

What to do when you get a New Mill, version 1

Edited by R. G. Sparber

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You've been following the massive box via its tracking number since it left the warehouse. Earlier in the week, after days of waiting, you finally get "the call". It is from the local trucking firm setting up a time for delivery of your machine. They verify that you have the equipment to get the box off the truck. Then the magical day arrives and this 16 wheeler pulls up in front of your house. The neighbors always knew you were a little nuts so this just confirms it. Focusing as hard as possible on safety, you excitedly execute your plan and get the box off the truck and onto your driveway. Wow! It is bigger than you thought it would be. A bit more effort and your new mill is safely inside your garage. Now what?

I went through a variation of this drama back in 1990 when I took possession of my RF30 mill/drill. Many others from the Yahoo group mill_drill have done the same and will hopefully offer up their experiences for inclusion here. Successes and failures are all helpful to someone faced with setting up their new mill. Subjects can include but are not limited to selecting where to put the mill, the moving of the mill, cleaning it of packing grease, and alignment.

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Paul Alciatore

I have purchased a new import mill/drill lately and offer the following suggestions:

1. The imported machines are shipped, literally via ship, from the Orient. They are protected with a coat of heavy grease to prevent rust during this process and this heavy grease must be cleaned off as completely as possible and replaced with fresh lubricants or protective greases that are more appropriate to an operating machine. You will need a solvent like mineral spirits or WD-40 to accomplish this cleaning. For the most part, shop rags will be used, but in some cases, you may need to use Scotch Brite or a similar pad to aid in cleaning. These pads should be used sparingly. (Ed: do this in a well ventilated area and properly dispose of the oily rags.)
2. Check all operational controls through their full range, looking for any stiffness or roughness in the movement. Investigate and rectify any such problems.
3. Check for proper lubrication of all moving parts. If the machine has a gear case, check that it is properly filled with the correct grade of gear oil. It is generally best to empty any such oil that was installed at the factory and observe if there is any grit in it. If so, you should open the gear case and clean out all traces of that grit.
4. Check the adjustment of all gibs. Adjust as necessary for proper operation.
5. DO check the alignment of any vertical column because many import machines are not well aligned at the factory and even the best of the importers do not check it. This can be done with a DI on an arm that is mounted in the spindle. Rotate the DI around the table in the largest circle possible: it should read the same at all positions. This is called "trammig". If adjustment is needed, it may be necessary to loosen the screws holding the column to the base and insert shims under them to properly align the column. This can be done by just loosening the bolts by one or two turns ONLY. DO NOT REMOVE THEM as the column and head may/WILL fall on you. It WILL be necessary to clean out the putty used to hide the joint between the base and the column's castings. It can be scraped out with a putty knife while the column is tilted to one side and then to the other. Shims will compress some, so DO use a torque wrench and tighten the bolts to the same torque every time you recheck the tram.

Rick Sparber

Early on a spring Saturday morning my friend Paul M. and I drive his half ton Toyota truck up to the Enco warehouse on the north side of Chicago. A forklift loaded this massive box in the back and I spent 15 minutes with lots of straps and ropes securing it. The truck sank down a lot from the weight. But the effect of this load was not obvious until Paul sailed right through our first red light. The brakes were no match for the added weight. He was far more cautious after that close call.

I had to move my mill from the garage, through our kitchen, and down a set of stairs that I reinforced to carry the extra weight. All went well until I got to the bottom of the stairs. Then the mill tipped over and snapped the 2 by 4 behind my head that anchored my come-along. Fortunately no one was hurt and the machine was fine. My poor wife, Donna, sick with the flu and sleeping on the couch one floor up, still chides me about that day. In fact, she wrote an article for Home Shop Machinist about it. Not the best way to be roused from a deep sleep.

1. Before you even buy your machine, make sure it will fit in your shop. Bench top machines must be at a comfortable working height and this may put the top of the column very close to the ceiling. If it is close, can you get the belt cover or gearbox lid open and look inside?

2. How will you move the machine into position? Even my most daring friends often call in a professional machinery mover because it takes less than 0.5 seconds for an error to sever a limb. If you plan to do it yourself, be sure you have a detailed plan that has been reviewed by someone who has done this kind of work before. If you choose to bring in a helper or two, be sure they fully understand what needs to be done and who is in charge. Don't pass around the beer until the job is done. Think about the path you plan to take. Can it handle the weight of the machine plus those helping? I moved the machine by myself down to my basement shop. When it was time to get it out, I disassembled it and carried out the parts on a hand truck. It is daunting to consider tearing down a new and unknown mill but moving it in pieces was far less work and risk.

3. Do you have power to run the mill nearby? The starting current for these machines can be high. The first time I powered up the mill was through a heavy extension cord. At low spindle speeds it worked fine. But at high spindle speeds the motor drew too much current and the voltage sagged. Fortunately my breaker

box was right there so it was easy to add a new branch for the mill. If you are going to run power, I recommend you run both 220V and 120V. I used 120V until recently and then upgraded to a 3 phase 220V motor with Variable Frequency Drive. It sure was nice having the 220V nearby.

4. Bolting down the machine may sound silly give how much these things weigh. I used these blue concrete screws and over tighten them. The first time I rotated the head around on my round column mill/drill, I saw the front feet start to lift up a little. I was lucky and was able to rotate it back quickly. I now use proper expanding anchor bolts into my concrete floor.

5. Think about where to place your machine within your shop. Remember that you need room for the table which can move left and right. Also consider that you need room to access at least the sides of the machine and turn the head around to reach the motor. I recently replaced my motor and sure was nice to swing the old motor over my table and lower it down for removal.

6. The more you use your mill, the more attachments you will buy or make. Think about where you plan to store these prizes. Some may hang on the wall while others would be best in a drawer nearby. You certainly do not want to walk all the way across your shop each time you need a new tool.

7. As you get older, your vision will degrade. It then becomes more and more important to have good lighting. It is far easier to put in that lighting now. My new shop has 1 KW of high efficiency florescent fixtures covering the ceiling. That is a great improvement over my old shop that had just a few random junk fixtures hanging down. The walls are bright white plastic which reflects the light all around.

8. Part of making chips is the need to clean them up. Think about how you plan to clean around the mill. Oil may also fling from the machine. Drywall does not clean up well from oil and repainting an oil soaked area is troublesome. I covered my wall with 4' x 7' sheets of semi-rigid plastic like the kind you find in commercial bathrooms. Oil just wipes off.

9. For more information, see <http://rick.sparber.org/ma.htm>.

I welcome your comments and questions. All of us are smarter than any one of us.

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