



PHOTOGRAPHS BY KURT HERTZOG

# Lathe setup

Kurt Hertzog presents a number of efficiency, comfort, and time saving tips that will help no end with your turning

There are so many facets to woodturning that there never is an end point. It is truly an ongoing journey with learning and growing along the entire path. Over the course of the series, we'll touch on everything from storage to sharpening to techniques. One of the topics that seems so basic yet sometimes isn't given a lot of thought is setup. Like adjusting the seat and mirrors in your car for comfort and their effectiveness, there are some good practices to help you do the same in the shop. The ideas I'll present this issue aren't really 'turning tips' but rather

efficiency, comfort, and time saving tips. If you are like me, workshop time comes at a premium so any time lost taking care of non-turning issues is time lost from the more enjoyable turning part. Fatigue generated because of poor setup is also a loss. Let's take a look at some of the things I think will help you keep the workshop and equipment running more effectively and keep you comfortable in your turning efforts. These items are easily implemented at a modest cost. Seemingly insignificant little time savers all add up quickly and should give you more 'chip time'.

## KURT HERTZOG



**About the author:** Kurt is a professional woodturner, demonstrator and teacher and writes for *Woodturning Design* magazine. He is on the Pen Makers' Guild Council and is a member of the Board of Directors of the American Association of

Woodturners (AAW).

**Email:** [kurt@kurthertzog.com](mailto:kurt@kurthertzog.com)

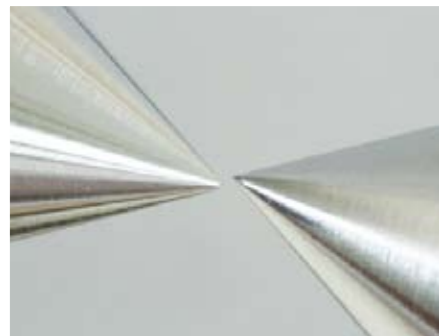
**Web:** [www.kurthertzog.com](http://www.kurthertzog.com)

◀ LATHE ALIGNMENT

I have yet to buy a lathe, at any price point, that was perfect out of the box. Made in a factory usually quite far away and then ultimately shipped to you. Even if perfect at the factory, things move and shift enough to warrant a checkout and potential correction on your part once you have received and assembled the lathe. The most common problem is the lathe headstock to tailstock alignment. Large or small, every lathe will produce better work if the headstock and tailstock are in proper alignment. Simple to do and usually good for the life of the lathe unless you move the lathe or have a significant event that severely stresses things. Aligning the headstock and tailstock shouldn't consume more than a few minutes. Ideally, the axis of the headstock spindle taper and the axis of

the tailstock taper should be the same, that is in perfect alignment. Using a couple of dead centres, if you have them, or a couple of spur centres with sharp points will let you quickly determine how well things align. Looking from the front and from the top should give you a feel for how things align when you bring the points in close proximity. Since the tailstock moves and needs some clearance, it will lock up slightly differently each time. Your adjustment point is the headstock mounting. Rarely pinned in location, you can loosen the mounting bolts and insert shim material underneath the appropriate corners to align things. Use whatever you have that will provide the necessary dimensional shim when clamped in place. A piece of bond paper or currency is around .004in. If axis alignment

is required, take a look at how the headstock casting is positioned in the lathe bed ways. You can often shim the gap as needed to adjust axis rotation issues. Depending on how hardcore you are, you might have to file the machined surface of the headstock base to provide enough shift to correct things. How critical is all of this? It depends. A minor misalignment may never be a problem for you depending on your turning type and skill level. Anything beyond minor error is well worth correcting on principle since it is easily done and will never hurt. There are times where being perfect is impossible without a major undertaking. Do the best you can and live with it. If you can't live with it, contact your dealer if it is an original manufacturing issue and get this rectified.



Dead centres are modestly priced and work nicely to check alignment. Rarely does a lathe endure its travels from maker to you without needing some adjustment. This one needs some attention



You can also use a couple of spur centres to do your alignment. It is important that the tips not only meet but that the axis of both headstock and tailstock tapers are in line



Nearly all of the common lathes available today are held in alignment with the headstock mounting bolts. The days of pinning equipment in alignment are long gone



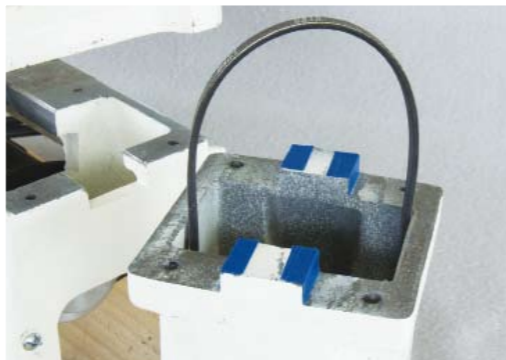
The gap in the bed usually allows sufficient adjustment for the alignment in that plane. If you need more, a file judiciously applied to the casting of the base of the headstock may help



You can use typing bond paper, tin foil, tape, playing cards, or even currency to shim things as needed. Just for reference, currency and typing paper are in the .004in range



I favour using tape where possible. I want it to stay in place as I am reassembling things after shimming as needed. You can use nearly anything you have at hand to keep things spaced properly



Remember that you can effect changes in a variety of locations. Pick the most convenient. Make the necessary spacing shims for all of the positional and rotational mismatches

LATHE HEIGHT AND MATS

There are a host of quick measurements that you'll hear regarding how high your lathe should be as you stand in front of it. All are starting points at best. The one I favour is standing upright at the lathe on whatever anti-fatigue matting you use with your arms hanging straight down. The centreline of the lathe axis should be at the height of the centre of your elbow. At this height, most people will be standing upright without undue bending of the back to present the tool properly. This is only a starting point! From here, you adjust your lathe up or down in small amounts as needed over time if you experience back stress from reaching or bending to present your tool. This adjustment should be over time and with extended turning times so you'll know whether you are improving things or not. Remember that your particular proper comfort level height can be higher or lower than the starting point. On the topic of anti-fatigue mats, do select the best you can afford. Often the modest priced mats at the woodturning retailer are helpful but leave much to be desired. This can be especially important if you have long turning sessions or are prone to back fatigue. While much more costly, search out 'professional' anti-fatigue products offered by speciality companies for food service workers, point of sale terminals, customer service representatives, or industrial workplaces. These are intended to provide the proper support when the user spends hours on the mat and needs to be supported for comfort. I've replaced every mat at every workstation in my shop with these industrial workstation mats. I view them as a long term, one time purchase that should last for my turning life. Well worth the investment since your comfort at the lathe is as important as anything else you'll buy.



Creep up on your ideal height always using your intended anti-fatigue mat. Once you've found it, don't rely on shims. Make your lathe height durable and lasting. The lathe isn't lagged to the floor but is securely fastened to the correct height blocks



Food service floor mats – bottom – work reasonably well but I've found that the industrial workplace anti-fatigue mats are worth the price difference. Oil-resistant and durable, I view them as a long-term, one-time investment

LATHE LOCATION AND LIGHTING

Positioning the lathe in your workshop often is a compromise. Many times it is determined by where the necessary power is available rather than for workflow and lighting. Some favour the lathe in the middle of the floor with access all around and others will profess that near a wall is best. Rarely will your floor location have adequate lighting. In my opinion, there is never too much light available when turning. If you are fortunate enough to have natural lighting from a window or skylight, use it to the fullest. I think that natural lighting is ideal and can be supplemented as needed. Most of us won't be that fortunate. I favour locating my lathes near a wall. Being near a wall brings three advantages to me. First, it is the wall with power so cords are short and there are plenty of outlets to plug in other things. The wall also works to my advantage to contain chips. They are directed to the wall naturally by the cutting process and fall to the floor between the lathe and the wall.

Some chips are on and around the lathe but most are in that contained space for easy clean up. While they don't get cleaned often, a few passes of the 100mm vacuum hose collects all of the debris into the cyclone and things are tidy for a short time. Having the wall nearby lets me control my visual background easily. When turning light coloured woods, having a dark background such as a piece of Masonite leaning against the wall helps with the contrast. When turning darker woods, flipping the Masonite board around to view the painted white side provides an effective contrast background. There are ways to do this if your lathe is located in an open area but being near a wall provides it very conveniently.

Lighting for your turning area can be a combination of available workshop lighting and task lighting. In addition to the existing shop lighting, I added fluorescent lighting fixtures directly over my lathes. The fixtures run parallel to the lathe bed and are positioned directly over the ways. I used two, two lamp,

1.2m lamp fixtures to provide adequate lighting. Because I find natural lighting less fatiguing, I use daylight balanced lamps throughout the shop. When additional lighting is needed, I use several forms of task lighting. Attached to the lathe but with multiple quick change attachment points are gooseneck lamps. While originally intended for a low wattage incandescent bulb – which I still use – they can just as easily accept the newer compact fluorescent bulbs. Perhaps not so much for energy savings but reduced heat generation and selectable colour temperature. There is no reason that floor standing lamps or the magnetic/squeeze clamp mount work lamps can't be used if you have them. Positioned as needed for the task at hand and moved out of the way when not needed. The key point is that even with the best of eye sight, providing adequate light not only helps the job but is less fatiguing. Seems like common sense but many shops I've seen struggle with less than ideal lighting.



Not a major expense or difficult task, add sufficient lighting directly overhead to supplement workshop or natural lighting as needed. Colour temperature is optional but I find daylight balanced less fatiguing



These repositionable lights are very flexible being on a gooseneck as well as movable. I use the low wattage incandescent lamps but they will easily accept the daylight balanced compact fluorescent bulbs

◀ SHARPENING SYSTEM AND TOOL CONVENIENCE

A topic for a future issue but worth mentioning here is your sharpening system. Without sharp tools and proper presentation, every tool becomes a scraper. Your sharpening skills are not optional but required. As such, having your grinder across the workshop makes it inconvenient. If it isn't at hand, you might be tempted to 'get by' with the edge you have rather than touching it up. I recommend that you locate your sharpening system, whether a grinder, belt style, or Tormek type, adjacent to your turning location. If it is a half step away, you will use it more often. If you are to err, sharpen more often than less. My solution is to have a roller cart that contains most of my necessary lathe accessory equipment,

tools needed, and grinder sitting right next to my lathe. On wheels, it can be moved to the other lathe locations. Even if you have a single lathe, having storage, your tools, and your sharpening station nearby is worthwhile. So close that there is no excuse for not taking the few seconds required to freshen an edge.

Depending on what you turn, your needs in tools will vary greatly. Some will need nothing more than a bucket full of bowl gouges and a spindle gouge. Others will need just about every style tool in the book. Having your tools at hand, easily found, and convenient to grab for use will save a lot of time. I've attached a couple of ideas that you might want to pursue. Both are easily made and serve the purpose. You can populate them with the tools needs

for the task or with every tool you own if you have a reasonable number. They are safely stored with the cutting edges up. The proper tool can be easily located and retrieved. More importantly, once used, it can easily be returned to the storage rack without much effort on your part. The butt end of the handle is put into the slot and the tool can be let go to orient itself as it seats. This organisation saves time and certainly keeps the tools in better shape. The alternative is usually on the lathe bed or on the frame under the ways. Both are fraught with being found or rolling off onto the floor. The heavy end going down first not only presents a safety issue but also the problem of needed sharpening after hitting the floor.



Usually stationed immediately to the left of my lathe, this roller rack holds my grinder and tool rack at a convenient height and position. The tool rack is homebuilt with scraps and a lazy susan roller base



It is handy to have a place to store your needed accessories for ease of finding. Saves time and aggravation. It is also convenient to roll the cart and its contents to any lathe you are using or out of the way for cleanup



A simple idea for tool storage. Two closet storage racks purchased at the local home improvement centre. One deep and one shallow. Fastened together and used upside down, they make a great tool holder



Located on a food service roller cart, this tool rack makes finding the desired tool an easy task. The two racks were fastened together with four screws to hold them together. If you think that having the points up is dangerous, use a tiered carousal with the cutting edges pointing down

SOME OTHER THOUGHTS

Your lathe is a tool! Use it. Do not wash and wax it like you would your car. The best thing you can do from a functional point is to rust it slightly. I get a soaked towel and rust the ways of the lathe on the day I get it. You don't want to pit it and cause huge drag when you slide the tailstock but you want to make it easy for the eccentric mechanism to lock the tailstock and banjo in place. Waxing the ways only makes you need an extension

bar on the tailstock tightening lever to unnecessarily overly tightening things. Don't assume that just because the manufacturer delivered your lathe equipped a certain way that they have all of the answers. Costs, parts commonality, and also design efforts allotted all have an impact. If you have a better idea, go for it. There are often a wide range of improvements that you can make to any lathe that you own.

**“Don't assume that just because the manufacturer delivered your lathe equipped a certain way that they have all of the answers”**



Waxing the ways of the lathe is counter-productive. It makes you put excessive clamp load on the banjo and tailstock to prevent slipping. A slight amount of surface rust is actually desirable. The slightly rusted surface makes slipping a non-issue



Which do you think works better to clamp things? Obviously the plated washer on the left is easier and less expensive to provide. Make or have your shop handy friends make up some replacements like that on the right

CONCLUSION

The ideas presented this issue might not be revolutionary but I can assure you they are important to being comfortable and working efficiently. All are easily done and for the most part very inexpensive. Implementing these and others you are certain to think of will help you make the most out of the shop time. Even the addition of a radio for background music can make your shop time more enjoyable. Of course, be safe and keep it soft enough that you can hear what is happening with your turning. Comfortable yet adequate lighting, tool and grinder convenience, contrasting backgrounds and standing comfort can only help you work better. While I am as guilty as the next of putting things where they don't belong only to waste time searching for them later on, I try to get into a habit of staying in the organisation system. Time looking for a tool or sharpening one that accidentally fell to the floor is time that isn't value added turning. A few moments here and a few there will add up robbing you of the workshop time you have available. Create whatever organisation system you like, then use it. Take these ideas and see if they will help you in the workshop. Adapt them as needed but the basic concepts are sound and can only help you enjoy your time more and be more productive. ●



Time spent getting things organised and properly setup pays. You'll fatigue less and be more productive at the lathe. All seemingly insignificant ideas that can be implemented easily. Use them at the lathe and throughout the workshop for years of more comfort and better work