

Do It Yourself

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Wall-Mounted Magazine Rack: Frame and Bins Assembly

From "[Wood Works](#)"

episode WWK-604 -- [More Projects »](#)

In this episode, David Marks builds a wall-mountable magazine rack. In this segment, assembly of the frame continues and work begins on the tapered magazine bins crafted from fir.

Materials:

Douglas-fir stock
MDF for templates
Table saw
Tapering jig
Band saw
Table router; flush-trim bit
Disc sander
Multi router
Biscuit jointer and biscuits
Adjustable bevel-gauge
Straight-edge
Carpenter's pencil
Yellow woodworker's glue
Clamps
Safety glasses or goggles



The completed magazine rack.

Safety Alert: *Always* wear safety goggles or safety glasses, and follow proper safety precautions, when working with wood, power-tools, saws, drills, routers, etc.

Tricky Frame Situation

With the frame elements and back completed, including the joinery on the rails, work can begin laying out the corresponding biscuit-slots on the stiles and the plywood back. However, the combination of the half-lap joints and the biscuit joinery being used in this assembly have created something of a joinery dilemma. As it stands, the pieces won't align properly (**figure A**). If the half-laps are locked in first, there

will be no way to insert the side biscuits. If the side biscuits are put in first, the half-lap could be assembled, but there'd be no way to put the biscuits in the top rail. The solution? By simply elongating the biscuit slots in the plywood, you'll leave yourself room to clear the biscuits in the top rail, position them as needed and slide the frame elements into position.

- Lay out two center-points to create the double slots along both sides of the back panel. Attach the shim used earlier onto the bottom of the biscuit-jointer fence so that the stiles will also stand proud above the back panel. First, cut number-zero slots on the back panel on one side, then rotate the panel, clamp it securely to the workbench and cut the double-slots on the other side (**figure B**).
- This is a good time to conduct a dry-fit for the elements and joinery. Sliding the sides along the elongated slots allows you to fit the elements in place and tap them into position with a dead-blow hammer (**figure C**).

The frame and back assembly will be glued up later. Work can now begin on the magazine bins.



Figure A



Figure B



Figure C

Tapered Bins

As seen on the prototype, each bin (**figures D and E**) is made from five pieces of douglas fir. The two sides are tapered and angled to match the curved top rail. The curve of the bins' top rails are created with the same technique used earlier for the curved frame pieces, but with a template that yields a slightly shallower curve. The bottom piece and bottom-rail of each bin are also tapered to match the taper of the sides.



Figure D



Figure E

- At the table saw, start with the two rails and bottom stock by cutting them all to length (18-1/2") while the stock is still square.

- Trace the shape of the template onto the top-rail stock (**figure F**).
- At the band saw, rough-cut the lower edge of the top-rail stock close to the line.
- Before cutting out the top edge, set the bed of the band saw to 13 degrees -- to match the angle of the bins -- then rough-cut it close to the line (**figure G**).



Figure F



Figure G

- At the router table, use the template as a guide to flush-trim the lower edge of the top rail (**figure H**).
- To smooth the top curve, set the bed of the disc sander to 13 degrees (**figure I**), remove the template and carefully sand the curve to the line.



Figure H



Figure I

- Now work can begin on the bottom-rail and bottom piece. To allow for the magazines to lean forward, the base and bottom rail are cut at the same angle -- 13 degrees. The bottom and rail are cut to fit together as shown (**figure J**).
- With the blade of the table saw set to 13 degrees, cut the bottom stock (**figure K**) and the lower edge of the bottom rail.



Figure J



Figure K

- Now you can shift focus to the sides of the bins. As seen on the prototype, note how the top edge of the side is angled to match the slope of the top rail (**figure L**). To determine the angle, simply align the adjustable bevel-gauge across the slope of the top rail.
- Set the table-saw blade to match the slope of 9 degrees, and make the cut on both the left and right sides.
- To make the final cut on the front edge of the side-stock, use a tapering jig set to the tilt-angle -- 13 degrees. On both pieces of side stock, trim from 5 inches to 3 inches (**figure M**), cutting one side facing up and one side facing down.



Figure L



Figure M

- Now work can begin on the joinery for the bins. Mark the locations and cut three biscuit slots to attach the lower rail to the bottom. Place the stock against a cutting jig, clamped to the workbench, to cut the bottom slots (**figure N**).
- Cut the corresponding slots in the lower rail.
- Cut the slots in the side-stock to join those pieces to the back panel (**figure O**).



Figure N



Figure O

- To join the top and bottom rails to the side stock (**figure P**), mortise and tenon joinery is used.



Figure P

- Using the multi-router, batch-cut mortises in the ends of both rails (**figure Q**).
- Each mortise is 1" (L) x 3/8" (W) x 5/8" (D), and is centered in the end of the stock (**figure R**).



Figure Q



Figure R

- Next, use the multi-router again to cut corresponding mortises in the side stock (**figure S**). A cutting jig can be used to keep the angle-cut side-pieces square as you cut.
- Finally, use the biscuit jointer to cut matching slots on the bottom of the side stock (**figure T**).



Figure S



Figure T

- With all the pieces and joinery cut, the glue-up can get started. We made our tenons out of mahogany, and they were cut to 1-1/4" (L) x 1" (W) x 3/8" (thick), and rounded over to match the mortises.
- Join the bottom and lower rail by gluing biscuits into the slots. To align the pieces for gluing and clamping, use the same jig that was used for cutting the slots.
- Once dry, apply glue to the mortises in the rails and to the tenons, and assemble the rails to the sides and bottom (**figure U**).

- Apply good clamping pressure (**figure V**) and allow the glue to set overnight.



Figure U



Figure V

That completes the assembly of the first bin. Follow the exact same procedures to build the other bins.

While the glue for the bins is drying, you can lay out and cut the biscuit slots on the plywood back panel that will be used to attach the bins to the back. It will be easier to use the slot-cutter at this point, before the frame is attached. Use the full-scale drawing as a guide for placement of the biscuits.

In the segment that follows, the frame and back-panel are joined together in preparation for attaching the completed bins and application of some finishing touches.

RESOURCES:

Woodworking Techniques: Best Methods for Building Furniture from Fine Woodworking

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