

Triple Opening Picture Frame



Router bits used:

1/4" diameter Edge Beading Bit (MLCS item # 5531 or 7831)

1/2" Rabbeting Bit (MLCS item #5393 or 7693)

90-degree V-Groove Bit (MLCS item #7729)

1/2" Straight Cutting Bit (MLCS item #5474 or 7774)

Molding Plane Profile (MLCS item #7975 or KATANA item #18075)

Additional MLCS items used:

Merle Clamp (MLCS item #9012)

Miter Gauge (MLCS item #9458)

Featherboard (MLCS item #9478)

Additional Items Used:

24" Woodworking Clamps

Table Saw with Miter Gauge

Getting Started:

Prepare your stock by planing it to a uniform thickness. Rip it to the final width as listed in the cut list on the last page of these instructions. Cut your stock to the rough length listed in the cut list on the last page of these instructions (the intermediate inner frame stiles will need to be cut to their final length of 14-1/8").

The two intermediate inner frame stiles will be made first. Install the 1/4" diameter Edge Beading router bit into your table-mounted router. Adjust the bit height to create a bead along the edge of your stock (see Figure A). Cut the bead along the length of both edges of each piece. The miter cuts on the ends will be completed at a later step.

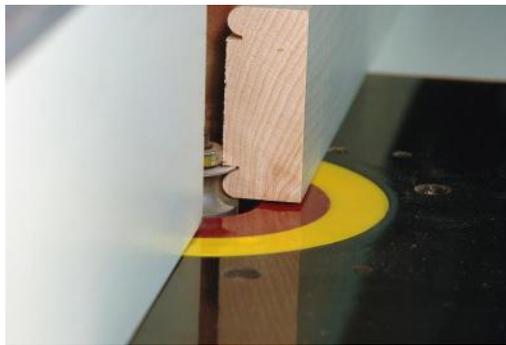


Figure A

The remaining inner frame pieces will also need to have the bead cut along their length, but only on one edge. Complete this routing operation at this time as the router bit is already set up and adjusted for this task.

The next step will be to cut the 1/2" deep rabbets along the length of both edges of the intermediate inner frame stiles and the inside edge of the inner frame pieces. Set up the router table and adjust the router bit height to cut a 7/16" high by 1/2" deep rabbet. Rout both long edges of the backside of the intermediate inner frame stiles and back inside long edge of the inner frame pieces. You may choose to do this step making incremental passes, as this is a good amount of material that is being removed (see Figure B).

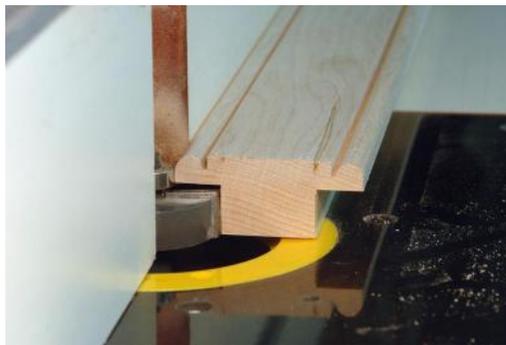


Figure B

Next the 45-degree miter cuts need to be made on the ends of the intermediate frame stiles. The miter cut will be made in such a way as to only cut away the rabbeted area when making the mitered cut. Place the 90-degree V-Groove router bit in the table and adjust the bit height to 1/2" from the router plate surface. Using a miter gauge and a sacrificial backer block, remove the mitered area from all four corners on the ends of the intermediate frame stiles (see Figure C) This cut may also be made on a table saw if your router table is not equipped with a miter gauge.



Figure C

The next step will be the most critical step as to the appearance of the finished product. The two inner frame rails will have to be notched to allow the mitered ends of the intermediate frame stiles to fit into them. This is accomplished with the 90-degree V-Groove bit and a 1/2" diameter Straight bit. To layout the position of the notches, we must first establish the center point of the top and bottom inner frame rails. The sizing we will be using is for an 11" by 14" picture glass and matting. With our opening size decided, measure out 5-9/16" from the center point in each direction. This establishes the center picture opening. Next, measure an additional 1" past each of these lines. This 1" is for the intermediate frame stiles. Finally, measure another 11-1/8" from the outside of the intermediate frame stile to establish the outside of the two outer picture openings. At the 1" wide area where the intermediate frame stiles will intersect the top and bottom frame rails, a 45-degree miter cut will need to be made and a layout line will need to be made before making these cuts (see Figure D).



Figure D

The 45-degree V-Groove router bit should still be in your router table and already adjusted to the proper height from when you cut the miters on the ends of the intermediate frame rails. Because these next cuts will be made in the center of the top and bottom inner frame rails, you will need to use a miter gauge and remove the router table fence. Again, if your miter table does not have a miter gauge you may need to make this cut using a table saw. Start the cut by establishing a through cut on the 45-degree layout line on both ends of each notch (see Figure E). You may choose to cut the notch slightly smaller at first and fine tune the fit after checking the joint for proper fit. You can always remove more material if the fit is too tight. If the joint is too loose, you can't do much to make it tighter other than add some wood filler.

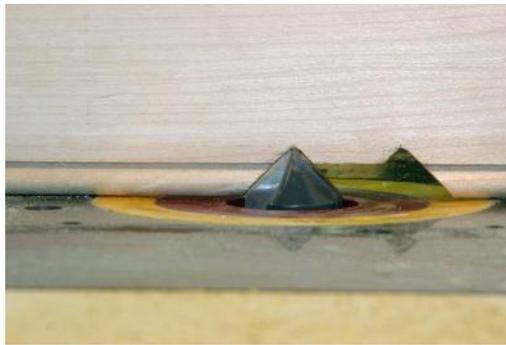


Figure E

Complete the notch by changing over to the 1/2" diameter Straight bit and adjusting it to 1/2" above your router table insert (the same height as the cuts just made using the V-Groove bit). Carefully, while using the miter gauge, use the Straight bit to remove all of the material from the notch between the points of the two V-Groove cuts (see Figure F).

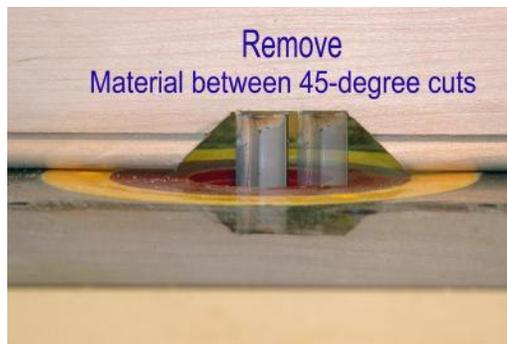


Figure F

Check the fit of the intermediate frame rails to make sure they properly fit into the notches that were just created for them. Fine-tune the fit using additional cuts if necessary.

The ends of the inner frame pieces need to have 45-degree miter cuts made on them to complete the assembly of the inner frame. The layout lines have been established on the top and bottom rails with the layout of the outer picture openings. The end stiles length

has also been established by the decision of an 11" by 14" opening (allow for a 14-1/8" opening size to compensate for any oversized variances in size of the glass or matting material). Mark the cut lines where the 45-degree line intersects the transition from the solid wood to the rabbeted opening. Use a 45-degree panel-cutting sled, a precision miter gauge or a properly aligned chop saw to complete these miter cuts (see Figure G).



Figure G

After all of the miter cuts have been made, dry fit the assembly to make sure of proper orientation of the pieces. Apply wood glue to all of the joints, place in woodworking clamps and set aside to allow the glue to dry (see Figure H).



Figure H

The Molding Plane Profile bit will be used to create the outer frame design profile along with the 1/4" diameter Edge Beading bit. Starting with the Molding Plane Profile bit, adjust the height of the router bit in the router table to cut the full profile along the length of each of the outer frame pieces. Make multiple passes to complete the profile moving the router table fence back between passes until the full cutting depth of the bit is achieved. The use of a feather board or stacked feather boards will aid you in getting a better finish on your cut (see Figure I).

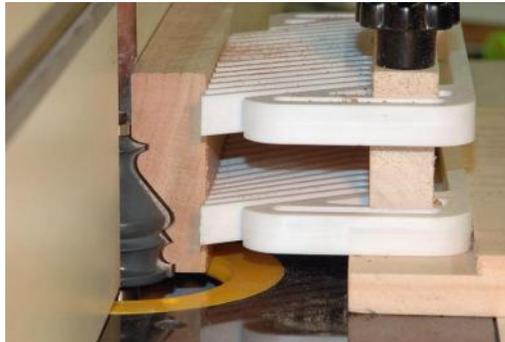


Figure I

Complete the routed profile on the outer frame pieces by changing over to the 1/4" diameter Edge Beading bit and adjust it as you did for the bead on the inside edges of the inner frame pieces. Rout the opposite edge of the outer frame pieces that you just cut the decorative molding profile on (see Figure J).



Figure J

The next step will be to cut the 1/2" deep rabbets along the length of the inside back edges of the outer frame pieces (this is the edge with only the edge bead on it). Set up the router table and adjust the router bit height to cut a 7/16" high by 1/2" deep rabbet. Rout the length of all the outer frame pieces. You may choose to do this step making incremental passes, as this is a good amount of material that is being removed (see Figure K).



Figure K

Using the inner frame as a guide, mark 45-degree miter layout lines by laying the rabbeted outer frame pieces on top of the inner frame and using the mitered joints on the inner frame as reference lines. Again, use a 45-degree panel cutting sled, a precision miter gauge or a properly aligned chop saw to complete these miter cuts. The outer frame will now be dry fitted over the inner frame to make sure the pieces fit together properly. After the fit has been confirmed, glue up the outer frame and place it in a clamp to dry. The MLCS Merle Multi Corner Clamp (MLCS item #9012) is the perfect clamp for gluing up this assembly (see Figure L).



Figure L

After the outer frame has dried in the clamp, remove it and apply glue to the rabbet in the outer frame using a brush to evenly spread the glue. Place the outer frame over the inner frame and use small spring clamps or screw clamps with light pressure to hold the assembly together until the glue dries. Remove the clamps, finish, sand and apply a finish of your preference.

The triple opening frame can be hung in either a horizontal or vertical position to suit your needs. A Keyhole Cutting router bit may be used to cut a keyhole to hang your frame or you can use a frame hook found at any home center or craft store.

As an alternative, 11" by 14" mirrors may be put into the triple opening frame in place of pictures, if you have a need for a nice hall mirror.

Picture Frame Cut List

Description	Length	Width	Thickness	Quantity	Notes
Intermediate Stiles	14 1/8"	2"	3/4"	2	
Inner Frame Stiles	24" *	2-1/2"	3/4"	2	* Cut to final mitered length later
Inner Frame Rails	45" *	2-1/2"	3/4"	2	* Cut to final mitered length later
Outer Frame Stiles	28" *	2-1/2"	3/4"	2	* Cut to final mitered length later
Outer Frame Rails	48" *	2-1/2"	3/4"	2	* Cut to final mitered length later