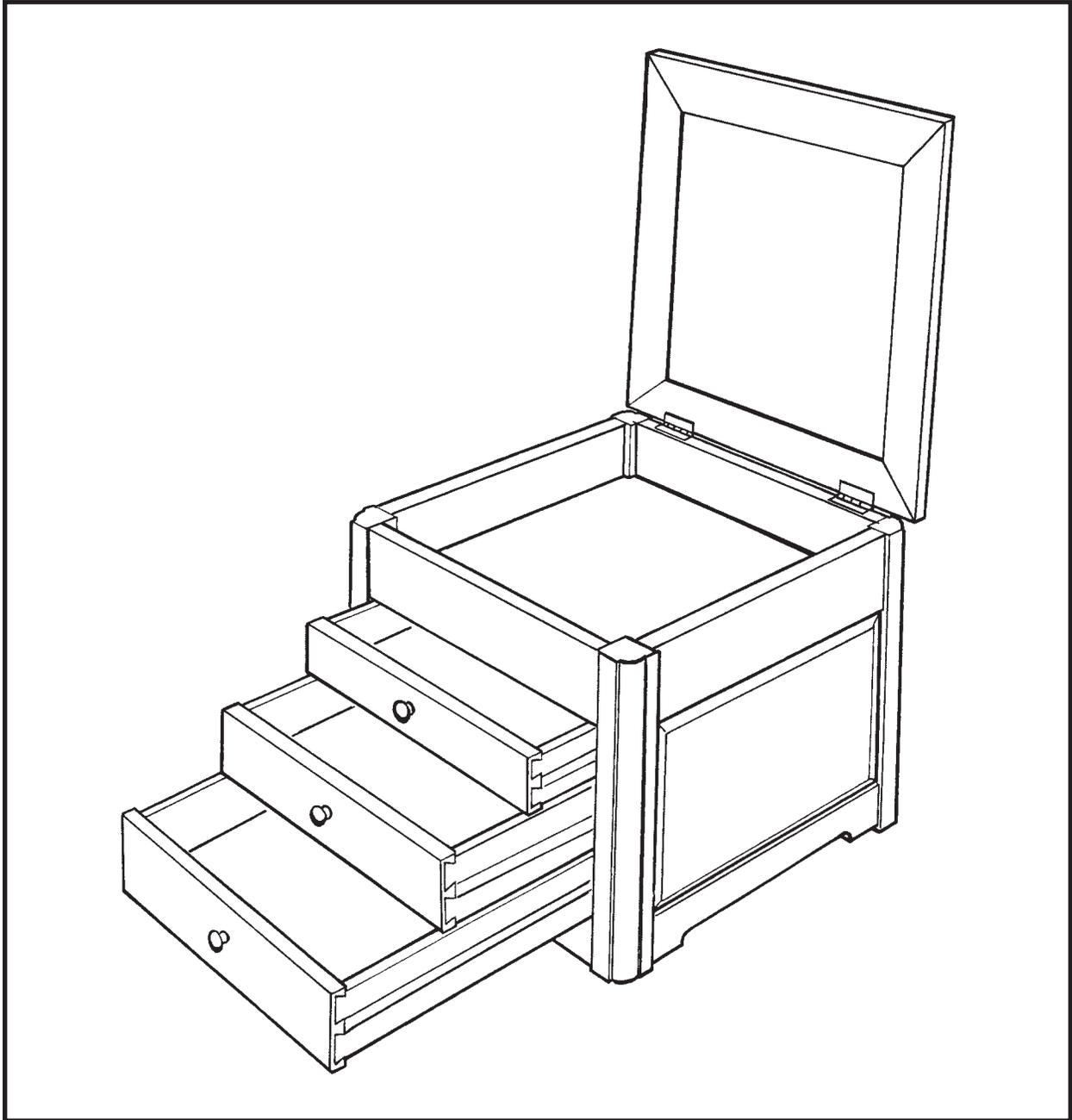


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Silverware Chest Plan



05L14.01

Introduction

1. Measure the space required for your cutlery before beginning this project to be sure that it will fit in the drawers and top compartment. The best way to do this is to arrange the cutlery on paper cut to the size of the drawers. Note any changes to dimensions on the drawing and the Bill of Materials.
2. Cut extra material for each part. This will save you time, should you make a mistake and ruin a piece. You will be able to use the extra stock as test pieces for machining operations.
3. Lay out all cuts on each piece to avoid cutting into the wrong face.
4. The frame can also be made with dowelled joints. Use $\frac{3}{8}$ " dowels (two dowels per joint) and a homemade or commercial dowelling jig to ensure the accuracy of the joints. Reduce the length of the frame rails on the Bill of Materials to account for the absence of tenons.

List of Tools Required

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Router Table	
Router Bits:	$\frac{3}{8}$ " Radius Core Box
	$\frac{1}{2}$ " Radius Core Box
	$\frac{1}{2}$ " Radius Round Over
	$\frac{5}{16}$ " dia. Straight
	$\frac{1}{8}$ " dia. Straight
	45° Chamfer
Table Saw or Radial Arm Saw	
Drill and Bits	
Back Saw, Chisels and Plane	
Planer	

Hardware Bill of Materials

Description	Qty.
Brass Hinges (1" x $\frac{3}{4}$ " to 2" x 1")	1 pair
#3 x $\frac{1}{2}$ " Brass Screws	33
$\frac{1}{2}$ " to $\frac{3}{4}$ " dia. Brass Knobs	3
6" Chest Chain or Lid Support	1

Carcass Construction

Bill of Materials

Description	Qty.	Dimensions
Leg	4	10 $\frac{1}{16}$ " x 1 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ "
Top Rail	4	11 $\frac{3}{8}$ " x 2 $\frac{3}{8}$ " x $\frac{3}{4}$ "
Bottom Rail	4	11 $\frac{3}{8}$ " x 1 $\frac{1}{2}$ " x $\frac{3}{4}$ "
Drawer Back Stop	2	6" x $\frac{1}{4}$ " x $\frac{1}{4}$ "

1. Cut stock for legs, rails, and stops to size. Label each part and mark the outside face with a pencil. **Note: the dimensions in the Bill of Materials are the finished dimensions except as noted.** If you are planning to hand chop your mortises, you may want to leave the legs an inch or two long while mortising, then cut them to length afterward. Lay out and cut the mortises as shown in **Detail — Frame Joinery** on plan. The mortises and tenons are shown with rounded corners — it is easier to round the corners of tenons than it is to square the corners of drilled or routed mortises.
2. Cut the tenons to fit the mortises. Machine the tenon cheeks wider than the mortises; use a sharp knife and file to round the tenon corners. Check the fit of each tenon in its mortise to see where material should be removed. Take care to keep the top rails flush with the top of the legs and the lower rails $\frac{1}{4}$ " from the bottom of the legs.
3. Rout $\frac{1}{8}$ " grooves ($\frac{1}{4}$ " deep) in the rails and legs to house the side and back panels (see **Detail — Frame Joinery** on plan). Rout the grooves in the top and bottom rails first, then dry-assemble the legs and rails and transfer the location of the grooves in the rails to the legs — this will ensure that the panel grooves will match if there are slight errors in the leg and rail fit. Rout the grooves in the legs, stopped at both ends. Use stop blocks mounted to your router table fence to stop the grooves accurately at each end. **Note: it is good practice to lay out the position of grooves on each piece first so you don't inadvertently rout a groove on the wrong face.**
4. Rout grooves in the top rails for the compartment bottom. **Note: standard plywood sizes are nominal; $\frac{1}{8}$ " thick plywood is actually 3mm, which is a sloppy fit in a $\frac{1}{8}$ " groove. You may want to use a 3mm router bit.**

- Assemble the legs and top rails without glue and transfer the groove location from the inside of the rails to the legs. Extend the lines around the legs and use a back saw to cut diagonal grooves in the legs that extend to the grooves in the two top rails. Clean out the waste with a chisel or file (see **Figure 1** below).

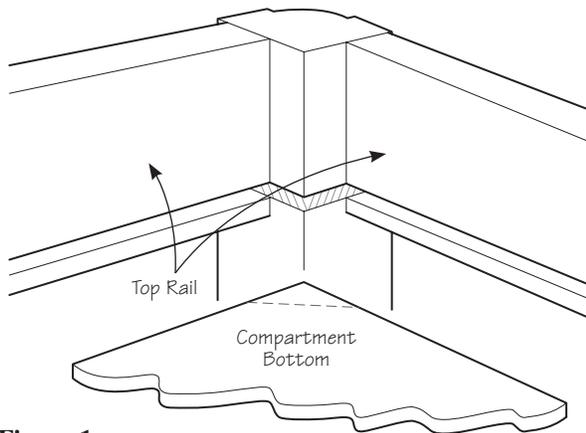


Figure 1:

- Fix the drawer back stops to the rear legs, each with three #3 × 1/2" flat-head screws. Make sure they are flush with the inside edge of the legs.

Side, Back and Lid Panels

Bill of Materials		
Description	Qty.	Dimensions
Side Panel	2	10 ³ / ₄ " × 6 ⁵ / ₁₆ " × 1/4"
Back Panel	1	10 ³ / ₄ " × 6 ⁵ / ₁₆ " × 1/4"
Lid Panel	1	9 ⁷ / ₈ " × 9 ¹ / ₁₆ " × 1/4"
Compartment Bottom	1	11 ¹ / ₂ " × 11 ¹ / ₂ " × 1/8" Ply

- Resaw to half thickness three boards approximately 16" × 4" × 3/4" and one 16" × 5" × 3/4". The extra length to the boards will allow for end-snipe when planing the panels. Edge-glide the resawn pairs to make four book-matched panels. Plane the panels to 1/4" thickness and cut to size. **Note: the width of the panels allows for 1/8" of expansion in the panels across the grain.** Use a router and/or table saw to mold a fielding on the edge of the panels.

Making Coved Panels with a Router

Prepare your panels to the exact size required. Measure across the diagonals to ensure that they are square. Mount a 1/2" core box bit into your router table. Set the bit height to 1/8" and the fence 7/16" from the center of the bit. Place a strip of thick masking tape along the router fence. Beginning with an end-grain side, rout a groove along all four sides, turning the panel 90° counterclockwise after

each pass. Remove the masking tape from the fence and pass all four sides through the router again to make a fine clean-up cut.

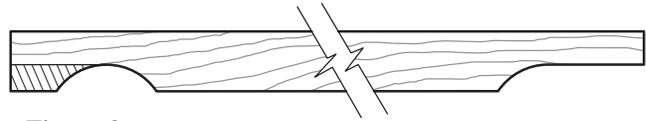


Figure 2:

With a straight bit in the router, set the fence and bit height to remove the rest of the material to complete the fielding. Feed the panels face down across the router table with the edge against the fence.

- Cut the compartment bottom from 1/8" plywood. Ensure that it is square by measuring the diagonals. Cut off the corners of the plywood to fit the grooves in the legs. Dry-assemble the carcass with all the panels in place and check that all the joints can be pulled tight and that the panels do not interfere with the joints. Also, check to see that the carcass is square and with no twist.
- Chamfer the bottom edges of the legs. Make the cut-outs on the lower rails with a bandsaw, jigsaw, or router table. Do not rout the molding on the corners of the legs until the carcass is glued up.
- Before gluing the carcass together, sand all the surfaces that will be difficult to reach once assembled. Sand and finish the side, back and lid panels before assembly. This will allow you to apply finish to the parts that will fit in the frame grooves. Panels finished after being assembled in their frames will show edges that are unfinished when they contract in winter.
- Lay out and cut the mortises for the hinges in the top rail.

Carcass Assembly

- When building a project with fitted drawers, it is critical to have a square carcass so the drawers will run without binding. Take your time at this stage and it will save you time and frustration when fitting the drawers. Start assembling the carcass by gluing the two side frames and panels. Check that the frames are square and flat and that the panels are free to move within the frame. Once the glue has set, clean up any squeeze-out. Glue up the rest of the carcass and, once again, check that the assembly is square and flat.
- After the carcass has been glued, rout the quarter-round molding on the outer edge of the legs with a 1/2" round-over router bit.

The Lid

Two methods of joinery for the lid frame are shown in the plan: Option 1, mortise and tenon; Option 2, spline-reinforced miters.

Option 1: Mortise and Tenon Construction

Bill of Materials		
Description	Qty.	Dimensions
Front/Rear Lid Frame	2	12 ⁷ / ₈ " × 1 ³ / ₄ " × 5/ ₈ "
Side Lid Frame	2	10 ¹³ / ₁₆ " × 1 ³ / ₄ " × 5/ ₈ "

Cut the front and rear members 1¹/₂" longer than stated in the Bill of Materials — the extra ³/₄" at each end will support the thin wall of the mortise during machining and glue-up. Mortise the front and rear frame members (see **Top View and Front View** on plan). Fit the tenons to the mortises. Rout ¹/₈" grooves, ¹/₄" deep into the side frame members, ³/₁₆" from the top edge, to house the panel. Rout grooves, stopped 1¹/₂" from each end, in the front and rear members.

Option 2: Spline-Reinforced Miter Construction

Bill of Materials		
Description	Qty.	Dimensions
Front/Rear Lid Frame	2	12 ⁷ / ₈ " × 1 ³ / ₄ " × 5/ ₈ "
Side Lid Frame	2	12 ¹³ / ₁₆ " × 1 ³ / ₄ " × 5/ ₈ "

Cut the panel groove into the lid frame stock before cutting the miters. Use a plate joiner with a #0 biscuit at each corner to reinforce the miter joints (see **Top View** on plan).

1. Dry-assemble the lid with the panel in place. Check the fit of the joints and ensure the panel is free to move in the frame. Glue up the lid.
2. Once the frame is glued, rout a finger grip in the front of the lid with a ³/₈" radius core box bit. Use stop blocks mounted to the router table fence to stop the groove at 4" long. Trim the front and rear members flush with the sides if the mortise and tenon option was used.
3. Mortise the rear frame member for the hinges.

The Drawers

Bill of Materials		
Description	Qty.	Dimensions
Upper Drawer Front	1	10 ¹ / ₄ " × 1 ¹ / ₂ " × 5/ ₈ "
Middle/Lower Drawer Front	2	10 ¹ / ₄ " × 2 ³ / ₁₆ " × 5/ ₈ "
Upper Drawer Side	2	* 11 ⁷ / ₈ " × 1 ¹ / ₄ " × 3/ ₈ "
Middle/Lower Drawer Side	4	* 11 ⁷ / ₈ " × 1 ¹⁵ / ₁₆ " × 3/ ₈ "
Upper Drawer Back	1	9 ⁵ / ₈ " × 1 ¹ / ₈ " × 3/ ₈ "
Middle/Lower Drawer Back	2	9 ⁵ / ₈ " × 1 ¹³ / ₁₆ " × 3/ ₈ "
Drawer Bottom	3	11 ¹ / ₈ " × 9 ⁷ / ₈ " × 1/ ₈ " Ply
Drawer Runner	6	11" × 3/ ₄ " × 3/ ₈ "
Drawer Stop	3	1 ¹ / ₂ " × 1 ¹ / ₂ " × 1/ ₈ " Ply

* Includes ¹/₄" cutting allowance.

1. Rout the rabbets in the drawer runners to leave a ³/₈" wide by ³/₁₆" deep tongue. The tongue should be a tight fit in a ³/₈" groove routed in a hardwood scrap. Drill through the tongue at each end with a ⁵/₃₂" drill and countersink for a #3 screw. Cut away the back of the drawer runner at each end to leave ³/₈" of exposed tongue (see **Detail — Drawer Runner** on plan).
2. Rout ³/₈" grooves (³/₁₆" deep) in the drawer sides. Use the lower edge of the drawer sides as the reference edge. Stop the grooves ⁵/₈" from the front. Apply a strip of thick masking tape to the router table fence and rout the grooves again. This will give about 0.005" clearance between the runners and the drawers. **Note: you will have to change your stop blocks for left and right sides. Use a featherboard to keep the stock tight against the fence — the router will tend to pull the stock away from the fence when routing the right sides.**
3. Rout a ¹/₈" × ³/₁₆" rabbet in the inside lower edge of the drawer sides. Rout ¹/₈" × ³/₁₆" deep grooves in the drawer fronts. The grooves in the fronts are stopped ³/₁₆" from each end (see **Section A-A and Upper Drawer — Side View** on plan).
4. Rout a ³/₈" dado (¹/₁₆" deep) in the drawer sides 11" from the front edge (see **Middle and Lower Drawers – Side View** on plan). Use a 12" × 12" scrap of plywood, cut square, to guide the work through the router.

- Lay out and cut the half-blind dovetails for the three drawers. Cut the tails on the sides first, then scribe the tails onto the drawer fronts with a sharp knife. Use a scrap of $\frac{1}{8}$ " plywood with a notch cut out of one corner pressed into the rabbet on the drawer side and into the groove in the drawer front to accurately align the two pieces (see **Figure 3** below). Cut the pins.

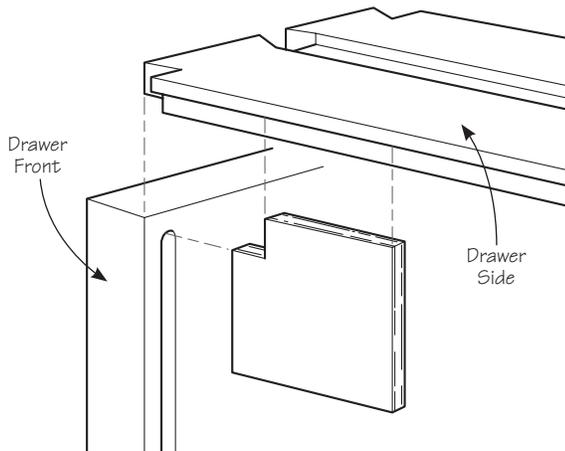


Figure 3:

- Drill pilot holes for the drawer knobs in the three drawer fronts. Sand all the drawer parts before assembly.
- Glue and assemble the drawers with the bottoms glued in place. Check for square and twist in the drawers and correct before the glue sets.
- Square up the $\frac{3}{8}$ " grooves in the drawer sides with a chisel.

Fitting the Drawers

- Slide each drawer into the carcass to ensure that it slides without binding against the legs. Plane or scrape the drawer sides if necessary. The drawers will be too long for the carcass at this point. Slide each drawer into the carcass and measure how much each drawer protrudes from the front of the legs. Trim the drawer sides on a table saw or by hand until the drawer is inset $\frac{1}{8}$ " from the front legs.
- Stack all three drawers into the carcass and measure the gap between the drawers and carcass. Divide the measurement by four to establish the proper spacing between the drawers. Aim for $\frac{1}{64}$ " to $\frac{1}{32}$ " gap between drawers and rails. If there is insufficient gap you may have to plane the drawer fronts.

- Cut some $\frac{1}{4}$ " \times $\frac{3}{4}$ " shims from cardboard or thick paper to act as wedges to temporarily hold the drawer runners in place. Firmly wedge the bottom drawer runners in place. Slide the bottom drawer into the carcass and tap the front of the drawer up or down until there is a uniform gap between the drawer and the lower rail. Remove the drawer, being careful not to shift the position of the runners. Hold a square against the front leg and tap the back of the runner until it is square with the leg. Slide the drawer into the carcass to check the position of the runners. Correct if necessary. Once you are satisfied with the fit of the drawer, remove it and mark the centers for the screws in the legs with a bradawl and scribe the position of the runners on the front and rear legs with a sharp knife. Remove the runners and drill $\frac{3}{32}$ " pilot holes for $\#3 \times \frac{1}{2}$ " flat-head screws to hold the runners. Fix the drawer runners in place with four screws. Slide the drawer into the carcass.

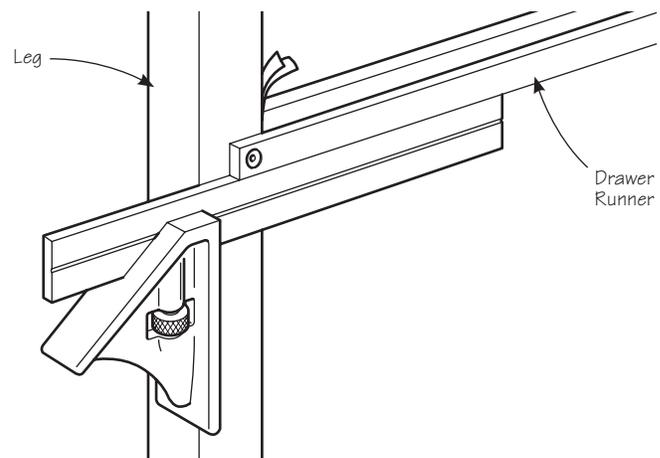


Figure 4:

- Follow the same procedure for the middle and top drawers. Once you have all three drawers fitted into the carcass you may want to fine tune them by scraping the runners or drawer sides until they glide effortlessly. As a final touch, apply a small amount of paraffin wax (candle wax) to the runners.
- Make three drawer stops from $\frac{1}{8}$ " plywood as shown in **Detail — Drawer Stop** on plan. These are fixed to the underside of the right drawer sides to stop the drawers from accidentally sliding off the drawer slides. Position the stops on the drawer sides so that at least 1" of drawer remains in contact with the drawer slide when the drawer is fully open. Install the top drawer first, locking the drawer stop from the underside of the chest so the leg is pointing out. Repeat this procedure for each drawer, working down the chest.

Finishing Notes

Do not apply any finish to the outside of the drawer sides or runners. Any finish on these parts will cause the drawers to bind. Apply your choice of finish to the inside and outside of the case. If you are using a finishing oil, do not apply any oil to the inside of the drawers or the lid compartment. The oil may bleed onto the lining material or tarnish silverware.

After the drawers are completed, make cutlery divider bars from $\frac{3}{8}$ " stock (not shown on plan). When cutting the slots for the cutlery, allow $\frac{1}{16}$ " clearance for each surface to be lined with material. Fix the divider bars to the drawers and compartment bottoms with two #3 $\times \frac{1}{2}$ " screws.

Fit all the brass hardware after finishing.

Notes

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