top panels:

Cut the panel that will be the center panel of the tabletop to a finished size of 38" long by 22" wide. The next steps will be done with the table leaf panels face down on a sacrificial backer board.



Figure 45D



Figure 45E



Figure 45F

**Completing the table leaves:**

The table leaves are rounded on the end and should be cut with a circle cutting jig or router guide kit (#400-1206 Jasper Adjustable **Circle Cutting Jig** or #400-2335 Milescraft **Router Guide Kit** available from EagleAmerica.com or 1-800-872-2511) to ensure a consistent radius. The first step is to layout a line 2” from the edge of the leaf panel that will mate up to the table top. Make that line across the entire 40” length. Next make a perpendicular line at the center of the width of the panel across the 24” length. Using the **Circle Cutting Jig/Router Guide Kit**, make a pilot hole for the pivot pin at the intersection of both lines just made in the previous step. Follow the set up instructions provided with the **Circle Cutting Jig/Router Guide Kit** to make a half circle with an inside radius of 19”.

Cut the radius making sure to stop at the 2” line previously made (*Figure 46H*). Complete the cut by making straight cuts on the last two inches on each side of the leaf (a large panel used on a table saw can make this step easier) (*Figure 46I*). Repeat these steps for the second table leaf.

**Routing the drop leaf profiles or rule joint profiles:**

Because the hinges will be recessed, 1/2” radius round-over and 1/2” radius cove bits will be used to create the drop leaf or rule joint. Start by routing the round-over profile on all four edges of the tabletop and the outside of the table leaves (*do not rout the long straight edge of the table leaves with the round-over bit*). Set the round-over bit to a cutting depth where it will produce a 1/8” fillet above the start of the round-over profile (*Figure 46J*).

After completing the round-over cuts, change to the cove bit. Using a piece of scrap wood the same thickness as your table top, adjust the bit height to leave a 1/8” fillet below the cove profile. When you have the bit height adjusted so that the cove profile overlaps the round-over profile, and both pieces of stock are aligned at the same height, proceed to rout the cove profile along the long straight edge of the table leaves. This will complete the steps necessary to make the drop leaf or rule joint (*Figure 46K*).

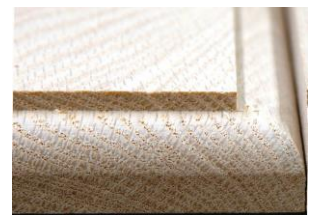
**Figure 46H**



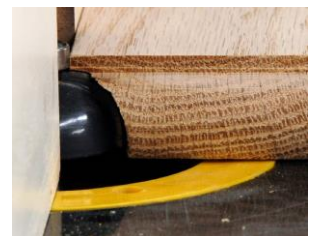
**Figure 46I**



**Figure 46J**



**Figure 46K**



**Laying out the position for the drop leaf hinges:**

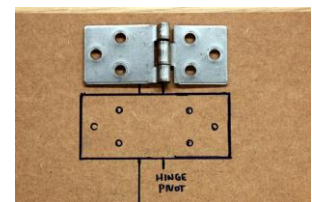
Place the two table leaves and tabletop face down on a clean, flat surface. Position the pieces so that they are aligned along the joints and even at the edges. Three hinges will be used on each leaf to add proper support and stability. Mark the two outer hinge locations 2-1/2" from the outside edges of the table. The center hinge will be positioned in the exact center of the table. Position the hinges so the longer hinge leaf lays on the table leaf and the hinge barrel is 1/2" from the edge of the center panel (*Figure 47L*). Trace the outline of the hinge to mark the location of the mortise.



**Figure 47L**

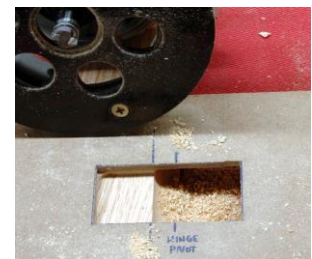
**Making and using hinge mortising jig:**

Make a jig to mortise the hinges into the table bottom by following these steps. Using a piece of 1/4" thick plywood or hardboard, draw the outline of the hinge onto it, also marking the position of the hinge barrel. Use a drill bit to make a starter hole in the jig inside the outline of the hinge. Use a scroll saw or jig saw to cut out the hinge opening in the template (*Figure 47M*).



**Figure 47M**

Cut each side of the mortise separately. Align the jig to match the traced outline on the tabletop and leaves. Use double sided tape to secure the jig in position while routing. Using a 1/2" diameter dado clean out bit (MLCS #5382), adjust the depth of the bit to cut 1/8" deep into the tabletop and leaf. Allow the guide bearing on the shaft of the bit to follow the recess in the mortising jig. Clear out all of the material in the area the hinge will be mortised (*Figure 47N*). Repeat these routing steps until all six hinge mortises are completed. A corner chisel (MLCS #9540, 9541) or hand chisel will need to be used to square up the radiuses of the corners of the mortise. Next, an additional jig will be made to mortise for the hinge barrel.



**Figure 47N**

Using another piece of 1/4" thick plywood or hardboard, mark a 3/8" wide slot 1/4" wider than the width of the hinge barrel you are using. Again cut out this rectangular recess using a scroll saw or jig saw. The center of the hinge barrel will be 1/2" from the edge of the tabletop. So, therefore mark a line 1/2" from the centerline of the 3/8" wide dimension. Mount a 3/4" wide piece of scrap wood to the outside of this line (this block is to register against the edge of the tabletop) (*Figure 47O*). Install a 3/8" template guide bushing (MLCS #9047) into the base of your router. Install a 1/4" diameter straight cutting bit into your router. Adjust the bit to cut to a depth that is 1/8" deeper than the hinge mortise that has already been cut. Using double sided tape, position the jig so that the jig is centered over the hinge mortise already cut into the tabletop. Allow the template guide bushing to follow the template to cut the mortise for the hinge barrel.



**Figure 47O**

# Gate Leg Drop Leaf Table Plans

### Mounting the hinges to the tabletop and table leaves:

Place the hinges into the mortises cut in the tabletop and table leaves. Pre-drill the screw holes to mount the hinges (MLCS #9371 Flash bit will provide a perfectly centered hole) (Figure 48P). Install the screws to secure the hinges being careful not to over-tighten and strip the threads. Test the leaves for proper folding action. If they bind on the bottom of the table edge, relief sand the corners of the table bottom to allow for clearance (Figure 48Q).



Figure 48P

### Preparing the gate leg:

Cut the gate leg apron to a length of 15-1/4" (measure from the tenon). The short piece that is left will be used to mount the gate leg. Apply glue to the mortise and tenon on each gate leg and clamp these assemblies. (**Remember to keep the routed bead at the bottom edge of the apron**). After the glue dries, surface mount the hinge to the gate leg apron and gate leg apron mounting block (Figure 48R).



Figure 48Q

### Installing the table base to the tabletop:

Drill three mounting holes through each of the mounting cleats in the table base. The two outer holes should be elongated to allow the tabletop to move seasonally. With the tabletop/leaf assembly still sitting on a clean, protective surface face down, position the table base on this assembly. Center the table base over the top and secure the top to the base using 1-1/4" wood screws.



Figure 48R

### Installing the gate leg:

To install the gate leg in the proper position, place the gate leg along the previously drawn centerline. Place the gate leg apron on a 45 degree angle to the table base and mark the position of the table leg apron mounting base. Pre-drill the mounting screw holes from the inside of the table aprons. Reposition the gate leg apron mount and secure using 1-1/4" wood screws. Stop block cleats will be installed next. With the gate legs still in a 45 degree position, place the 8" cleats in position along the outside of the apron and secure in place with 1-1/4" wood screws (this will stop the gate legs and support the table leaf at the proper position when the table leaf is folded up) (Figure 48S).



Figure 48S

Have a helper assist you in the next step. Fold in the gate legs, lift up the table leaves to closed position, and carefully turn the table over to an upright position (**be very careful to take precaution that the table leaves do not swing open and cause injury during this step**).

Finish by sanding and applying a stain, dye or other type of finish.

**Parts List for Drop Leaf Gate Leg Table**

Part Description	Length	Width	Thickness	Quantity	Notes
Legs	29"	1-3/4"	1-3/4"	6	
Long Aprons	33-1/4"	3-1/2"	3/4"	2	
Short Aprons	15-3/4"	3-1/2"	3/4"	2	
Gate Leg Aprons	19-1/4"	3-1/2"	3/4"	2	This will be cut shorter later
Gate Leg Cleats	8"	3/4"	3/4"	2	
Table Top	40"	24"	3/4"	1	
Table Leaf	40"	24"	3/4"	2	Rough Size
Table Cleats	15-3/4"	2-1/2"	3/4"	3	Rough Size
Drop Leaf Hinges				3 pair	
Gate Leg Hinge				1 pair	
Wood Screws	1/2"			36	
Wood Screws	1-1/4"			19	