Do It Yourself

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Drum Table: Stock and Dovetail Joinery

From "Wood Works"
episode WWK-612 -- More Projects »

In this episode of *DIY Wood Works*, host David Marks creates a multi-functional table that not only serves as a finely crafted piece of furniture, but also as a drum. Yes, a drum! This functional coffee table is constructed with a hollow body so that it doubles as a playable percussion instrument.

A coffee table with an appealing tone -- sonically speaking. This hollow-bodied table doubles as a playable drum.

The sides of the table, forming the case, are made from the dense African hardwood, bubinga. The top and bottom, which serve as the "skins" of the drum, are made from 1/4"maple plywood. A hole is carved out of the bottom of the table to create a resonant sound chamber. Dovetail joinery attach the sides to the top, and the legs are gently curved to add an elegant touch.

Materials:

Bubinga and maple stock
Table saw
Drum sander
Jointer
Plunge router
Dead-blow hammer
Clamps
Slow-setting plastic-resin glue
Cabinet scraper
Hand scraper
Straight-edge
Carpenter's square
Carpenter's pencil
Chalk
Safety glasses or goggles

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

Drum Table: Stock and Joinery

Figure A

The table has three main components:

- The **legs** made from solid buginga and joined with integral tenons;
- the **case** which stands 10 inches tall, and is assembled using dovetail joinery (**figure A**); and
- the **top and bottom** made from high-quality 1/4-inch maple plywood.

Figure B

Work begins with the case. We pre-milled the bubinga stock (**figure B**) to 7/8" thick and 10" wide. Use the table saw to cut the stock to final length: two long sides at 31", and two short sides at 15"

Figure C

Dovetail joinery forms one of the strongest joints in woodworking. Dovetails can be cut by hand, on a band saw or on a table saw. For our project, we opted instead to use a dovetail jig and router to cut the joinery. The dovetail jig (**figure C**) holds the stock in place as you use the router to cut in the pattern of the *pins* and interlocking sockets -- or *tails*.

Figure D

The jig is adjustable, and the pattern of the cuts is set up using the metal guides. You can create a wide variety of patterns simply by rearranging the order and spacing of the guides. As seen on our test-cut (**figure D**), we opted for a half-pin at the end, followed by a pair of pins, then a center pin -- repeating the pattern so that it's symmetrical. You can use your creativity to come up with a pattern. Once you arrive at one you like, you may want to continue to use it as your "signature."

- Begin by marking the stock with chalk to indicate which sides you want to face outward (**figure E**).

  Tip: Tape off the ends of the side stock to minimize tear-out.

- Once the stock is installed in the jig, add an MDF backing board snugly in the horizontal clamp (**figure F**). This will also help reduce the chance of tear-out.


Figure E


Figure F

- To cut the tails, install a dovetail bit with a half-inch shank and guide bushing (**figure G**).
- The guide bushing will direct the bit between the template guides, or *fingers* (**figure H**).


Figure G


Figure H

- Using the jig as a guide, cut the dovetails according to your pattern (**figure I**). The dovetail bit creates an 8-degree angle as it cuts (**figure J**).
- Once complete, remove the stock from the jig, rotate it and cut the tails on the other end.


Figure I

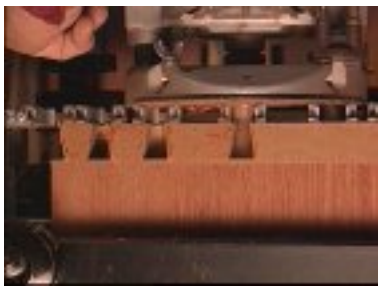
Figure J

- To cut the pins, flip the guide and lock in the short side-stock.
- Add the backing board in the horizontal clamp.
- Install a straight cutting-bit in the plunge router (**figure K**). Set the depth of the cut so that the pins will stand about 1/32" proud when the case is assembled.

Figure K

- Carefully rout between the guides, cutting through both the bubinga and the MDF backing board (**figures L and M**).

- Once complete, rotate the stock and cut the tails in the other end.

Figure L

Figure M

- With the dovetails cut, dry-fit the case and check to see if any adjustments need to be made. A tight fit is essential. Tap the joints together carefully using a dead-blow hammer (**figures N and O**), but avoid forcing the fit.

Figure N

Figure O

- Now glue-up can begin. Since it will take time to set each side in place, use slow-setting plastic-resin glue. This will allow time to lock the frame pieces together, tight and square. Apply glue between the tails and pins (**figure P**) using a small brush.

- Position the pieces together and tap them into place.

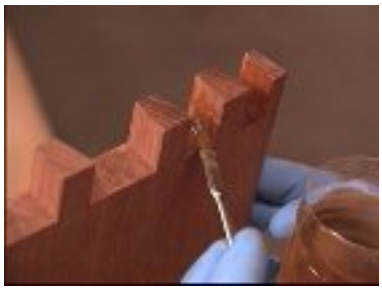

Figure P

- Clamp the structure securely with bar-clamps (**figure Q**) to allow the glue to harden. We made special cauls lined with cork to

accommodate the proud pins. The cork compresses around the pins, allowing the cauls and clamps to pull the joints together tightly.

Note: Dovetails are generally "self-squaring," but it's still a good idea to check the assembly to ensure that the joints are square. Since slow-setting glue is being used, there should be plenty of time to make fine adjustments.

Figure Q

- Allow the glue to cure for at least 12 hours.
- Once the glue has dried fully, use a #80 cabinet-scraper and hand-scraper to remove the excess glue and level the pins to the surface of the wood.
- After scraping, sand the entire case using 320-grit sandpaper so that the surface is smooth to the touch.

In the segment that follows, the drum table is given its voice by creating the top and bottom "skins" and sound-hole.

No, it's not a musical chair; it's a musical table. The *drum table* has a deep, resonant sound created by the upper and lower "skins" made from 1/4-inch maple and a sound-hole cut in the bottom surface. The legs and body are made from African bubinga, while the top is a thin sheet of maple plywood.

RESOURCES:

Woodworking Techniques: Best Methods for Building Furniture from Fine Woodworking
Model: 1561583456
Author: Fine Woodworking Magazine
The Taunton Press Inc
Newtown, CT 06470
Phone: 203-426-8171
Fax: 203-426-3434
Email: service@taunton.com

David Marks Website
David Marks, DIY's *Wood Works* host, is a master woodworker. For more information on cut sizes and project details, please contact him via his Website at www.djmarks.com

Woodworker's Guide to Wood: Softwoods, Hardwoods, Plywoods, Composite, Veneers
Model: 080836878
Author: Rick Peters
(2000)

Sterling Publishing Co. Inc.
New York, NY 10016
Phone: 212-532-7160
Fax: 800-542-7567

Fine Woodworking
A magazine devoted to high-quality craftsmanship in woodworking.
The Taunton Press Inc
Newtown, CT 06470
Phone: 203-426-8171
Fax: 203-426-3434
Email: service@taunton.com

- **ALSO IN THIS EPISODE:**
  Drum Table: Stock and Dovetail Joinery
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  Drum Table: Curved Legs and Support Assembly
  Drum Table: Finishing Touches and Musical Audition
  Drum Table: Materials List and Cut-Sizes