

## Notes on the Craftsman/Dunlap 109 Lathe

1. **Oil!** oil this lathe often, spindles on every use, gears when used, ways every so often. With just a sleeve bearing, these will destroy the bearings when they lose oil. There are no seals so the oil quickly runs out. Use the way oil on the feed screw, cross slide and tailstock ram.
2. The carriage is the worst part of the design of the original lathe. It wants to twist easily. Keep the front clamps adjusted tight as they are the ones that will lift. The rear should be just tight enough to hold the rear down with little drag. The rear wing nut is not used; just the two cap screws. These put the force on the corners where it is needed.
3. Keep the tool in the center of the cross slide whenever possible. That means mounting the tool post holder on the right T-slot. That will prevent getting close to the chuck but will work best.
4. The A2Z tool post works well but must be kept real tight on the cross slide. A2Z is on ebay and has parts if needed.
5. The locking bar on the QC tool post should just be kept snug. Too much force and it will dent the holder and will be hard to slide off.
6. The new spindle is drilled just over 1/4" and only about 1" in. There is a center included for turning between centers.
7. Keep the countershaft oiled. It has no bearing, just uses the aluminum wheel itself. Should be fine as long as it is kept oiled.
8. The 10 5/16" bits are likely dull and are a pain to use. I found only the pointed tools will cut properly. They really do not have proper clearance angles for this lathe.
9. Keep any eye on the 1/4 indexable tool inserts. The screws can vibrate loose and will cause chatter. That is how I chipped one of the tips; it came loose while turning some hardened steel and chattered then chipped.
10. Use gear oil on the gears and put some through the locking hole in the back gear. I started using motorcycle chain lube and it seems to keep them quiet and is designed to not fly off.
11. Even with the stronger spindle, it is still a weak point on the lathe. These lathes are famous for bent spindles when people try to actually turn 6" stock. I have done 4" with no problems close to the spindle. Anything over a few inches in length should always be supported by the tail stock.
12. The spindle oils is really for more modern machines. I would look for some 20 weight machine oil. Do not use motor or gear oil, the weights are different (30-weight motor oil is equivalent to 10 weight machine oil.)
13. To use the stock compound slide you will need to remove the carriage. Remove the two screws and wing nut on the back of the lathe. Loosen the three screws holding the front down several turns. Disengage the half nut. Lift the back edge and the brass bar can be removed. The 1/16" wire will come off too. That is used as a pivot to put the force at the bottom edge. The carriage will angle back and with a slight twist will come off. Remove the screw holding in the lever. Be careful as the detent ball and spring will fall out. Remove the bolt that holds the cross slide on.. The stock cross slide can then be installed. Either the stock 24-TPI lead screw or the 20-TPI can be used. I prefer the 20-TPI as it is 0.050" per revolution. The ideal solution is to mount a dial indicator on the cross slide.
14. Keep the stock Gibbs screws tight or you will have chatter. I kept them tight enough to have noticeable drag.

## Notes on the Craftsman/Dunlap 109 Lathe

15. When returning the Sherline cross slide, make sure it is tight or it will rotate. Put a few tiny drops of Loctite on the corners; that will help keep it from moving. Make sure it is square as that will effect facing operations.
16. There is a gibbs on the Sherline cross slide. It will need to be adjusted from time to time. It will need to be removed and there is a lock screw from underneath that holds the Gibbs.
17. Use the way oil on the chucks. Put a few drops on the threads of the adjuster on the 4-jaw and a drop on each of the jaws where it slides.
18. The AA\_109 lathe users group is a great resource.  
[http://groups.yahoo.com/group/AA\\_109\\_Lathe\\_Users\\_Group/](http://groups.yahoo.com/group/AA_109_Lathe_Users_Group/)
19. One of the regular tool holders (the one with the long screws) is cut slightly lower. That is helpful when using the QC toolpost on the stock compound slide and 5/16" tooling.
20. Keep the tools mounted as short as possible. These 1/4" tools have flex and will chatter if kept long.
21. The same goes for the boring bars. Only extend as much as is needed.
22. Use the back gear when drilling. The 3/18" chuck is best and what I used. I included the 1/4" chuck only as it came with the new lathe and I had no use for it.
23. Keep speeds down on steel. I used the slowest pulley all the time. Any hard steel or stainless should use the back gear.
24. Don't shift the gears when running.
25. Remove the gear on the feed screw when not using the power feed. it makes the wheel turn easy and you can get a better feel.
26. The switch on the motor would be better moved to the cabinet.
27. The new spindle is made from tool steel. I had a hard time turning it on the new lathe. After turning there was a bit of warp in the spindle. Seems the tool steel "relaxes" and had varying hardness. Use the lathe for a while and then face cut the shoulder between the threaded end and the head stock. That will adjust for any "settling" of the spindle so the chuck seats square.  
I did not bore the spindle with a morse taper as I don't have the tooling.
28. If you need parts, homeshopsupply.com has most of them. I purchased the better tail stock ram, spindle bearing and thrust washers from them. I was very tempted to buy one of their spindles but the cost is about \$100.
29. Sherline and Taig lathes have Morse #0 tapers. Tooling for them will often fit.
30. Enco: <http://www.use-enco.com> is a good source for tooling.
31. Always use the center drills first, then regular drills if needed. A regular drill will wander when starting. I use drills until I have enough room for the boring bars.
32. To turn between centers, you will need a face plate and dogs. That was one of the things missing from the lathe.
33. The 12L14 steel is nice to use. Keep an eye on Ebay to pick up more.

Any questions: [shenion@shdesigns.org](mailto:shenion@shdesigns.org)