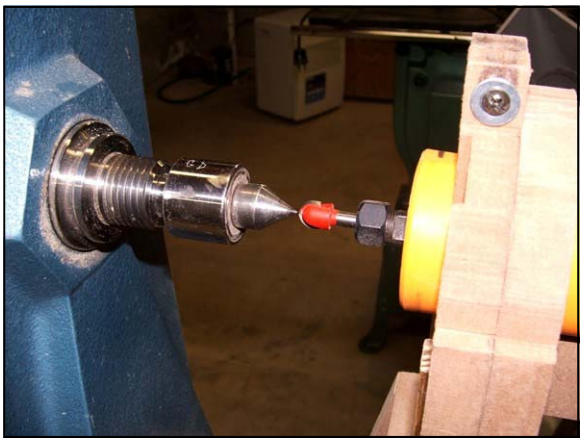
Router Jig to make Darts and Flutes into Turned Objects on the lathe.

Designed by George De La Grange, Chesapeake Woodturners

1. The first step is to measure the distance from the center of the headstock spindle to the bed of the lathe. Every model of lathe has a different height, and what the manufacturer claims as the swing over the bed is not always accurate. Most claim a larger swing distance than what is actually the true dimension. My lathe claims a 24" swing and it is actually 23 3/4". This is a critical dimension because if your jig is too high or low then your tool bit will not be centered. The jig can be made in two versions, one fixed in height and the other adjustable in height so it may be used on more than one lathe. The work surface that the jig slides across is made from 3/4" plywood, and the Router Jig is made from 3/4" MDF.

The vertical support of the router jig is determined by adding the thickness of the work surface, the thickness of the jig base (part A) . This dimension is subtracted from the center of the spindle height to lathe bed dimension. This distance will be the center of the 2 1/2" hole that holds and supports the router.



The router bit is centered on the spindle of the head-

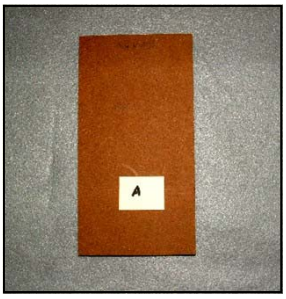
The first step in the construction of this jig would be to cut the materials needed for the project. The materials used can be MDF or plywood. I chose MDF because I had some leftover pieces in my shop. It was 3/4" in thickness and the work surface is plywood should be the same thickness also. Cut four pieces to the below dimensions.

5"X 5 1/2" D
5"X6 1/2" C
5"X9 1/2" B
5"X10 " A

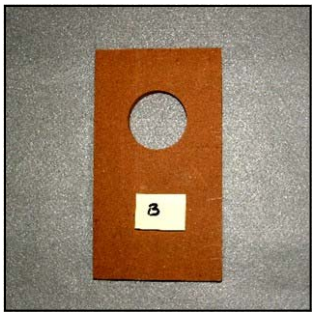
All are made from 3/4" MDF. Pieces B and D have a 2 1/2" hole bored in them to hold the router. When the hole is cut, check that the router just fits into the hole, maybe just a bit snug or loose is fine. Piece B is then cut on a bandsaw or jig saw to the shape indicated. Then pieces B and D are glued together or laminated to form a piece that is 1 1/2" thick. The router should fit snugly into the opening. The router that is used may not be the Harbor Freight model, in that case, measure the diameter and make the support opening to fit. Finding a hole saw of that exact dimension may not be practical. I cut the hole in both pieces of MDF with an adjustable circle cutter. This works well, but you have to go slow cutting through thick materials or the cutter will bind up. Also clamp the MDF to your drill press table or work surface, if the cutter digs in, you have a nasty chunk of MDF swing around at high rpm.

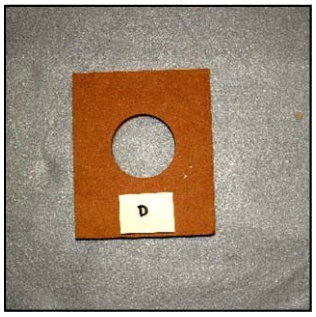
Two dado grooves are cut into the front part of pieces B and D that are laminated together. This holds the wooden guide pieces and fits into the dado grooves cut into part C. If you set up your table saw to do the dado cuts, both parts can be cut at the same time, saving you extra steps. The grooves are 3/16" deep and 3/4" wide. The wood guide pieces are 3/8" X 3/4"X 6". These pieces are glue into the grooves of part B/D. They need to match up with the grooves of part C so that B/D slides up and down smoothly. A little sanding or cutting may be necessary to make a snug, but smooth sliding fit. Two slots are now cut into part B/D and part C. Use a table saw and make a 3/16 cut at the top of part B/D in the exact center. This will allow a 1/8" bolt to be run through top tab to pull the hole opening tight and clamp the router into the opening. The other slot is cut into the center of part C, this will allow the 1/4"X 2" bolt to slide up and down. Together with a washer , lock washer and ...cont page two.

this will allow you to adjust the height of the jig and lock it in place. Next step is to glue the two pieces of wood into the slots that were dado-ed in the face of parts B/D. These slots and wood strips should match up with the slots dado-ed on the back surface of part C. The wood strips act as guides to keep the router aligned and provide support to the router and base unit. When the wing nut is loosen, part B/D is allowed to move up and down, making the adjustment of cutting height for the router to match the spindle center. This version will adjust for any lathe that has a spindle center height from 6" inches to 12"inches from the bed.

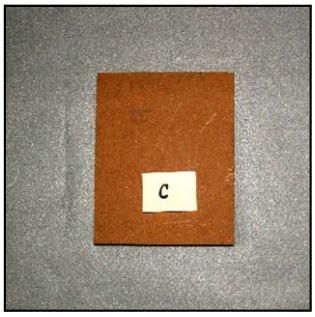


Part A, Base of Router Jig



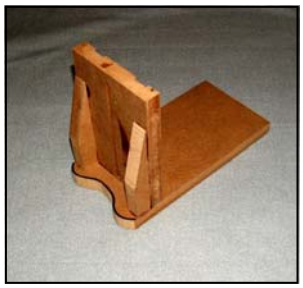


Parts B and D are glue together, with the hole aligned. The hole is the diameter of the router's motor housing.

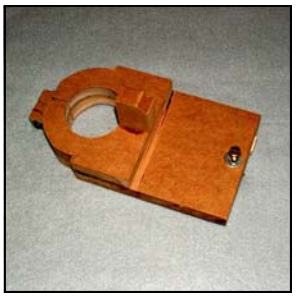


Part C, this piece is glued vertically to base unit and slots are dado-ed in back.

Parts B/D glue together and slot cut into tab located on the top. This slot allows the 3/16 carriage bolt to be tighten and clamps the router onto the unit.

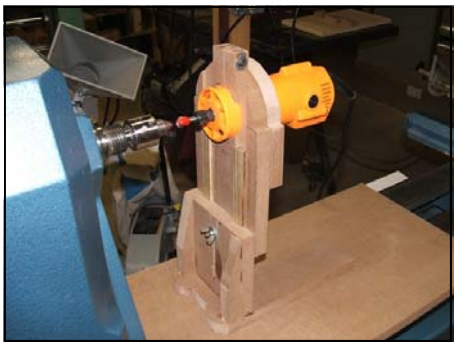


Part C, shows slots dado-ed in the back surface, and slot cut for the adjusting bolt and wing nut. This is glue to Part A. Note: vertical supports. Part A has a scalloped edge on the front. this not critical, space the bumps equal distance apart. The depth of the cut for the bumps is 3/4". These bumps ride along the template that is affixed to the work surface and makes working the router along a curve much easier.



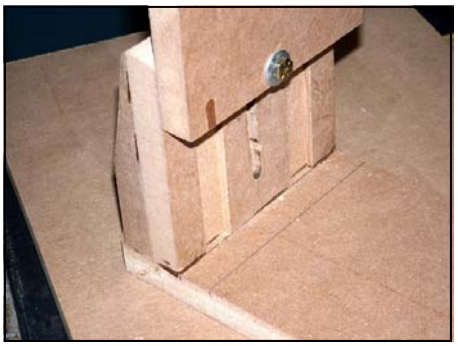
This set of photo's shows parts B/D glued together, wood strips glued into the dado-ed slots on the face of B/D. A small support was glue just below the hole that supports the router. This just gives added support to the router and prevents the router from being pushed downward. Note: Wing Nut and 1/4" bolt inserted into hole located near the bottom of B/D. The placement of the bolt is not critical, just make it easy to tighten the wing nut.

The jig completed sitting on the work surface.



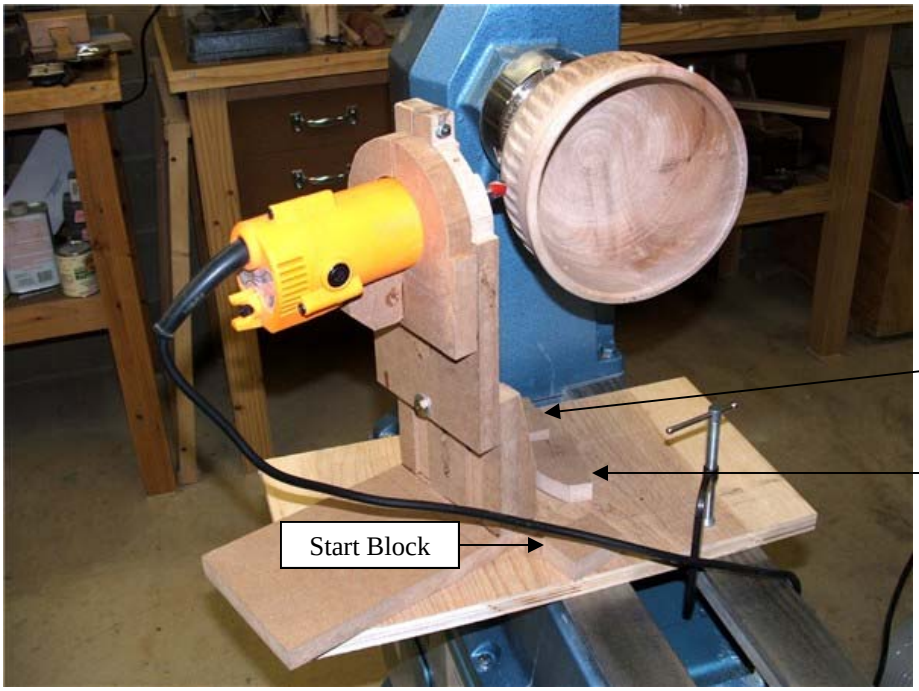
Assembled router jig showing distance from the spindle center to work surface.

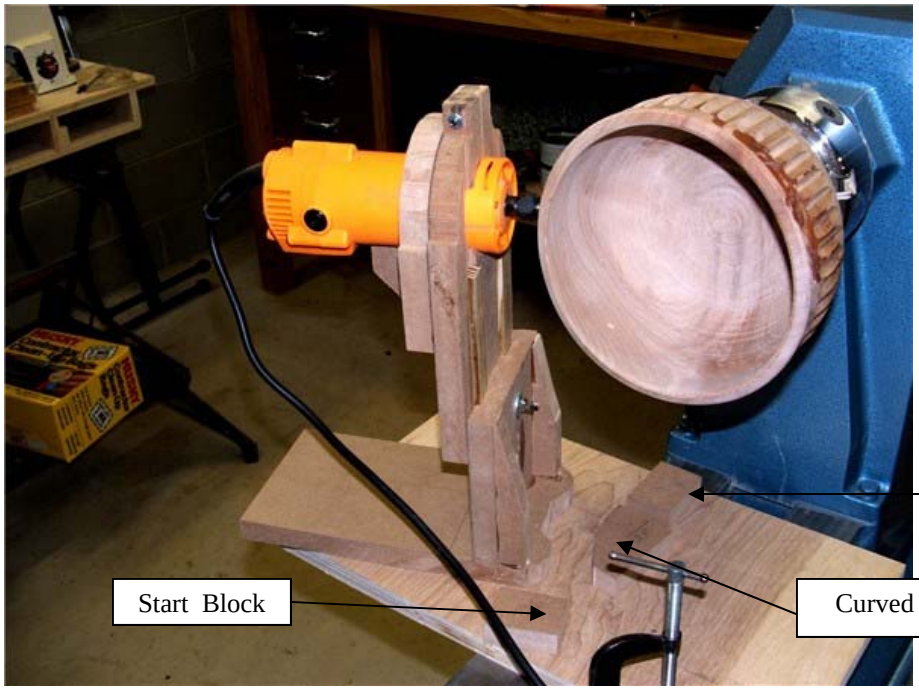
The jig completed sitting on the work surface.

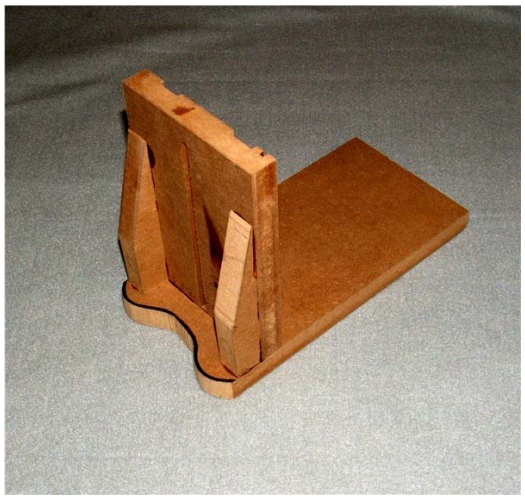


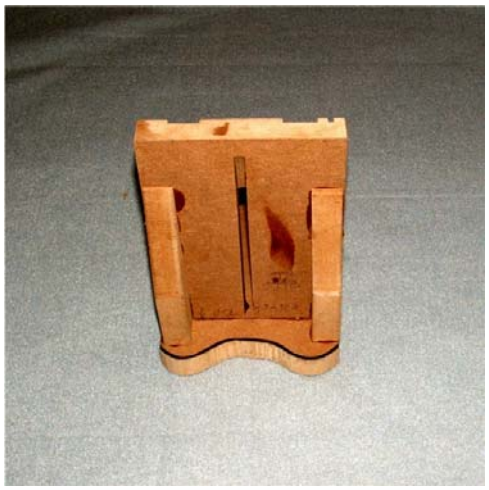
Detail of vertical support pieces, dado-ed slots in back face of part C.

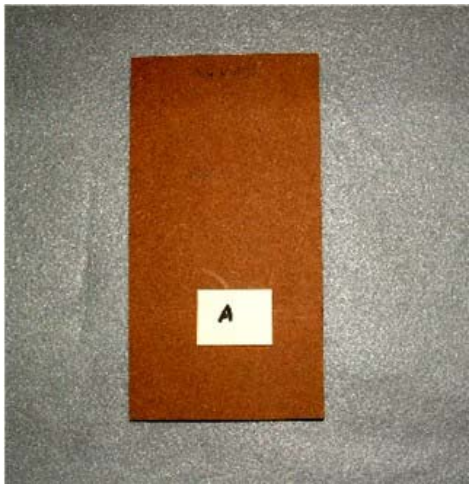
Note: If the jig is to be non-adjustable, then Part B is made to the dimension of center of router hole to the surface of Part A. This dimension is determined by the spindle center height of lathe. Part C is only used if the jig is going to be made in an adjustable version.



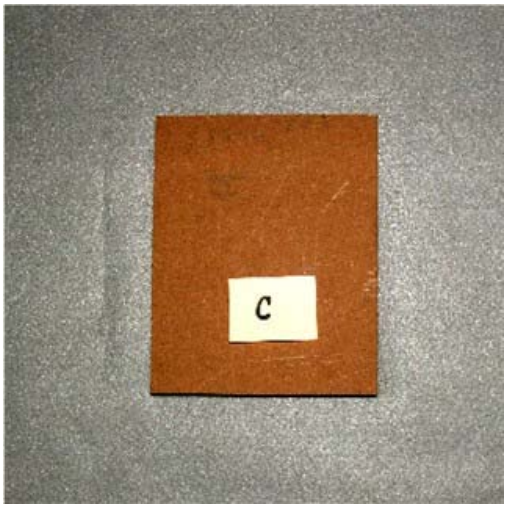




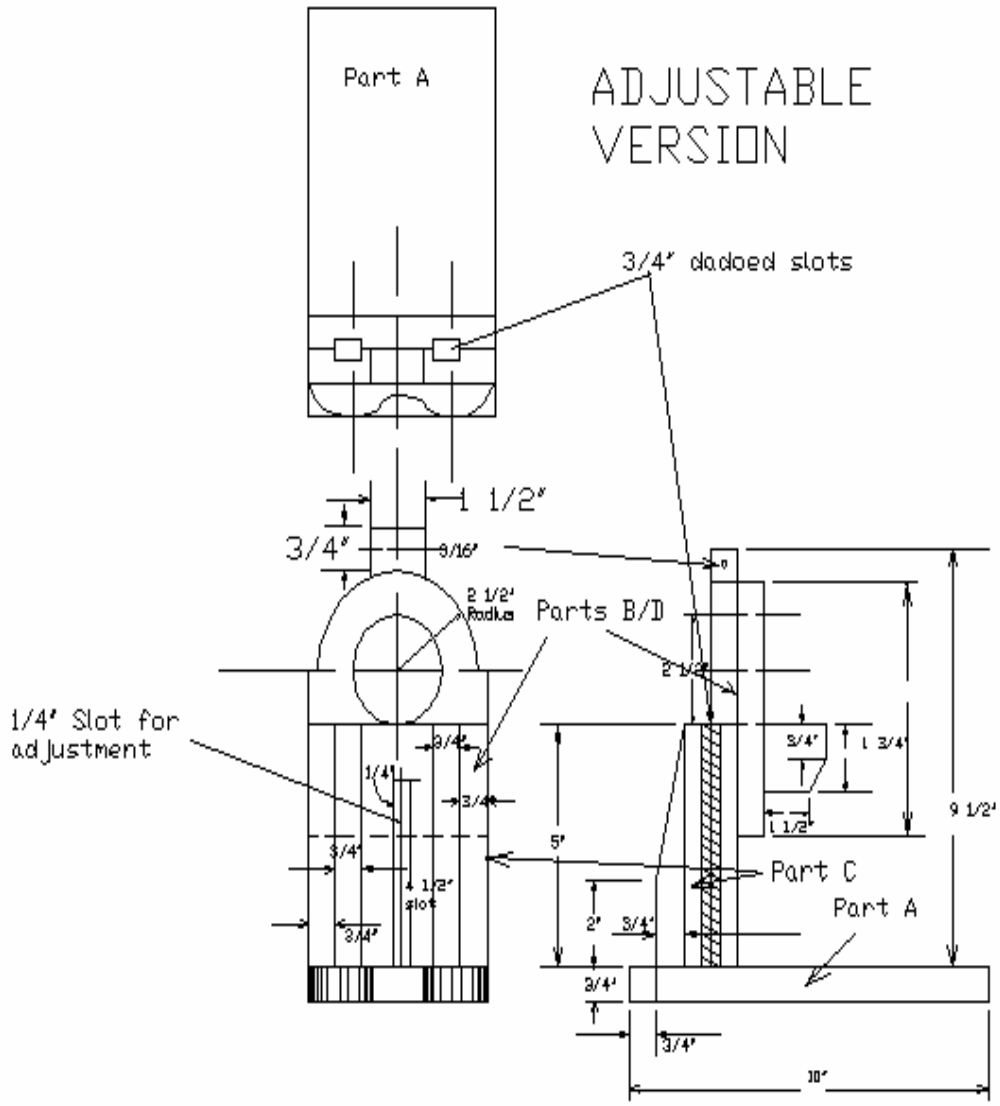



A


B


C


D


Part A
ADJUSTABLE
VERSION
3/4" dadoed slots
1 1/2"
3/4"
9/16"
2 1/2"
Radius
Parts B/D
1/4" Slot for
adjustment
3/4"
1/4"
3/4"
3/4"
4 1/2"
slot
3/4"
5"
2"
3/4"
3/4"
3/4"
3/4"
1 3/4"
1 1/2"
9 1/2"
Part C
Part A
3/4"
10"

NON ADJUSTABLE