

Turning a Box with an Inlaid Cover

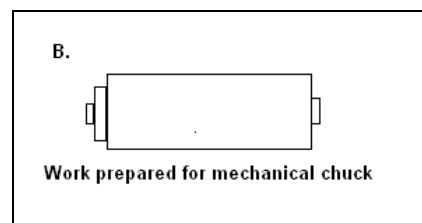
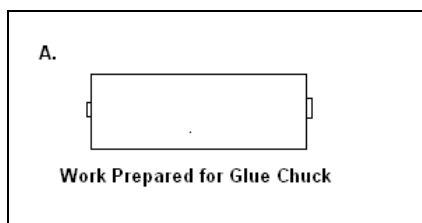
1. Introduction. With a little practice, boxes are relatively easy to make. The scale is small, a simple lathe and equipment are sufficient, and skills are exercised in spindle and faceplate work, hollowing, fitting, jam chucking, and finishing. They make great gifts, and can be put to use for storage of small objects.

Box covers can be made to fit inside or outside the body of the box. In the explanation given here the cover will fit outside. If the wood is highly figured and an exact grain match is desired, the hollow in the cover must face *toward* the body, and requires a separate chucking after being cut off from the workpiece. In the method shown here, the hollow in the cover is cut facing *away* from the body. The grain match isn't perfect, but it's simpler and faster this way and doesn't require a separate chucking.

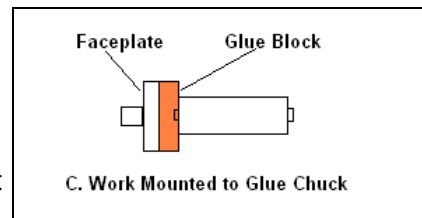
In the sections below, tools are listed for each operation. These are suggestions only. If another tool works better for you - use it.

2. Prepare the workpiece. TOOLS: Roughing Gouge, Parting tool, Square End Scraper, Small Gouge.

Turn a cylinder 2 ½ " to 3 ½" in diameter and about 5" long from the stock which you have mounted between the spur center and tailstock on your lathe. Square off the ends with a



parting tool, going in as far as you can without hitting the mounts. This workpiece is then mounted either on a mechanical chuck or a glue chuck. If you are using a mechanical chuck, use your parting tool to cut a shoulder on the end for support. Cut in about 3/8".



If you are going to use a glue chuck, screw a piece of hardwood on to your lathe faceplate, and true the face flat with a square nose scraper. Check for flatness with a straight edge. Check the mating surface of the workpiece for flatness as well. Cut a recess in the center to clear the nub on the workpiece, and glue up, using the tailstock to center it and as a clamp until the glue sets.

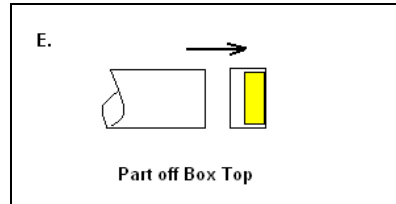
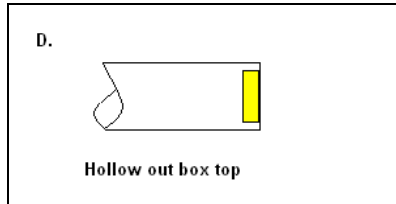
Once the workpiece has been chucked, true it up and improve the surface with gouge and/or scraper, and sand smooth.

3. Hollow the box cover and part it off. TOOLS: Small gouge, Square End Box Scraper, Parting Tool. (For Box Scraper, see illustration on next page)

The mating lip part on the box will be ¼ " long. The cover will be hollowed out to a depth of 3/8" to allow 1/8" clearance. Hollow out a small area in the center at the end of the workpiece with your gouge to a depth of almost 3/8", checking with a small ruler as you progress.

Enlarge the opening, keeping the bottom as flat as possible until you reach about 1/4" from the edge. With the box scraper, flatten out the bottom and work towards the edge, leaving a lip of about 1/8" in thickness, as square and straight as you can.

Sand the back of the recess, and apply finish to the interior. An insert will be placed in the top of the cover, in a recess about 1/8" deep. We will want a wall about 1/8" between this and the recess just made. This makes the cover 5/8" high. Mark off this distance from the end, and part off the cover with a parting tool.



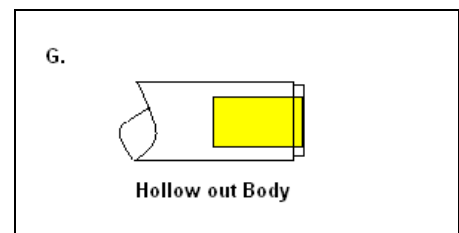
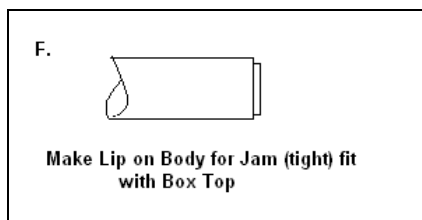
4. Make a lip for a jam fit with cover; hollow out body.

TOOLS: Parting Tool, Penknife, Small Gouge, Round Nose Scraper, Box Scraper.

Measure and mark off 1/4" from the end of the workpiece. Start turning a lip with the parting tool to accept the cover, taking small light cuts, and checking for a fit with the cover frequently. When you see that you are beginning to approach a fit, start taking *small, very light cuts, checking frequently*. Stop when you can push the cover on with gentle pressure. This is a jam fit and will serve to secure the cover while you cut the recess in the top, insert the inlay, and shape the assembly. If you overshoot and take off too much, a layer or more of kitchen towel put between the pieces will serve to hold them together tightly enough when you press the cover on.

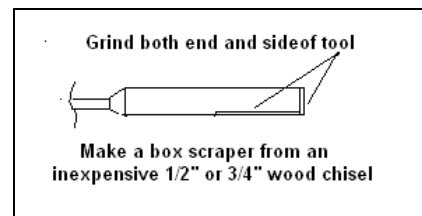
The cover is now tight against the shoulder - take a penknife blade and gently pry the cover off, bit by small bit as you rotate the piece by hand. Put the cover aside.

Now, proceed to hollow out the body to a depth of not more than 2" (any deeper becomes more difficult because of tool overhang) by using the gouge, the round nose scraper, and finally the box scraper to flatten the bottom and square the side of the hole. Sand and finish the inside of the box. Take the chuck and body off the lathe.



5. Turn inlay to size.

TOOLS: Small Gouge, Scraper, Outside Caliper.
Optional: Lathe made headstock and tailstock friction-hold jigs.



The next step is to prepare and turn an inlay disc for insertion in the cover. Choose a wood which will contrast with the body. Stock should be 1/4 inch thick or greater.

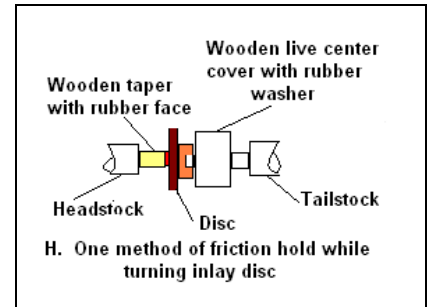
Make the disc diameter 3/8" smaller than that of the cover. Scribe a circle this size on the stock with a compass. Press in the point to make a small indent. Cut out the disc, oversize, outside of the circle.

Many turners place a piece of double backed tape on the face of the headstock. The disc is secured between headstock and the live center point on the tailstock (at the disc indent), and turned down this way. This works, but a live center point is almost 1/4 inch long, so the piece must be thicker than that for a hole not to show when the cover is finish turned.

An alternate securing method with lathe made parts shows at right. There is no hole in the disc, and even very thin stock can be used.

Set the caliper to the diameter. Turn down the disc with a gouge, checking as you go with the caliper. When you are close, finish the edge square with the scraper down to the diameter.

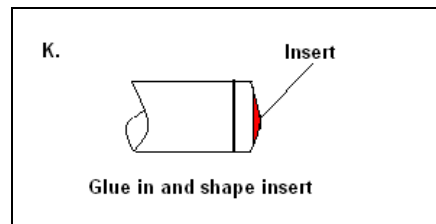
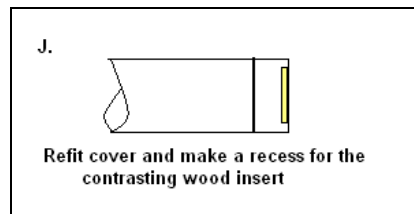
Remove the disc and holdings. Remount the chuck and body, and press the cover on.



6. Turn a recess into the cover. TOOLS: Parting Tool, Round Nose Scraper, Box Scraper, Glue in disc. Compass, Mallet

Bring the live center up against the box cover, turn it in a bit to make an indent. Move it out of the way. Scribe a circle on the box top with the compass, the same diameter as the insert. Bring the tool rest up to the box top. Cut a 1/8 inch deep groove inside the circle with the parting tool. Cutting no closer than within 1/8 inch of the circle, hollow out the interior to the 1/8" depth set by the groove. Flatten the bottom with the box scraper. Now, move the box scraper outward towards the circle, taking *light cuts* - the side will begin to do the cutting now. Keep the tool positioned for a square edge cut. Frequently check the disc for a fit into the hole. When you feel that the disc can enter under gentle pressure - **stop**.

Put a small amount of glue around the inner surface of the disc near the edge, press it into the recess slightly, and gently knock it in with a wooden mallet.



7. Shape Insert. TOOLS: Scrapers

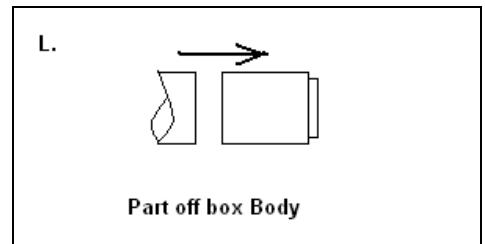
The insert can be shaped by cutting it flush with the top, or made into a small crown as shown. If you shape a crown you will round the edges of the cover to blend. Don't cut below the 3/8" recess inside. Scrapers are recommended, since cutting pressure tends to push straight in. Gouge cuts have a sideways force and too heavy a cut may pop the cover off. In any event, take light cuts, since you have only friction holding the cover on.

After shaping, sand the cover and finish the outside of the entire box.

8. Remove and fit cover. TOOL: Parting Tool
Part off box body.

Remove the cover as before, with a penknife blade. Sand the lip on the box until the desired cover fit is reached. Finish the lip.

Mark the length of the box so that when it is parted you will be left with a 1/4 inch thick bottom. Part off the box body.

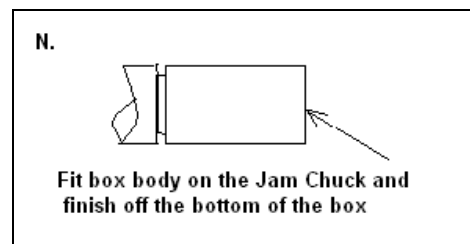
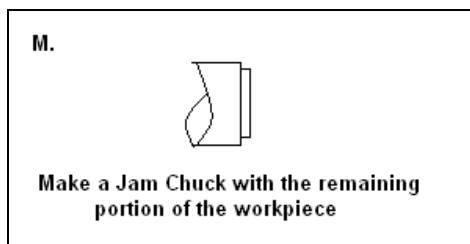


9. Make a jam chuck for the body. TOOLS: Parting Tool, Scrapers
Finish the box bottom.

Make a jam chuck for the body by turning a section on the right hand side of the remaining stock to the inside diameter of the box, about 3/8 inch in length. Use a parting tool. Check for fit with the body of the box as you proceed, and using the same procedure as you did with the box top. Stop when the body can be pressed in by moderate hand force.

Bring the tool rest up to the box bottom and turn a shallow hollow in the bottom of the box with light cuts, leaving a small rim. Round the sharp corner where the side meets the bottom. Sand. Sign the bottom if you wish, and finish. Pry off the box body with a penknife as before.

Reassemble the cover and body -----you've done it.



Note on finishing: Using a thinned laquer finish (such as Deft) and blowing warm air from a hair dryer on the piece as it is rotating slowly on the lathe speeds up the finishing process.