

Let's start by getting the legal stuff out of the way. No warranties or guarantees are expressed or implied and if a person decides to build and use this piece of equipment they do so totally at their own risk. If you don't want to take full responsibility upon yourself, then don't build or use this piece of equipment.

~ PARTS LIST ~

I used Ash for the construction of this piece of equipment, but you can use the type of wood you prefer.

I reserve the right to correct errors and omissions.

1. BASE (1) - 1 3/4" thick x 13 3/4" x 18" this is the size scrap piece I was able to purchase.
2. SIDE SUPPORT (2) - 3/4" thick x 8" x 17"
3. BACK SUPPORT BRACE (1) - 3/4" thick x 2 1/4" x 6 1/2"
4. DRUM DISK (1) - 3/4" x 22" dia. - This was made from sign board
5. DRUM SUPPORT Base (1) - 3/4" x 6 1/4" x 10"
6. DRUM SUPPORT Side (1) - 3/4" x 4 7/8" x 7 1/2"
7. DRUM SUPPORT side reinforcement (1) - 3/4" x 4 1/2" x 4 1/2" (square cut in half on diagonal)
8. DRUM SUPPORT Top (1) - 3/4" x 6 1/4" x 7 1/2"
9. MOTOR SUPPORT and END (2) - 3/4" x 6 1/4" x 6 1/4"
10. MOTOR BOX Top and Btm (2) - 3/4" x 6 1/4" x 11 1/2"
11. MOTOR BOX sides (2) - 3/4" x 4 3/4" x 11 1/2"
12. 5" T-HINGE (4) and screws
13. 5/16" x 3" Lag bolt with 5/16" machine screw end - Hanger Bolts I believe (2)
14. 5/16" T HANDLE - Female (2)
15. 5/16" Fender Washers (4)
16. 2" Rubber Anti Skid Pads for bottom of Base (4)
17. 3/8" x 1 1/2" Carriage Bolt (1)
18. 3/8" T Handle - Female (1)
19. 3/8" Fender Washers (4)
20. 1/4" x 2" Carriage Bolt (3)
21. 1/4" Nylon Lock Nut (3)
22. 1/4" x 3/4" Nylon Spacer (3)
23. 1/4" Flat Washers (6)
24. 3/8" x 1 1/2" Carriage Bolt (4)
25. 3/8" Lock Washer (4)
26. 3/8" Nut (4)
27. 3/4" Circular Bearing Holder (1)
28. 1" Step Collar (1)
29. 1" x 9" Axle Rod (1)
30. 1" Collar (2) - Collars included with my bearings
31. 1" Self Centering Bearing (2)
32. 1" Bearing Bracket (2)
33. 8 x 1" Pan Head Metal Screws (4)
34. 3/8" x .171 x 1/2" Nylon Spacers (4)
35. Epoxy (30 minute)
36. DC MOTOR and CONTROLLER - I purchased mine thru Penn State Industries. It is a mini lathe replacement motor and includes the speed control.
37. ROLLING PANS - Picked these up at Fleet Farm . You will need to drill a 3/8" hole in the center to attach to the drum disk. I have different sizes for the different size batches.



I recommend using a hardwood in the construction. Pre drilling all holes will be necessary. Do not try to over tighten the screws when assembling or the screws may break.

The large drum disk was chosen so that different size pans could be used to accommodate the batch size.

A table saw is recommended to rip the pieces to width and also in doing the dado groove cuts.

Start by cutting all the wood pieces to size following the parts list descriptions and quantities. *Note: I chose to use a thick base to give the roller some counterweight when rolling larger batches.*



The photo to the left shows the set up of the stacked dado blades. I had to make two passes to complete each groove in the base since my table saw would not accept enough cutting blades. I marked the base and the rip fence so that I had a reference line as to how far to push the base into the blades so the grooves ended up the same length. Make sure to match the width of the groove to the wood you are using. Not all 3/4" lumber is exactly the specified thickness.



The photo to the left shows the Base (Item #1) with the grooves cut into it. Note that there is material left by the blades at the end of the cut. You will need to make cuts in the Sides to accommodate this or if you have the tools to remove the extra material and want to that is also an option.



Next we will move on to cut the Drum Disk (Item #4). Start by cutting a 24" square piece of 3/4" Signboard and drill a 3/8" hole at the center. Drill another 3/8" hole in a piece of scrape wood and also a hole to fit a pencil at 11" from the center of the 3/8" hole. This will give you a circle 22" in diameter. Insert a 3/8" Carriage Bolt thru the scrape board and into the hole in the Drum Disk board. There is no need to secure the bolt with a nut. Rotate the scrape board around to draw your cutting line for your disk.

Remove the scrape board and take the Drum Disk to your band saw or use a reciprocating saw to remove the excess material. Cut as close as you can to the line without going over it. It is important to get as close as you can so you will not have as much sanding to do in the next step.



Mount the same scrap board to a drill press mounted with a drum sanding attachment. Again attach the Drum Disk to the scrape board using the 3/8" carriage bolt. Make sure the disk is not touching the drum sander and start the drill press. Hold the disk firmly and slowly rotate the Drum Disk, if the disk does not touch all the way around then move the disk slightly closer to the drum sander and repeat until you sand a little off all the way around the disk. It is very important that you take your time with this or the disk can be pulled out of your hand. This step should turn your disk into a perfect circle.



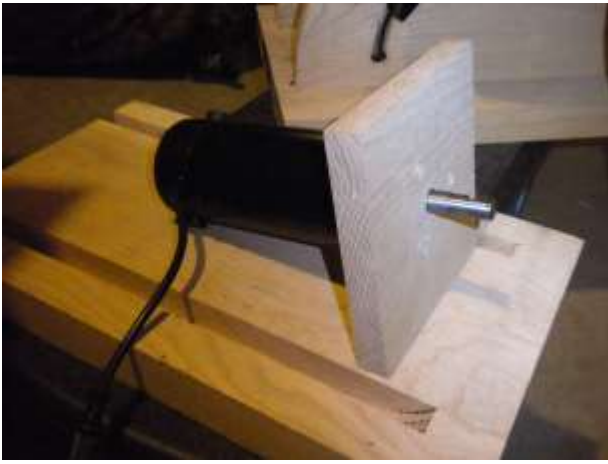
After sanding is complete install the 3/8" x 1 1/2" (Item #17) in a counter sunk hole so the head of the carriage bolt is below the disk surface. Mix and apply enough epoxy to secure the carriage bolt and fill the void remaining above the bolt. Set this aside to dry and continue with making the motor box.



Take one of the Motor Support Ends (Item #9) and drill a hole in the center to accommodate the motor shaft. Make sure it is big enough so the motor shaft does not bind.



If you are using the recommended motor or one that will mount to the end, layout the hole pattern and drill the holes. Countersink the holes to allow the bolts and washers to be below the surface when tightened. I used a fostner bit to create a nice flat hole. The fostner bit will leave a small point in the center of the hole, use that as a reference to drill the bolt hole all the way thru the board.



Mount the motor to the Motor Support End using the screws that came with the motor. Tighten the screws securely.



Assemble the Motor Box Top and Bottom (Item #10) and the Motor Box Sides (Item #11). Make sure you are mounting the side pieces inside of the top and bottom. This will form a box that is 6 1/4" square. I did not use glue only screws in case I would have to replace the motor.



With the recommended motor, open the speed control up and remove the wires that go out to the motor. DO NOT cut them.

Drill a hole in the Motor Box End (Item #9) to accommodate the cord to pass thru. Thread the cord thru the Motor Box End and plug the motor into the cord end and reattach the wires to the speed control. You can leave the cover screws off the speed control since you will be mounting this directly to the roller at the end of the roller assembly.

If you are not using the recommended motor you will have to come up with your own plan for the motor mounting and wiring.



With the Side Supports (Item #2) inserted in the grooves of the Base attach them with a couple screws to affix them temporarily. They will not fit all the way down in front at this point.

Note: The photo shows the Back Support Brace (Item #3) installed, Do Not install this at this time. I took this photo after a later step.

Attach the assembled Motor Box to the Base with 2 of the T Hinges (Item #12) centering the Motor Box between the temporarily secured Side Supports.



Pre drill a hole in the bottom of the assembled Motor Box to accept a screw with the head cut off. As you can see in the photo a small vise grip pliers was used to turn the screw into the hole. This is done so that you can adjust the screw so it will scribe a mark in the side of the Side Support. This scribed line will be used to cut the slot for the angle adjustment.



It is a little hard to see the scribed line in the photo, but look close.



Clamp the two sides firmly together with the scribed line facing up.

Drill a $5/8$ " hole $1\ 1/2$ " from the top of the Side Support centered on the scribed line and also drill a $5/8$ " hole so the edge of the hole is right at the bottom of the scribed line .

In this photo you can see the front of the Side Support has been rounded and the bottom front corner is also rounded to accommodate the material left when the dado was used to cut the groove in the base.



Measure $5/16$ " on each side of the scribed line at small intervals to make guide lines for cutting the slot. Using a reciprocating saw cut the slot in the Side Supports. You can sand this slot if you like, but it is not necessary.



Pre drill holes to install the hanger bolts. Use two 5/16" nuts firmly tightened together on the machine bolt end to allow you to use a wrench on the outside nut to screw the hanger bolt into the bottom of the assembled Motor Box. As you insert the hanger bolt thru the slot in the Side Support, slide a 5/16 Fender Washer (Item #15) onto the lag end so it is between the Motor Box and the Side Support. Tighten the hanger bolt securely leaving enough of the machine bolt end to accept a 5/16" Fender Washer (Item #15) and the 5/16" T Handle (Item #14). Repeat on the opposite side.



Now get the Drum Disk that has been drying and drill holes for the Bearing Support Bracket (Item #32) Centered around the 3/8" Bolt already installed in the disk. Make sure to Countersink the heads of the 1/4" Carriage Bolts (Item #20) on the side that the 3/8" carriage bolt is protruding from. See photo. Epoxy these bolts in as you did the 3/8" carriage bolt.

Set aside to dry.

Continue with assembly of the Drum Support

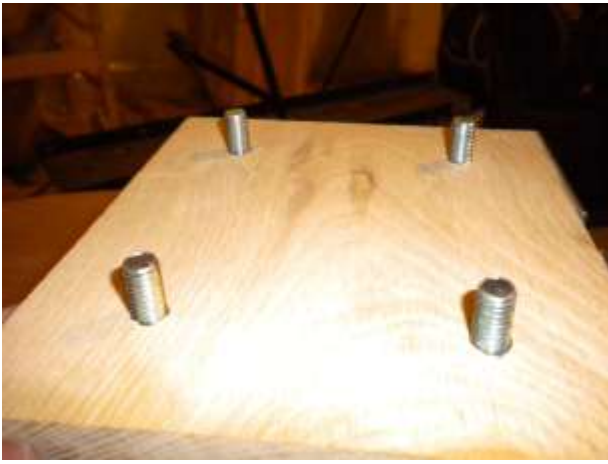


Assemble the Drum Support Bottom (Item #5) to the Drum Support Side (Item #6) pre drilling and using screws.

Attach the Drum Support Top (Item #8) using the remaining T Hinges (Item #12) and aligning the hinges as in the photo.



Attach the Drum Support Side Reinforcement (Item #7) to the Drum Support Side, pre drilling and using screws.



In the top of the Drum Support - Measure, Mark and Drill the holes for the 3/8" Carriage Bolts (Item #24) that will secure the Bearing Brackets (Item #32). Insert the carriage bolts from the bottom up. Tap the screws in gently with a hammer being careful not to split the wood until they are almost flush. When you install and tighten the nuts, the bolts should get drawn in flush.



Place the Bearings (Item #31) into the Bearing Brackets making sure that the bearing collar end of both is pointing to the outside and place them onto the carriage bolts. Place a 3/8" Lock Washer (Item #25) and 3/8" Nut (Item #26) onto the carriage bolts, but DO NOT tighten securely at this time.



If you need to cut your axle from a longer piece, do so now.

Install the Axle Rod (Item #29) thru the bearings and install a Bearing Collar (Item #30) on each bearing. Tighten the set screw on the bearing collars to just hold them in place for now. Tighten the four 3/8" nuts firmly now to secure the bearing assemblies.



Mount the Drum Support Assembly to the top of the Motor Box Assembly at this time by pre drilling holes and using screws.



Go find that disk that has been drying and place the Nylon Spacers (Item #22) onto the carriage bolts then a Flat Washer (Item #23). Place the Step Collar (Item #28) over the 3/8" carriage bolt that was epoxied in making sure the small end of the step collar is up. Then place the Circular Bearing Holder (Item #27) over the 1/4" carriage bolts and step collar, then place another Flat Washer and the Lock Nut onto the 1/4" carriage bolts.

Take care to tighten these evenly so the step collar stays straight. This will keep the Drum Disk from wobbling. If you notice the disk wobbles you can adjust these to get it running straight.



Mount the Drum Disk assembly onto the axle. Tighten the set screw in the step collar securely. Loosen the bearing collar set screws and adjust the Drum Disk so that it does not hit anywhere and the disk is riding on the motor shaft where you would like. Tighten the bearing collars securely at this point.



This is a close up of a small roller I found laying around that I slid onto the motor shaft and secured with a 14mm collar. The thing I like about it is it has a rough surface and creates a small vibration on the disk. This aids in bouncing your cores in the beginning process and it will make things easier to get them started. I have been searching for where I might have gotten this from, but at this point do not know.



Photo showing the completed assembly from the backside.



At this point there are only a couple more things to install.

Tilt the Motor Box all the way up and install the Back Support Brace (Item #3) against it as shown in the photo.



Next install your speed control to the side support using the nylon spacers to keep it set off from the side support. There is a grounding screw that sticks out of the speed control which makes the spacers necessary. They don't need to be as long, but it is what I had on hand.



You will need to roughen up the inside surface of the plastic drums to give them a little grip on your cores. Just use some coarse sandpaper to get the job done.

Drill a 3/8" hole in the center of your pan and install it to your disk using the 3/8" T handle.

Your DONE!

Now get out there and start rolling.



This photo just shows the larger drum installed.

I still need to cut off the handles yet.