

Lathe Safety

1. Make all adjustments or "set-ups" with the power off.
2. Secure loose clothing and long hair.
3. Always wear eye protection, face shield recommended.
5. The tool rest should be adjusted so that the cutting edge slightly above the center and as close as possible to the work.
6. Rotate the stock by hand before turning the power on.
7. Start the lathe on slow speed and then increase the speed
8. Always stand to one side and out of the "firing line" when starting the machine
9. Make sure that there is at least 3/4" of tool rest beyond the end of the wood you are working on
10. Always hold the tool on the tool rest firmly with both hands.
11. Stop the lathe before adjusting the tool rest
12. Always remove the tool rest before sanding or finishing.
13. Do not wrap steel wool or finishing cloths around your fingers, instead hold them loosely in your hand so that if they do get caught they are released from your hand without taking your fingers with it.
14. Wear a dust mask or respirator when turning.

Tool Holding

1. Always hold tool with 2 hands.
2. Hold tool handle against body for optimal rigidity and stability.
3. Ensure tool shaft is resting against the tool rest.
4. Front hand on shaft behind lip of tool rest.
 - a. Underhand grip ideal for detail work
 - b. Overhand grip for roughing work by applying pressure down into tool rest.
5. Move body to move tool, keep handle against body.



Work Holding

- Check the balance of newly mounted workpieces carefully
- When using a spur drive check the tension of the live center regularly, especially when starting on newly mounted workpiece.
- When using the faceplate use sheet metal screws in all 6 screw mounting points.

Speeds

1. Safe RPM's decrease when the diameter of the workpiece increases as the surface speed of the material increases with the distance from the center of rotation.
2. When starting roughing a slower speed is necessary until highspots are removed and a better balance is achieved.

Table of recommended speeds

Diameter of Work	Roughing RPM	General Cutting RPM	Finishing RPM
Under 2"	1520	3000	3000
2" - 4"	760	1600	2250
4" - 6"	510	1080	1500
6" - 8"	380	810	1125
8" - 10"	300	650	900
10" - 12"	255	540	750
12" - 14"	220	460	640
14" - 16"	190	400	960
16" - 20"	175	325	450
20" - 24"	175	260	375

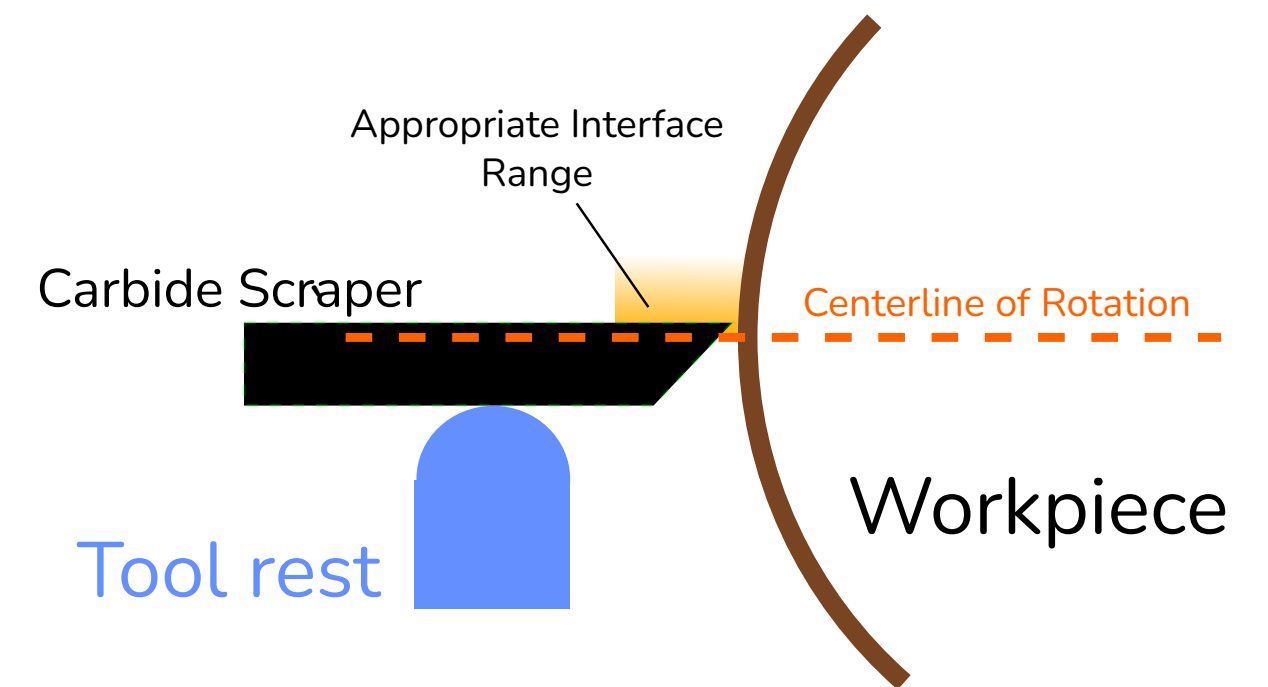
More Info

You can find the full Tool Tutorial including manuals and links to good YouTube videos by scanning this code:



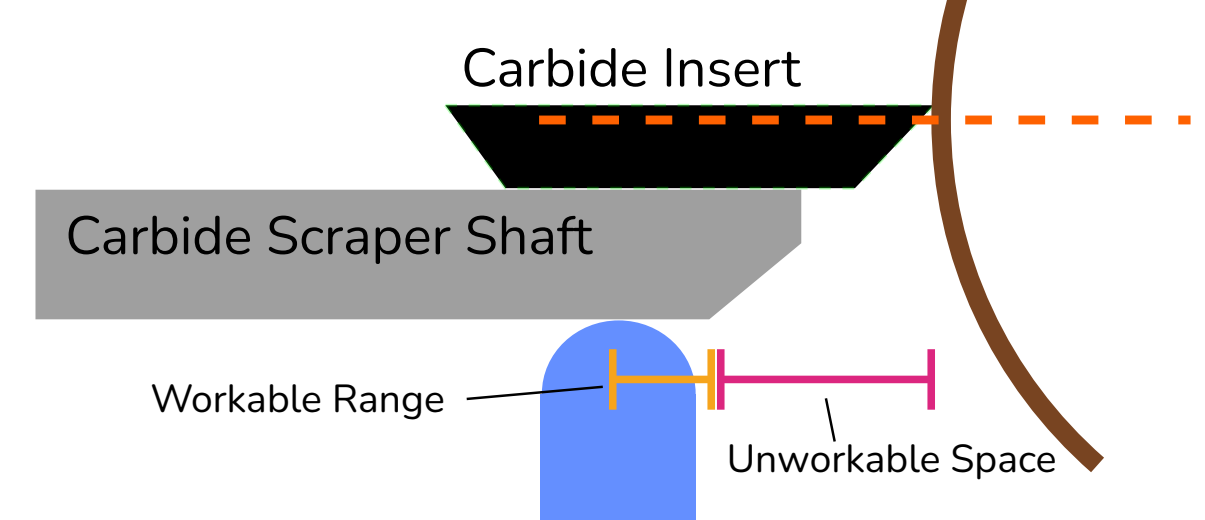
https://protohaven.org/wiki/tools/powermatic_lathe

Tool Positioning



Carbide scrapers generally are introduced to the workpiece horizontally on the centerline of rotation. A slightly higher contact point can cause for a less aggressive cut and reduce risk of catches.

Setting Toolrest Distance

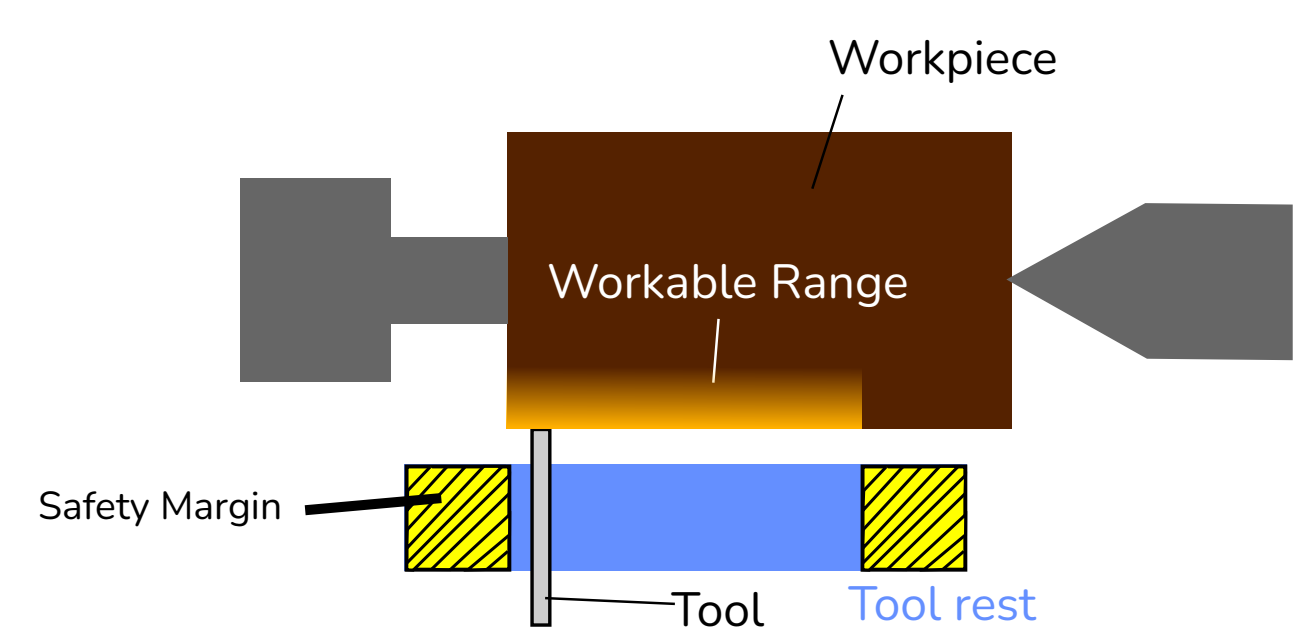


The tool rest should be positioned as close as it can be to the workpiece. The actual distances will vary for each cutting tool.

In the diagram above the workable range is the area of consideration. That needs to be enough to safely engage the tool but not more than is needed. As you advance the cut the workable range will grow and the tool rest will need to be adjusted.

When the tool rest is too far from the workpiece the forces applied on the tool by the workpiece will create substantially more leverage than when the tool rest is close.

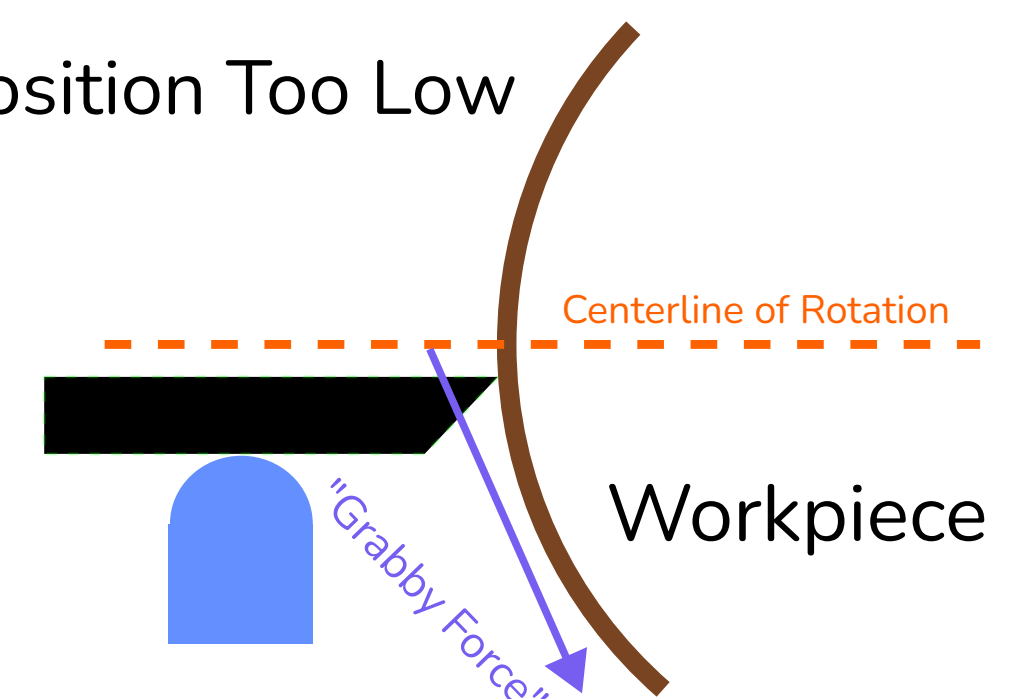
Leave a Margin on the Tool Rest



Always leave a margin on the end of the tool rest 3/4" past the area that you're working. Running the tool off the end of the rest can be hazardous. In the diagram above the tool rest will need to be moved to finish the work on the right side.

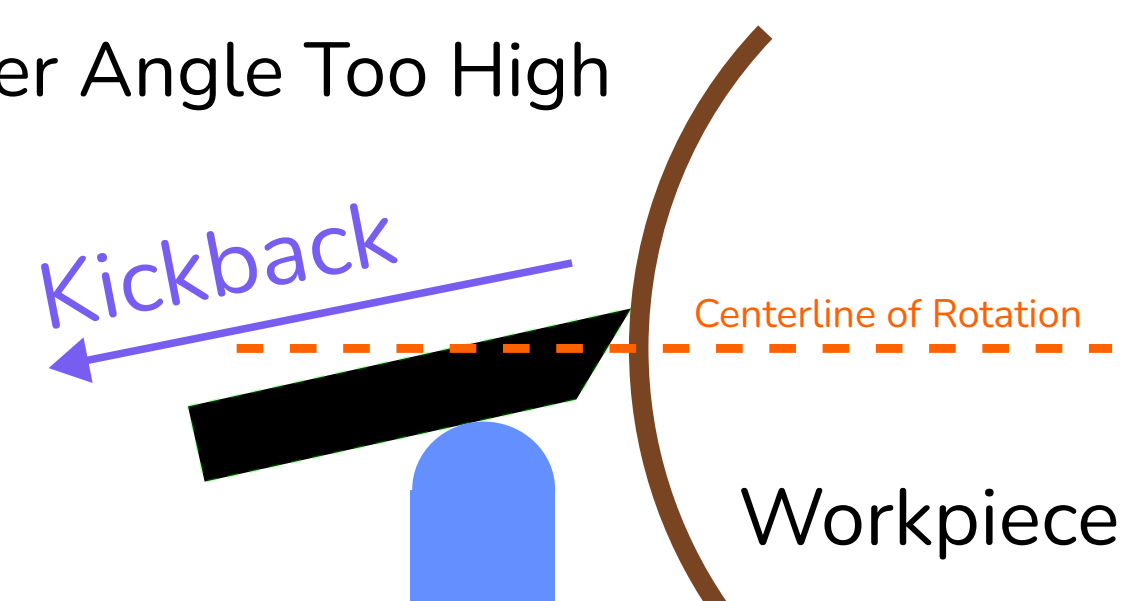
Positions to Avoid

Scraper Position Too Low



Introducing the tool below the centerline will increase the risk of a catch. With the material moving angularly away from the tool it will have a tendency to grab the tool and pull it deeper into the work.

Scraper Angle Too High



Angling the scraper up into the workpiece will have a similar effect to raising the tool rest but there is an increases risk of tool kickback as the forces aren't perpendicular to the tool rest.

Tool too High



In this closeup you can see the workpiece is riding the bevel and that the cutting edge is not engaging the workpiece.