TILT TOP TEA TABLE

By Gail Cone

Disclaimer

This is a presentation on how I created this project.
It is not intended to be a definitive how to.

3/11/2014

The inspiration for this furniture project.

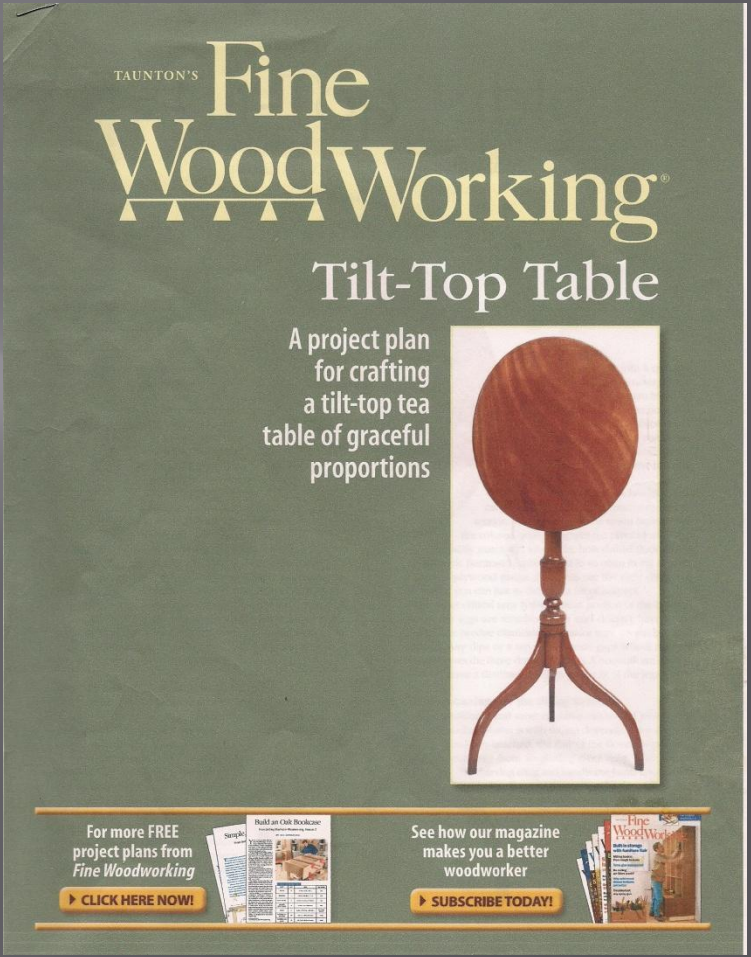
- This table was presented on the Antique Road Show on PBS.
- 18th Century Federal Tilt Top Tea Table.
- Early American Federal Tables with inlays were common 1785-1815 (The Federal era).
- This is a Philadelphia version as it has the Philadelphia eagle. ALL Mahogany.
- The Baltimore version has wings much more outstretched.
- http://www.pbs.org/wgbh/roadshow/archive/201003A49.html

Previous projects. Prefer early American style.

Tilt Top Tea Table

The Plan

- Considered designing my own.
- Researched online many different styles to make sure this was the one I liked.
- Came across a Tilt Top Tea table design and plans in Fine Woodworking #173. By Mario Rodriguez.
- Plans were available online free!



Choices and Considerations

- Let's use cherry.
- For top I found some highly figured cherry in my stash.
- Table elliptical dimensions would be somewhat larger than plan. 15″x22″ vs 14″x16″.
- Column would be a glue-up using 8/4 stock.
- Intended to incorporate inlays. Decided to feature the figured grain in the selected stock instead.
- Let's use stain to produce a warmer look.
- Finish of choice would be gloss lacquer. Reasons later.
- Table topside and underside would have a fine (rubbed out) high luster finish.
- Attachment of pivot block to column would not use wedge.
- I'll make my own table top pattern.

Issues and Challenges

- Leg – column attachment called for dovetail joinery.
  - This required lots of planning and building of a jig.
  - Had to plan around my available dove tail bits.
  - Had lots of bits but not the EXACT dovetail.
- Cherry
  - Requires special attention and machining to reduce burning and chipping.
- Finishing
  - Lack of clean room.
  - Shop would be tied up until finishing complete.
- Special Brass catch had to be ordered.

Project Progression

- Planning (material selection, jig requirements, pattern creation, dimensioning plan, finish, procedures).
- Glue-up table column.
- Turn column to generally match plan.
- Build jig to create column-leg mortise joint.
- Mortise column for leg joinery.
- Layout and shape legs (profile only).
- Cut, grain-match and glue-up table top.
- Make the table pivot block w/pivot and cleats.
- Mortise table column for table legs.
- Create tenons on legs and test fit to column.
- Taper legs using shop built planer jig.

Project Progression (Cont)

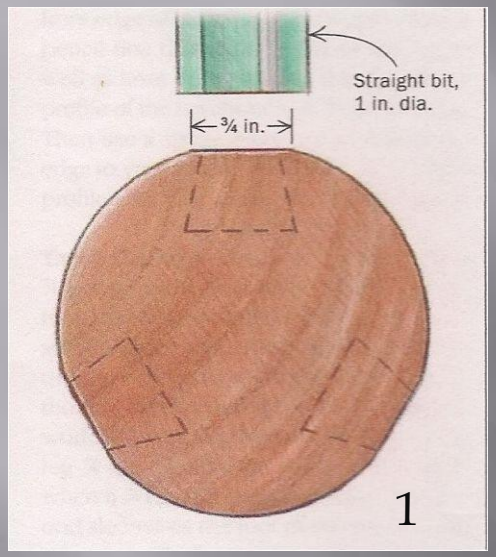
- Create table pattern jig.
- Flatten table top (front and back).
- Band saw table top rough profile to pattern jig outline.
- Clean up table top edges with pattern bit.
- Round-over table top edges.
- Prep top for sealer, stain and finish.
- Glue legs to column.
- Apply sealer and stain to all components.
- Brush on finish, all components.
- Setup spray booth, clean shop area, etc.
- Spray Finish top (spray, fill, level, rubout). **
- Assemble
- Create "How I did it presentation" for GCW.

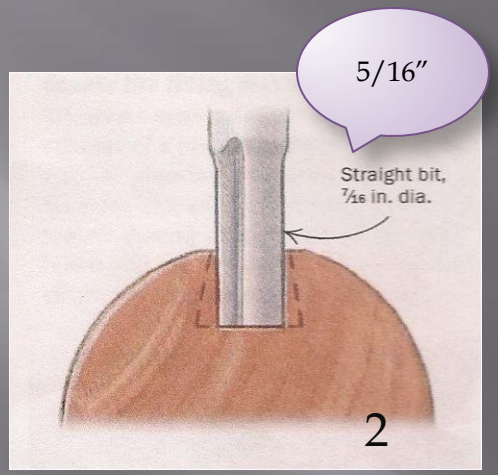
The Turned Column

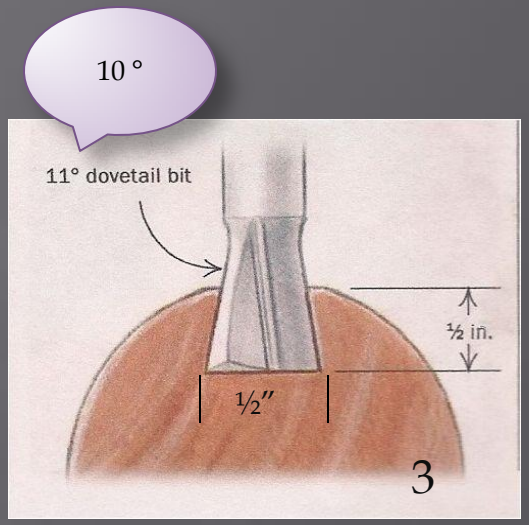
- 8/4 x 3″ cherry stock selected.
- Stock donated by Neil Knutsen.
- Surfaced stock and glued to create 3″ x 3″ x 28″ turning blank.
- Oriented stock for best grain match.
- Turned column to generally match column profile in plan.

- Left ½″ tenons on ends for mounting in mortising jig.
- Final sanding, 320 paper with grain.

Table Leg Mortise

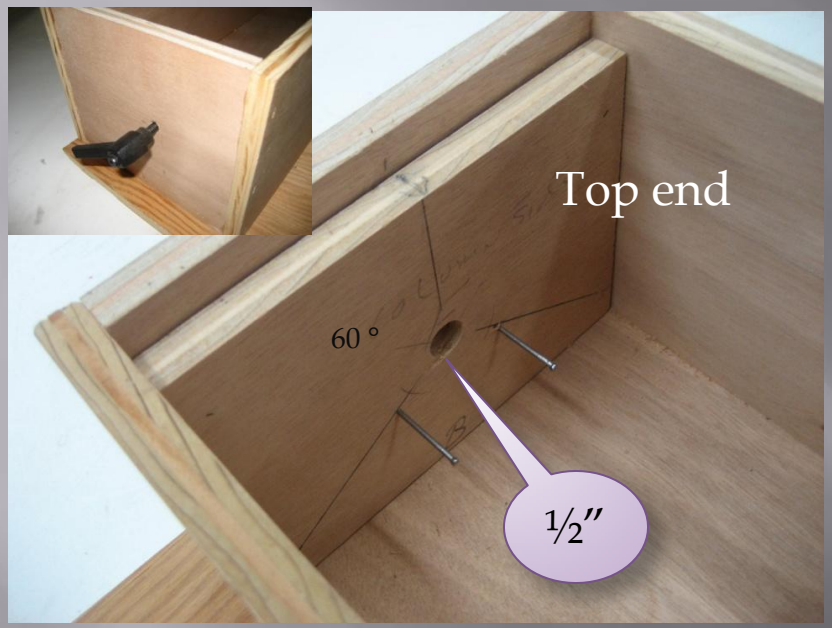


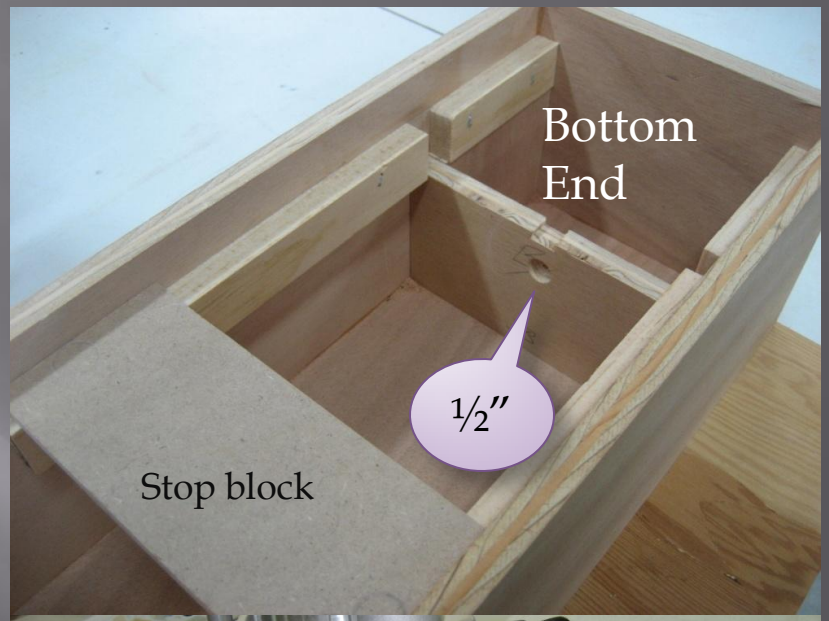




- Took time with planning and cutting mortises.
- Double, triple…. checked router setup for each bit.
- Even with that I managed to cut 1 flat too deep on one joint. Filled and re-cut.
- Rotated column 60 ° each cut.

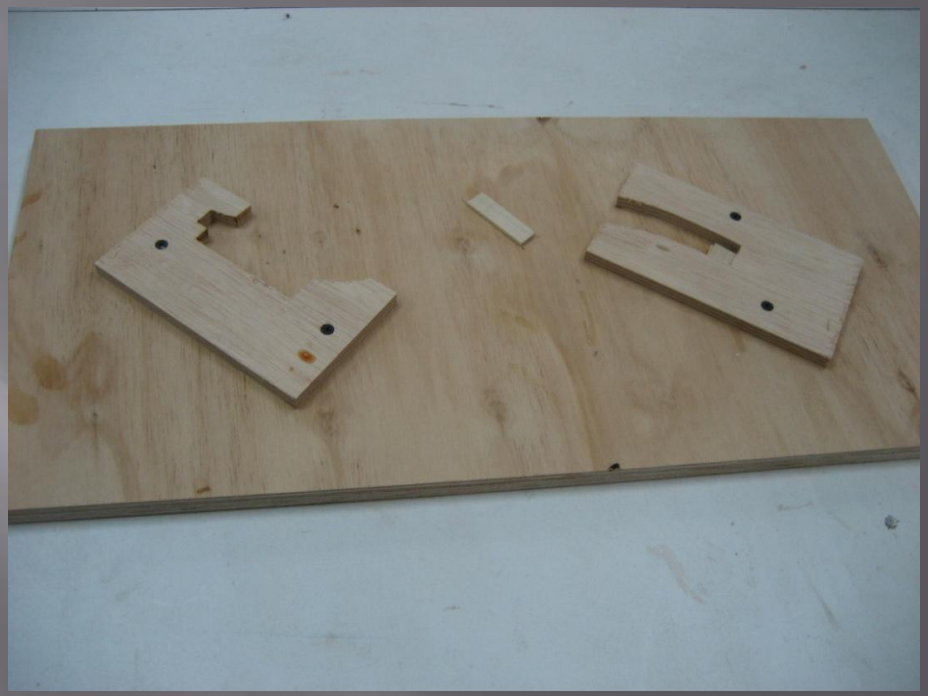
Mortising Jig





- Indexed top mount for 60°. Stops.
- Top of jig has threaded insert for screw and knob for locking column in place.
- Router plate made of clear plastic for visibility.
- Stop block is clamped in place for each pass.

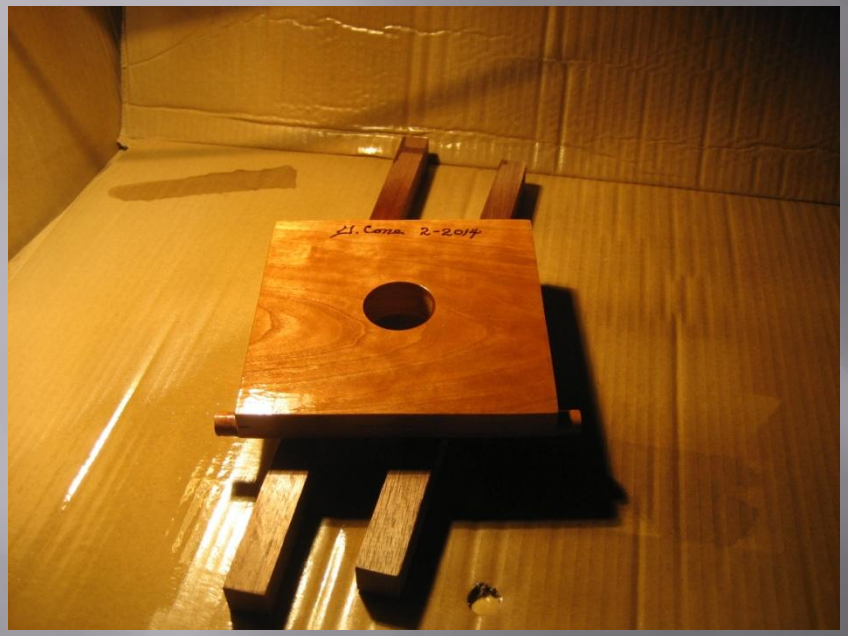
What Nice Legs

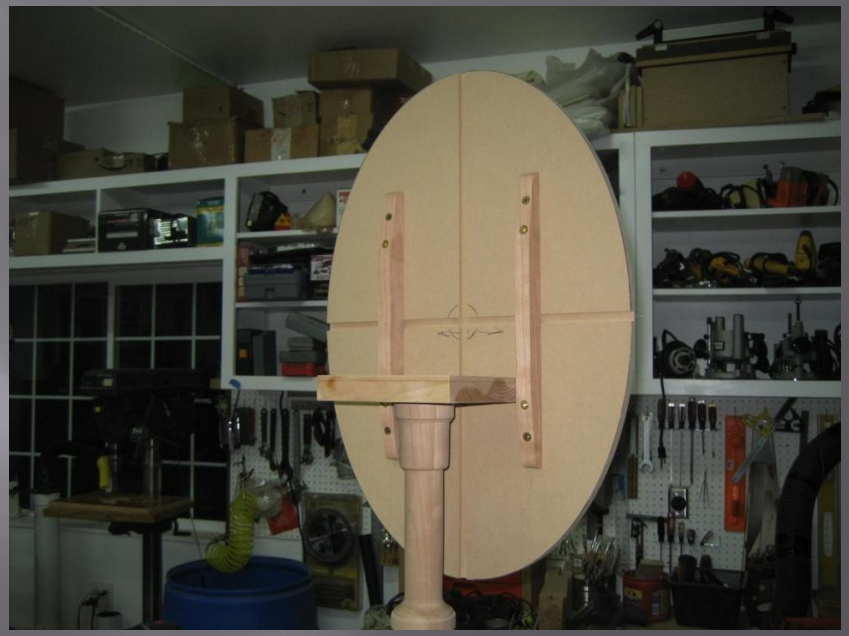


•Shaped legs from pattern.
•Stacked and bandsawed 3 together.
•Used spindle sander for final profile.
•Applied roundover top edges, 3/16″ roundover bit (router table).
•Routed tenon (dovetail) to match mortise in column and tested for fit.

•Used planer to taper to ½″ at end.
•Built a planer Jig with profiles to capture ends of legs. Didn't forget to fasten down!
•Shimmed jig 1/8″ first pass.
•Relocated jig profiles for planing the other side.
•This time the shim is set of ¼″.

Fabricate Pivot Block and Test

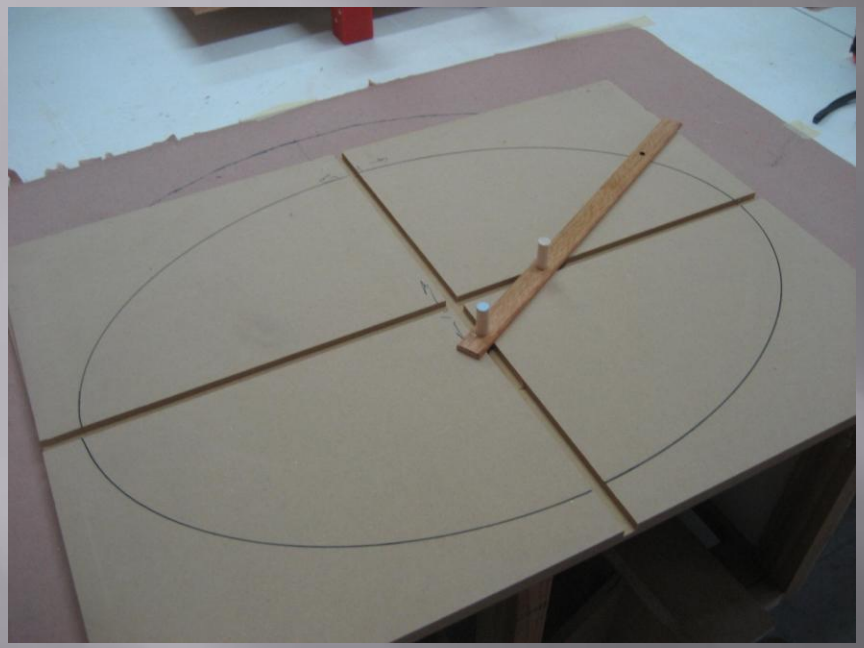


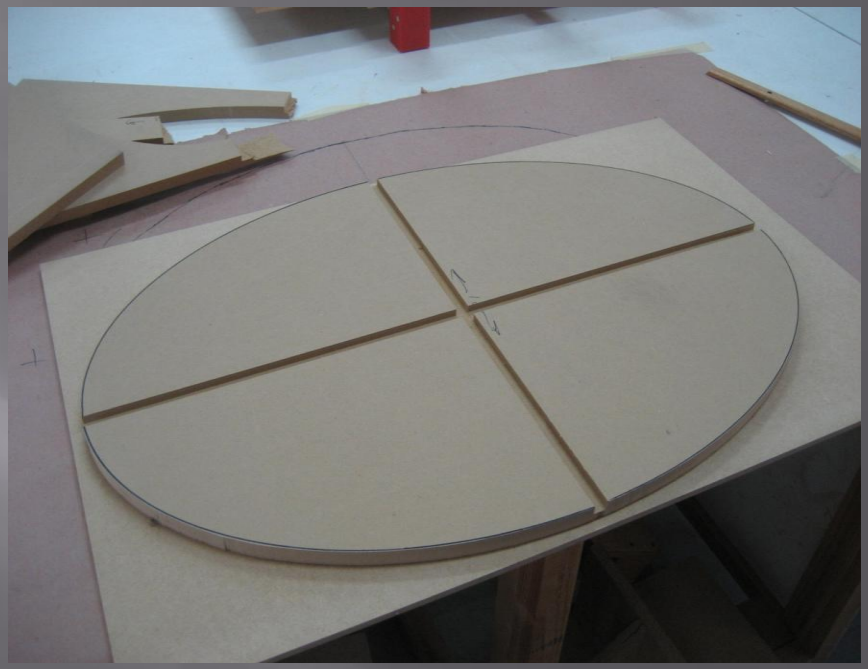


- Pivot block from laminate of 2 6x6 squares redimensioned to 1″ thick.
- Pivot strip from 5/8x5/8″ cherry.
- Pivot strip turned on lathe creating round tenons.
- Pivot strip then glued to block.

- Test to make sure pivot block fits column
- Locate cleats and test tilt using table layout jig.

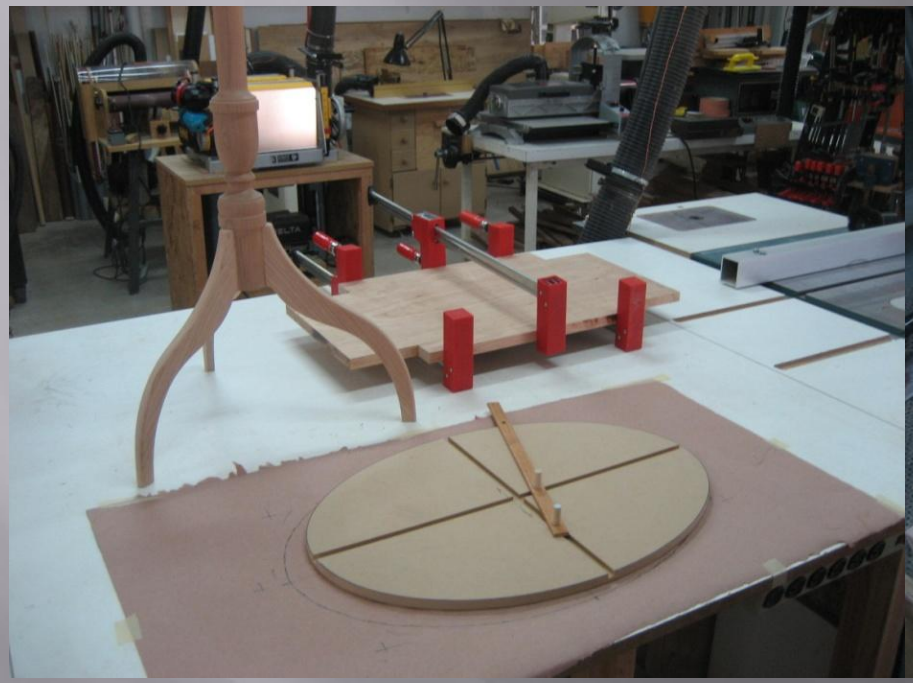
Table Pattern Jig

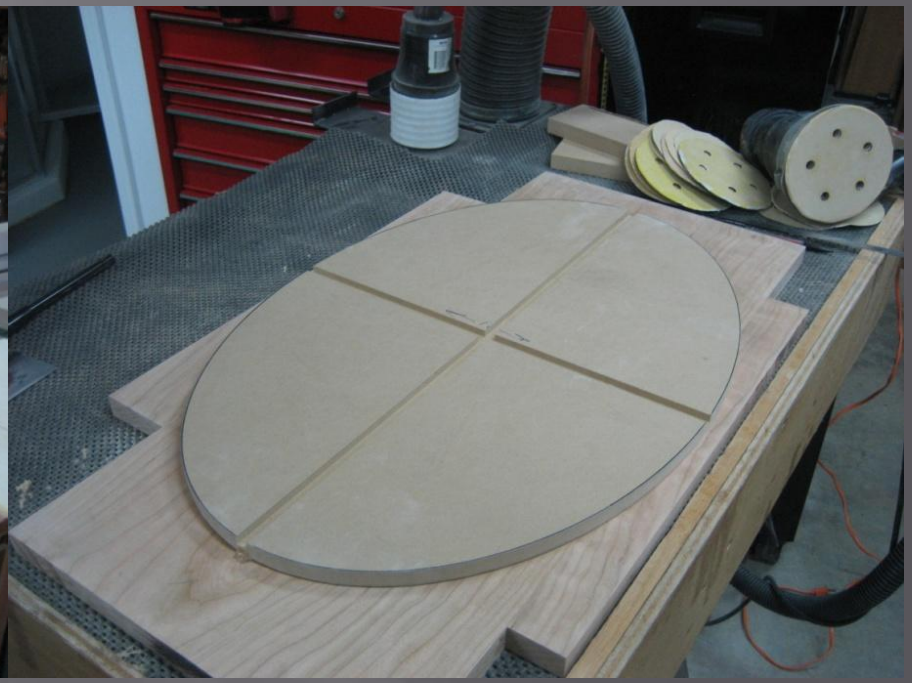




- Objective was to create and elliptical table pattern 15″ x 22″.
- Material used = 1/2″ MDF
- Cut 2 intersecting 3/8″ dados at center lines ¼″ deep.
- Fabricated compass with 3/8″ dowels set at difference of 2 radiuses 7.5″ and 11″.
- Drilled 1/8th″ hole 11″ from 1st dowel.
- With pencil drew line as compass was guided by dados.
- Cut out pattern on bandsaw and cleaned up contour with belt sander.

From Pattern to Table (1)

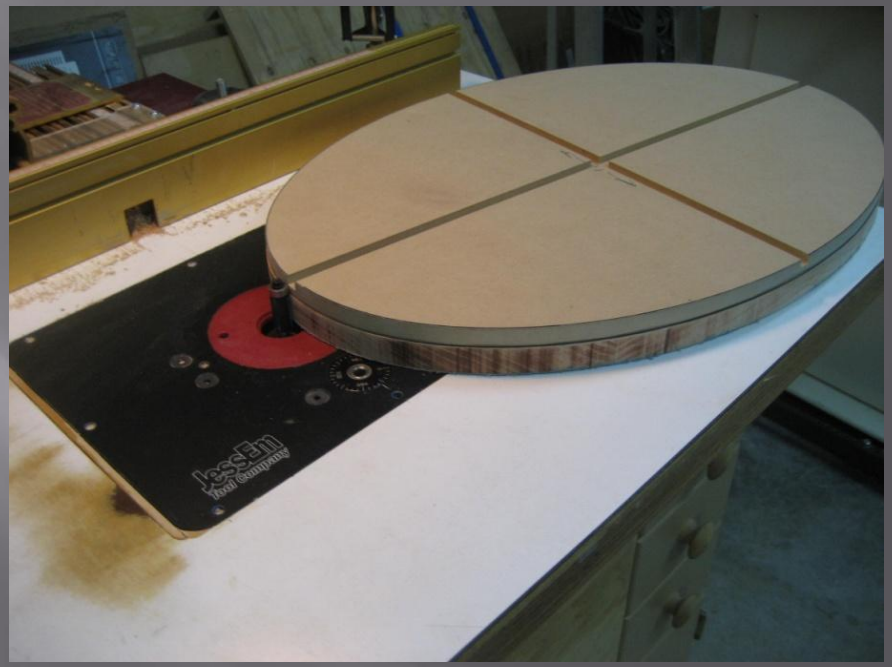




- Did a glue up of table top stock to facilitate 15″ radius.
- Primary (center stock) was ~ 12″.
- Added 3″ balanced between 2 sides with attention to grain matching and orientation.

- Cleaned up and leveled both sides using scraper.
- Sanded (orbital) 220.
- Centered pattern and marked table profile.

From Pattern to Table (2)



- Scrolled table top using bandsaw close to but not on profile line.
- Attached table pattern to top with carpet tape.
- Cleaned table edge using profile bit on router table.

- Took light passes to reduce cherry burn at end grain.
- Used upright belt sander to further clean up any contour imperfections.

Prep. for Finishing

•Tape on bottom side to reduce scratches while bandsawing and pattern bit routing.
•Rounded edges using ¼" roundover bit.
•Sanded all surfaces using 320 orbital sander.

•Removed all cherry burn on edges.
•Sanded top and bottom side "with grain" using 320 sand paper.
•Wiped with mineral spirits and inspected.
•Allowed to dry for 2 days before sealing.

Sealing and Staining

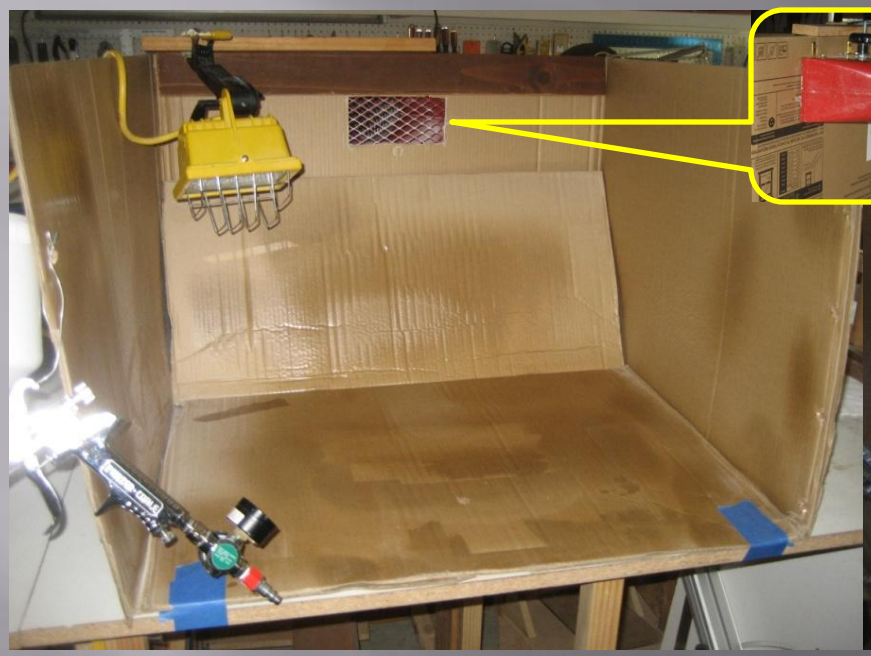
Sealing

- Used shellac as seal coat cut 50%.
- Applied sealer to all table components.
- Let dry overnight.
- Lightly sand by hand, 320.
- Cleaned all dust from components.

Stain It

- Stain on cherry?
- Wanted a warmer finish without waiting 5 years.
- Used ZAR cherry stain.
- Applied with foam brush.
- Set for 15 minutes each part.
- Wipe excess stain and buff.
- Waited several days before starting the application of lacquer.

My Spray Booth



- Spray booth from cardboard box.
- Cheap, Cheap, Cheap
- Light mounted for warming up area and target.
- I use shop florescent lighting during spray operations. NOT LAMP!
- Top load HVLP gun used.
- Room cleaner on for at least an hour before and after shooting.
- Room cleaner has coarse and HEPA filters.
- Spray bottle to lightly wet down floor area.
- Central dust collector on during shooting to pull overspray.

Let's Finish It

- A rubout to luster finish requires build up finish .

- Room temp above 70°.

- Brush applied first coat to all components. Full strength.
- Brushed second coat on column and pivot block.

- Spray gun used for table for balance of finishing process.
- Lacquer thinned to ~70/30 for all but the last spray coatings.
- Generally shooting order was: bottom side, edge, top side. Why?

- Had issues with migration.
  - finish migrated out of an area.
  - Wiped away finish and reshot to fill area.
  - What was the contaminate?????
- Had to brush on extra coats for edge to help build-up.
- Inspect after each shooting, while wet. The dust nib devil lives.
- 3 cycles (more if needed)
  - Apply finish (1-2 coats) all surfaces.
  - Allow each surface to dry >2hrs.
  - Wait 24 hours before rubout.
  - Wait 2 hours after rubout to allow naphtha evap.
- Last coat "heavy" with 85/15.

Let's Rub-it

- Use block with eased edges (MDF)
- Use naphtha spirits for lubricant.
- Do underside then topside then edge.
- Provide good lighting for inspections.
- Have clean cotton rags on hand (no terry).
- Rubout using circular motion.
- Inspect often

- Don't be stingy with lubricant.
- Try not to be too aggressive. Rub through!
- Careful when near or on edges. Tread lightly.
- Objective: even out high/low spots.
- Stop – clean – inspect – rub again
- On final: Move to next grit when "it feels right".

4 Levels of Rubout

Final Rubout

- Wait a few days to allow lacquer to harden a bit before final rubout.
- Rubout all surfaces.
- The final rubout follows a progression from 400 – 600 – 1200 using rubout procedures.
- Inspect each rubout to make sure scratches/swirls from prior grit are gone or minimal.
- Also watch to make sure additional finish is not required.
- Finally, rubout with a Rotten Stone slurry for a luster finish.
- Create thin slurry of rotten stone and naphtha spirits.
- Apply slurry with soft cotton cloth in circular motion all surfaces.
- Use new rag for clean up and polishing at each grit.

- Marvel at what you have created then have wife tell you it's marvelous.

Finally "Why lacquer"

Up Side

- Addicted to the fumes???
- Easy to use.
- Don't have to sand between coats.
- Don't have to clean my gun (spray gun) after each use.
- Use Non-Cat for indefinite shelf life.
- Fast drying.
- Lends itself to fine hand rubbed finishes.
- Easy cleanup.

Down Side

- Can take over 90 days to fully cure.
- Can't put anything on table until fully cured.
- Fumes.

Ta-Dah
The End