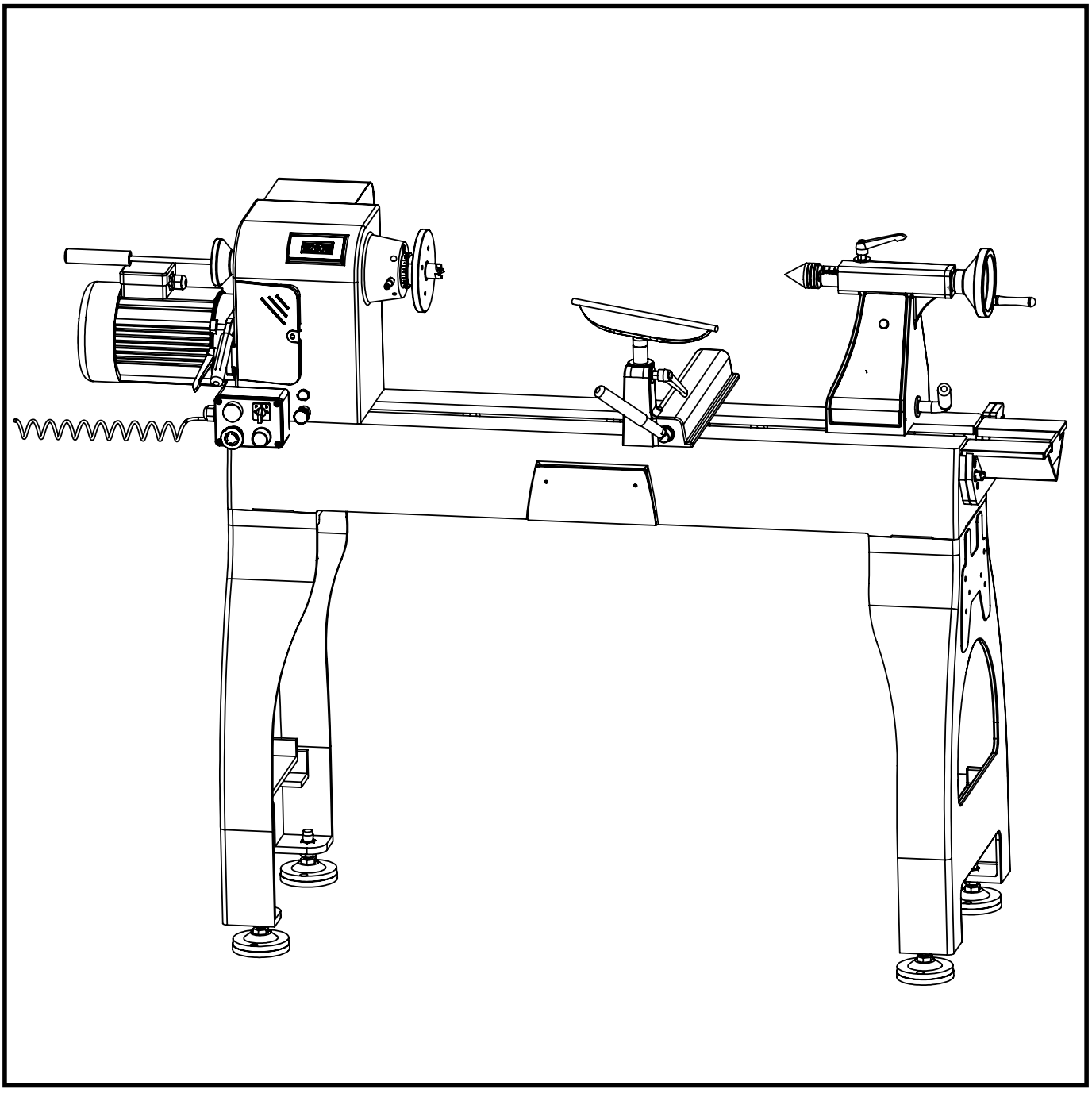
LUMBER JACK
Everyday Woodworking Solutions

SAFETY AND OPERATING MANUAL
20" x 32" Wood Lathe
VSL2200



ORIGINAL INSTRUCTION

LUMBER JACK
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1. Safety

Operating Instructions

▲Explains the meaning and use of the warning notes included in the operating instructions
▲Points out the dangers that might arise for you or others if these instructions are not observed.
▲Informs you how to avoid dangers.

In addition to these operation instructions, please observe
▲The applicable laws and regulations
▲The statutory provisions for accident prevention
▲The prohibition, warning and mandatory signs as well as the warning notes on the machine.

If required, the relevant measures to comply with the country-specific regulations must be taken before commissioning the machine.

Always keep this documentation close to the wood turning lathe.

1.1 Safety instructions for general machinery

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

WARNING

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities may contain chemicals, including lead, birth defects, or other reproductive harm. Wash hands after handling. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks, cement, and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies depending on how often you do this type of work. To reduce your exposure to these chemicals, work in a well-ventilated area with approved safety equipment such as dust masks specially designed to filter out microscopic particles.

	For your own safety, read instruction manual before operating the machine. Learn the machine's application and limitations as well as the specific hazards peculiar.
	Always wear approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are not approved safety glasses.
	Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and always wear an approved respirator to reduce your risk.
	Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.
	Keep hands and clothing away from moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips which could cause a loss of workpiece control.

1.11 Personal protective equipment

protective suit	safety shoes	protective gloves	protective glasses
			

Dirty or contaminated personal protective equipment can cause illness. Clean your personal protective equipment after each use.

1.2 Intended use

The wood turning lathe is designed and manufactured for use in non-explosive environments.
The wood turning lathe is designed and manufactured to cast material and plastics or other material that are not hazardous to health and do not generate dust.
The wood turning lathe must only be installed and operated in dry and ventilated areas.

1.3 Safety instructions for wood turning lathe

Serious injury or death can occur from getting entangled in, crushed between, or struck by rotating parts on a lathe! Rotating workpieces can come loose and strike operator or bystanders with deadly force if they are improperly secured, rotated too fast, or are not strong enough for the rotational forces required for turning. Improper tool setup or usage can cause tool kickback or grabbing, resulting in impact injury or entanglement. To reduce the risk of operator (or bystander) injury or death, anyone operating this machine MUST completely heed the hazards and warnings below.

VERIFY WORKPIECE INTEGRITY	Verify each workpiece is free of knots, splits, nails, or foreign material to ensure it can safely rotate on spindle without breaking apart or causing tool kickback.
PROPERLY PREPARE WORKPIECE	Before mounting, cut off waste portions to balance workpiece for safe rotation and removal of large edges that can catch on tooling.
SECURE LOCKS	Verify tool rest, headstock, and tailstock are secure before turning lathe ON.
SECURE WORKPIECE	Use proven setup techniques and always verify workpiece is well-secured before starting lathe. Only use high-quality fasteners with non-tapered heads for faceplate attachment.
ADJUST TOOL SUPPORT	An improperly supported tool may be grabbed or ejected. Adjust tool rest approximately 1⁄4" away from workpiece and 1⁄8" above workpiece center line to provide proper support for turning tool. Firmly hold turning tool with both hands against tool rest.
REMOVE ADJUSTMENT TOOLS	Remove all chuck keys, wrenches, and adjustment tools before turning lathe ON. These items can become deadly projectiles when spindle is started.
CHECK CLEARANCES	Before starting spindle, verify workpiece has adequate clearance by hand-rotating it through its entire range of motion.
TEST NEW SETUPS	Test each new setup by starting spindle rotation at lowest speed and standing to side of lathe until workpiece reaches full speed and you can verify safe rotation.
WEAR PROPER PPE	Always wear a face shield and safety glasses when operating lathe. Do not wear gloves, necktie or loose clothing. Keep long hair away from rotating spindle.
USE CORRECT SPEEDS	Select correct spindle speed for workpiece size, type, shape, and condition. Use low speeds when roughing or when turning large, long, or non-concentric workpieces. Allow spindle to reach full speed before turning.
AVOID TOOL KICKBACK	This occurs when turning tool is grabbed or ejected from workpiece with great force.

	Commonly caused by poor workpiece selection/preparation, improper tool usage, or improper machine setup or tool rest adjustment.
SAFELY PERFORM ROUGHING	Use correct tool. Take light cuts, use low speeds, and firmly support tool with both hands.
USE SHARP TOOLS	Sharp tools cut with less resistance than dull tools. Using dull tools increases the risk of tool kickback or grabbing
SAFELY STOPPING ROTATION	Always allow rotating workpiece to stop on its own. Never put hands or another object on workpiece to stop it.
SAFELY MEASURE WORKPIECE	Only measure mounted workpiece after it has completely stopped. Trying to measure a spinning workpiece increases entanglement risk.
SANDING/POLISHING	To reduce entanglement risk, remove tool rest before sanding. Never completely wrap sandpaper around workpiece.

No list of safety guidelines can be complete. Every shop environment is different. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

1.4 Safety devices

The wood turning lathe must only be used with fully functional safety devices.

Stop the machine immediately if a safety device is defective or becomes ineffective.

This is your responsibility!

If a safety device has been activated or has failed, the machine must only be used if you have eliminated the cause of the fault and have verified that there is no danger to personnel or objects.

The wood lathe features the following safety devices:

▲a protective cover for the V-belts ▲Whole switch box cover underneath the wood lathe.

1.5 Reasonably foreseeable misuse

Any use other than that specified under "Intended use" or any use beyond the described use will be deemed non-intended use and is not permissible. Any other use must be discussed with the manufacturer.

In order to avoid misuse, the operating instructions must be read and understood before first commissioning. The operator of the wood lathe must be duly qualified.

1.51 Avoiding misuse

▲ Correct belt speed for rotating the workpiece.
▲ Use the correct chisels, depending on the workpiece's material.
▲ Clamp the workpiece firmly by wood chucks etc.

1.6 Possible dangers caused by the wood turning lathe.

The wood turning lathe has undergone a safety inspection (hazard analysis with risk assessment).

It has been designed and built on the basis of this analysis. Anyway, there is a residual risk as the

machine operates under electrical voltage and currents and high speed.

We have used design and safety engineering to minimise the health risk to personnel resulting from these hazards. If the machine is used and maintained by personnel who are not duly qualified, there may be a risk resulting from incorrect or unsuitable maintenance.
This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages.
Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

1.7 Safety check

Check all safety devices when starting any task, once a week and after any maintenance and repair work. Close all protective covers before starting the wood turning lathe.

1.8 Safety during operation

We specifically point out the dangers in the description of work with and on the wood turning lathe.

Avoid any unsafe work methods:
▲ Make sure that your operation does not create a safety hazard.
▲ The rules specified in these operating instructions must be observed during assembly, operation, maintenance and repair.
▲ Do not work on the machine if your concentration is reduced, for example because you are taking medication.
▲ Stay with the machine until all movements have come to a complete standstill.
▲ Use the specified personal protective equipment. Ensure you wear well-fitting clothing and, if necessary, a hairnet.

1.8.1 Disconnecting and securing the wood turning lathe

Pull out the power plug before beginning any maintenance or repair. All machine parts as well as all dangerous voltages must be switched off.

Live parts and movements of machine parts can cause severe injury to yourself and others! Proceed with extreme caution, if the mains plug of the wood turning lathe cannot be disconnected due to the nature of the required work (e.g. functional check).

1.8.2 Using lifting equipment

The use of unstable lifting and load suspension equipment that might break under load can cause severe injuries or even death. Check that the lifting and load suspension equipment are of sufficient load-bearing capability and are in perfect condition. Fasten loads carefully. Never walk under suspended loads!

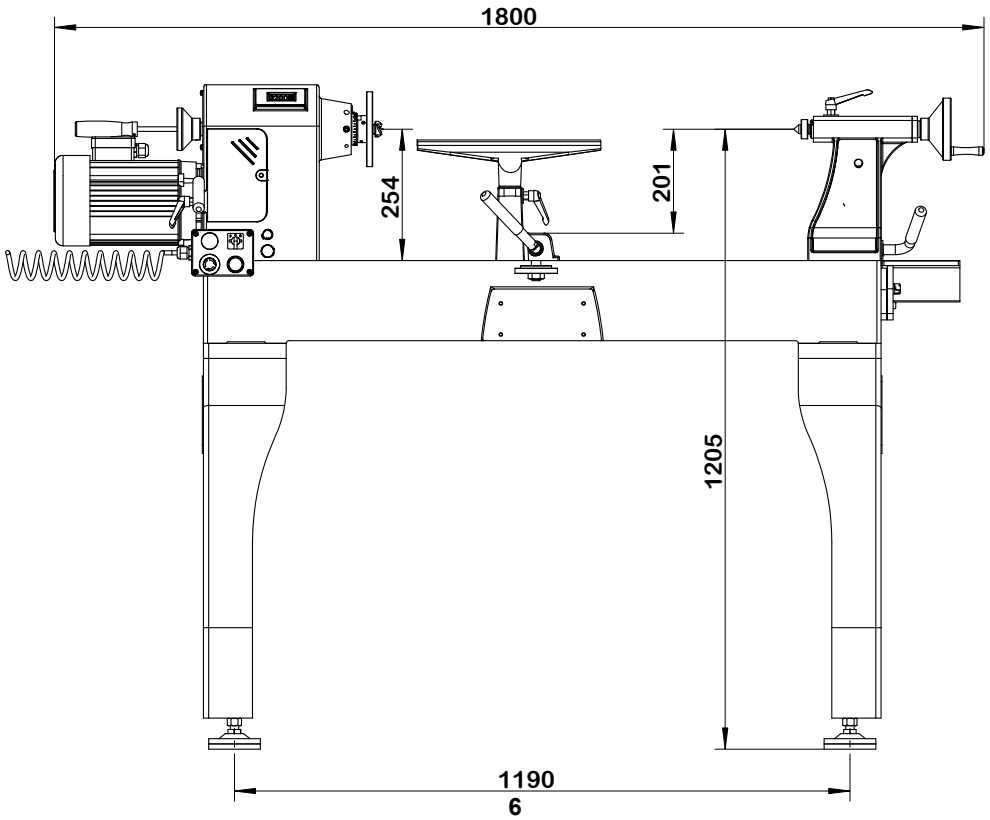
2. Technical Specification

The following information represents the dimensions and weight information and the manufacturer‘s approved machine data.

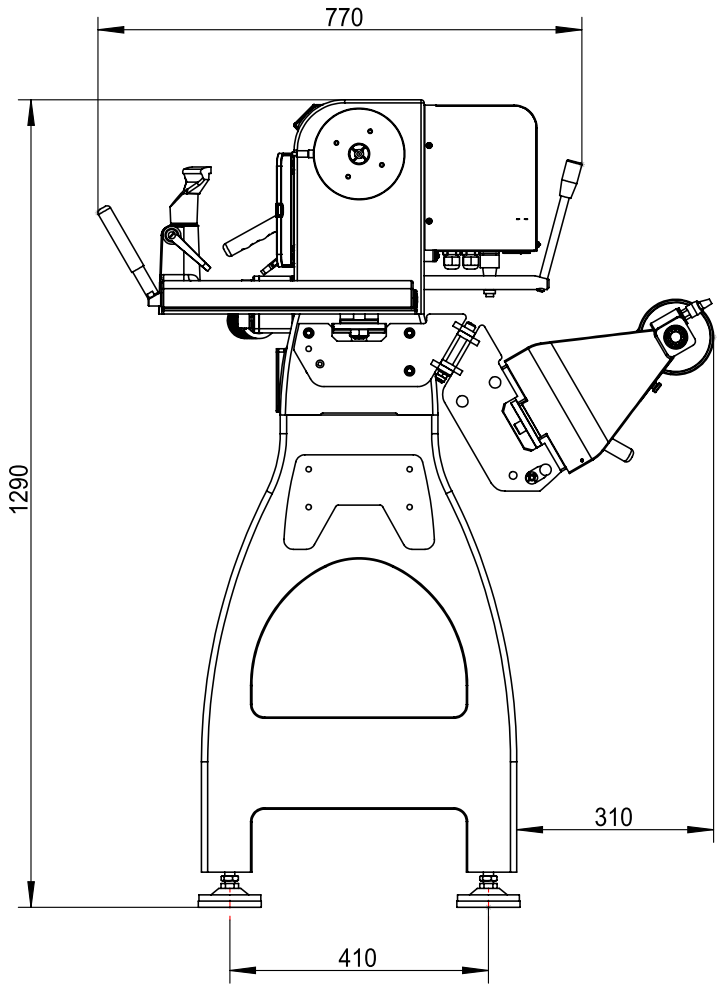
2.1 Specification

Motor power (Input w)	2200W 230V
No of spindle speed	Variable in 2 ranges
Spindle speed (rpm)	0-1300 (Low); 0-3550 (High)
Spindle thread	M33X3.5 or others
Spindle and tailstock taper	MT2
Face plate diameter (mm)	145
Tool rest working width (mm)	355（14"）
Distance between centers (mm)	812
Swing over bed (mm)	508 (20")
Swing over tool rest (mm)	402(15.8")
Indexing Positions	36 positions
Headstock swivelling angle	0°,60°,90°,120°,180°
Spindle Height(mm)	1172
NET weight (KG)	230KG
Overall dimensions LxWxH (mm)	1315 x 532 x 1225
Packing size LxWxH (mm)	1400x 630 x 630
Swing-Away Extension	Standard fitting

2.2 Dimensions & Placement location



Consider anticipated workpiece sizes and additional space needed for auxiliary stands, work tables, or other machinery when establishing a location for this machine in the shop. Below is the minimum amount of space needed for the machine.



3. Assembly

The wood turning lathe is not delivered preassembled. After unpacking, you need to do some installing work.

Transport the wood turning lathe in its packing crate to a place near its final installation site before unpacking it. If the packaging shows signs of possible transport damage, take the necessary precautions not to damage the machine when unpacking. If any damage is discovered, the carrier and/or shipper must be notified of this fact immediately to establish any claim which might arise.

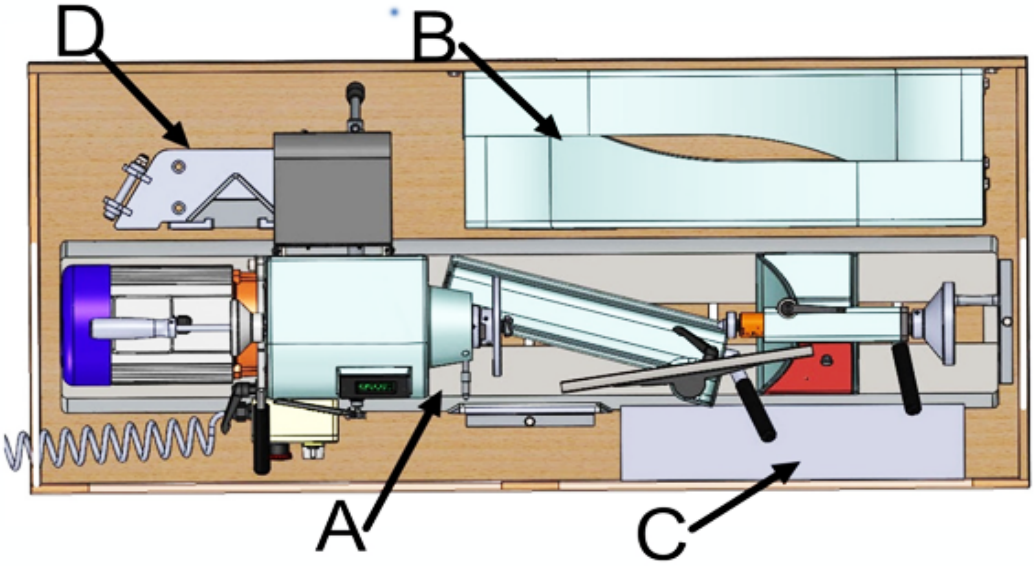
Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.

3.1 Needed for Setup

This machine is heavy. DO NOT over-exert yourself while unpacking or moving the machine. Get Assistance!!

3.2 Unpacking the machine

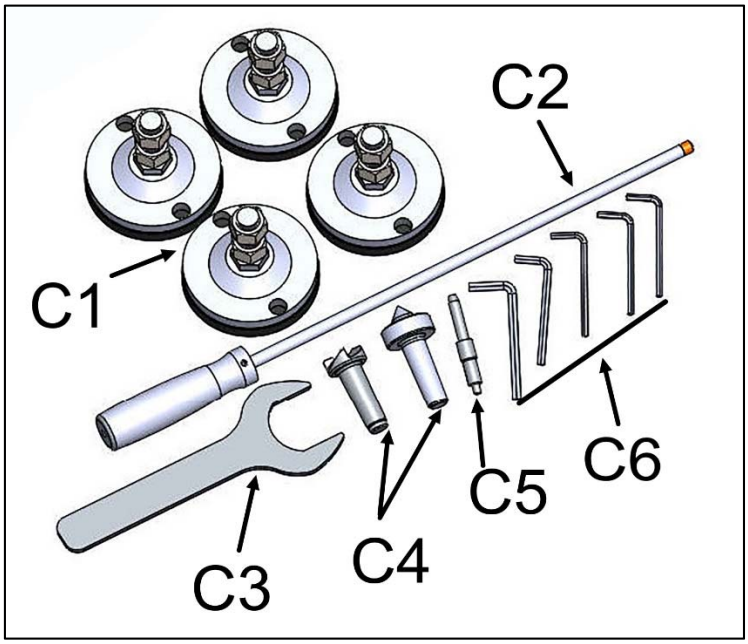
The machine is packed in one plywood case, when unpacking it, you could see the following items:



A: Main machine assembly	C:Accessory box
B: Cast iron leg	D: Tailstock swing away assembly

Inspect the machine completely and carefully, making sure that all materials and accessories supplied with the machine have been received.

In the Accessory box (C), some necessary tools are packed in, please lay them out and check:



C1: Four feet	C4: Live center and spur center
C2: Knockout Rod	C5: Index pin
C3: Spanner	C6: Hexagon wrenches

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

3.3 Cleanup

The unpainted surfaces of the machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage.
This rust preventative works extremely well, but it will take a little time to clean.
Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

Basic steps for removing rust preventative:
1. Put on safety glasses.
2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.
4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

Avoid chlorine-based solvents, such as acetone or brake parts cleaner, that may damage painted surfaces.

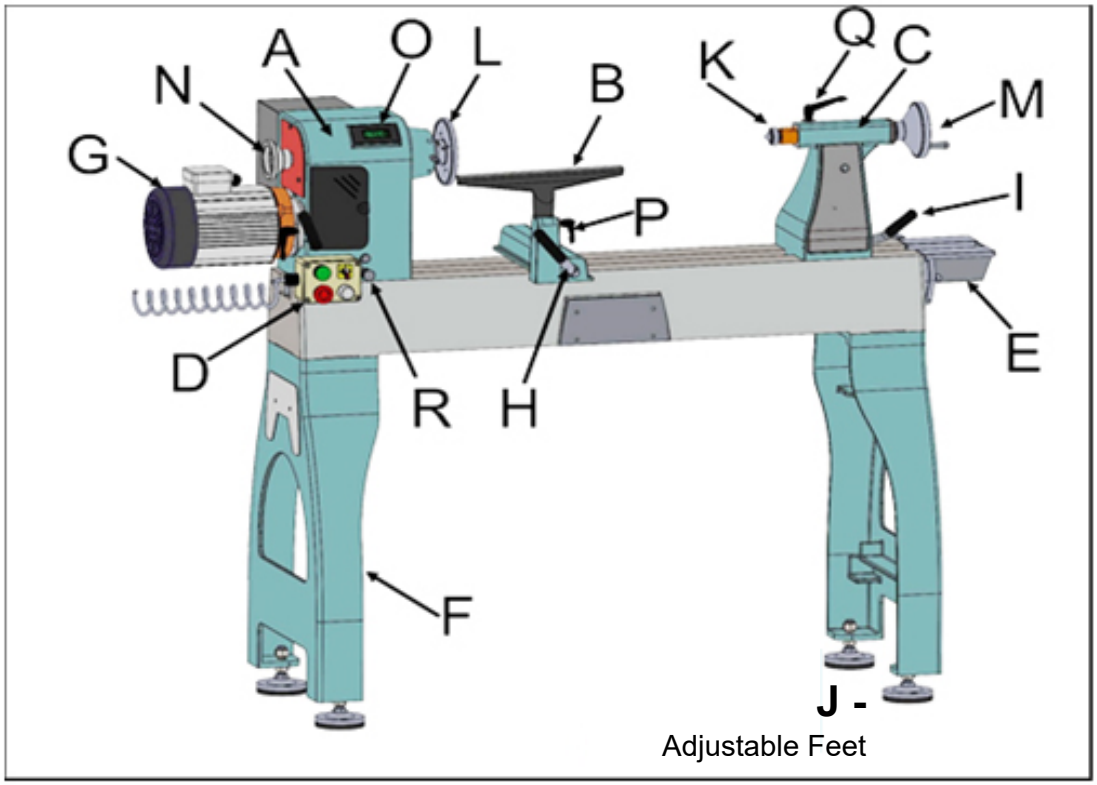
3.4 Assembly

The machine must be fully assembled before it can be operated. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

The Lathe should be disconnected from power during assembly. Use an assistant or a hoist to help lift items.

3.4.1 Know your wood lathe

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

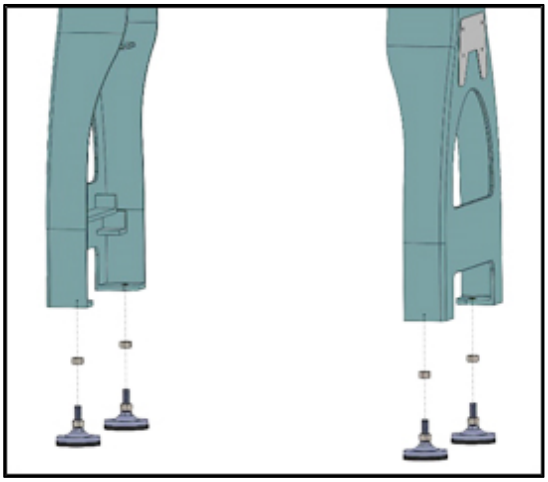


A. Headstock	I. Tailstock locking handle
B. Tool rest	K. Quill
C. Tailstock	L. Faceplate
D. Magnetic Mobile Control box	M. Tailstock handwheel
E. Tailstock swing-away	N. Spindle handwheel
F. Cast iron legs	O. Digital Display
G. Motor	P. Tool rest locking handle
H. Tool rest base locking handle	Q. Quill locking handle

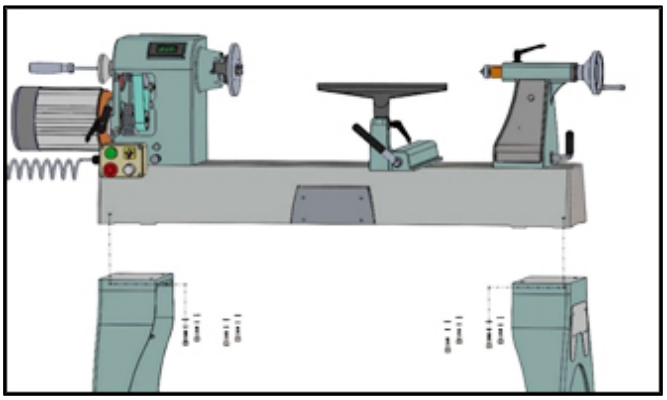
3.4.2 To assemble machine

Remove any screws or straps that hold the Lathe parts to the pallet, and remove protective wrapping. Set all boxes containing legs and accessories to the side.

1. Position stand legs upright, and align them reasonably well. Screw feet into threaded holes of legs. The feet can be adjusted at any time to ensure the Lathe is stable and level. Tighten the hex nuts against bottom of legs to secure height setting.

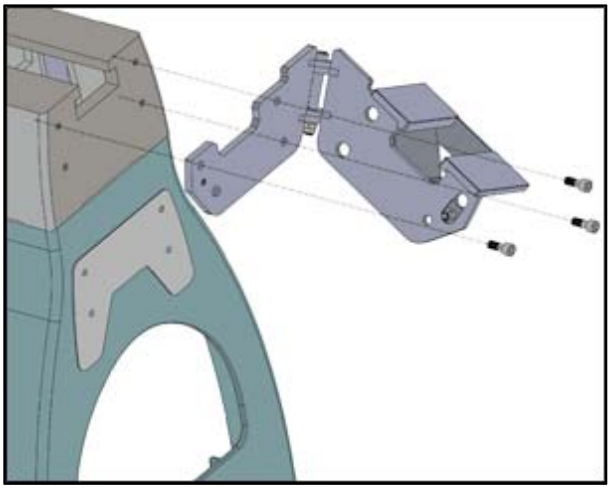


2. Wrap lifting straps around bed at both ends. Straps should be positioned next to bed mounting points to maintain best balance. Use at least 4 people to carefully position lathe assembly on top of legs. Once mounting holes are aligned, secure lathe assembly to legs.



For easier lifting, we could decrease weight on lathe bed: Remove stop bolt at each end of bed, and slide off headstock, tailstock.

3. Fit the tailstock swing-away hinge on the bed by bolts.



3.5 Initial running

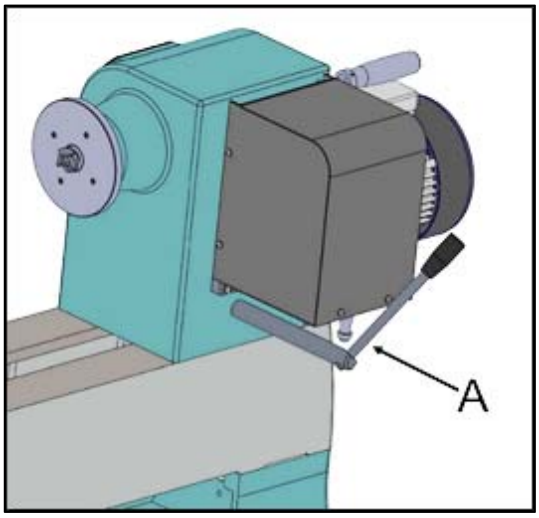
Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components are functioning correctly. If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. The Troubleshooting table in the SERVICE section of this manual can help.
The test run consists of verifying the motor powers up and runs correctly.

To test run machine:

1. Clear all setup tools away from machine.
2. Ensure spindle lock is loose to the unlocked position.
3. Set spindle direction switch to neutral position and turn speed control knob all the way counterclockwise.
4. Press Emergency Stop button.
5. Connect machine to power supply. Digital readout should illuminate.
6. Twist Emergency Stop button clockwise until it springs out. This resets switch so spindle can turn.
7. Press Green button.
8. Verify machine is operating correctly by turning spindle direction switch to "FWD" position, then slowly turn speed control knob clockwise.
9. Turn speed control knob all the way left.
10. Turn spindle direction switch to "REV" position, and slowly turn speed control knob clockwise.
11. Move spindle direction switch to neutral position, and push in Emergency Stop button.
12. Without resetting Emergency Stop button, turn spindle direction switch to "FWD" and "REV" positions. Machine should not start at either position.

3.6 Adjustment

3.6.1 Adjusting Headstock



The headstock on this lathe is equipped with a cam-action clamping system to secure it to the lathe bed. When the lever is tightened, a locking plate lifts up underneath the bed and secures the tailstock in place. The headstock can be positioned anywhere along the lathe bed.

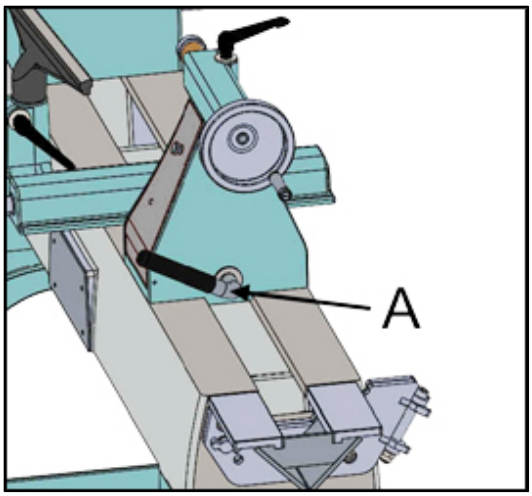
To position headstock along length of bed:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen headstock locking handle (A).

3. Slide headstock to desired location on bed, and use headstock locking handle to secure headstock in position.

3.6.2 Adjusting Tailstock



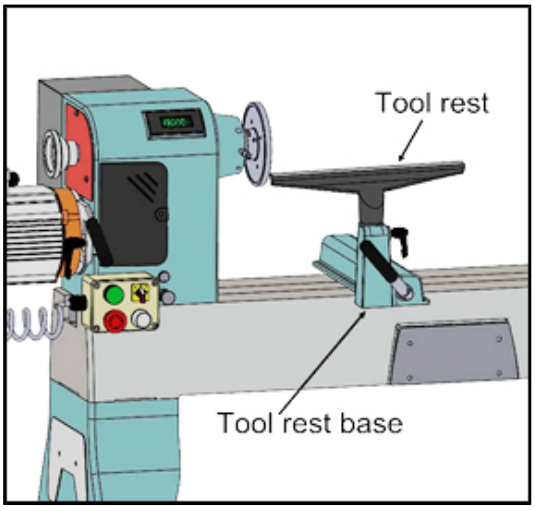
The tailstock adjusts in the same manner as the headstock. To position tailstock along length of bed:

1. Loosen tailstock locking handle (A) and move tailstock to desired position along bed.

2. Retighten tailstock locking handle to secure tailstock to bed.

Note: The large clamping lock nut underneath the tailstock will require occasional adjusting to ensure proper clamping pressure of the tailstock to the bed.

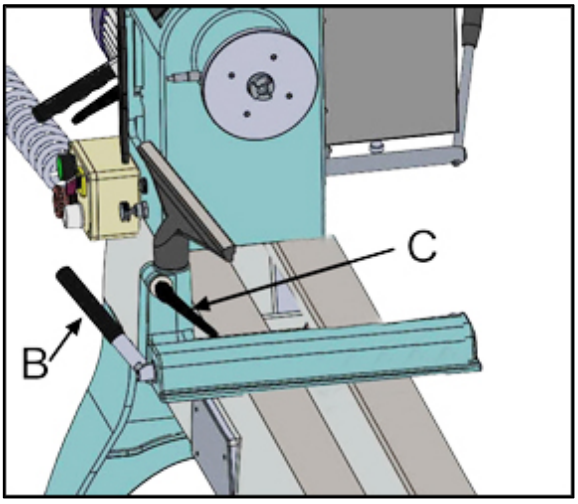
3.6.3 Adjusting tool rest



The tool rest assembly consists of two components: the tool rest base and the tool rest. The tool rest base moves forward/backward and along the length of the lathe bed. The tool rest rotates and moves up and down in the tool rest base. Locks for both components allow you to secure the tool rest in position after making these adjustments. When adjusting the tool rest, position it as close as possible to the workpiece without actually touching it. This maximizes support where the cutting occurs and minimizes leverage, reducing the risk of injury if a "catch" occurs.

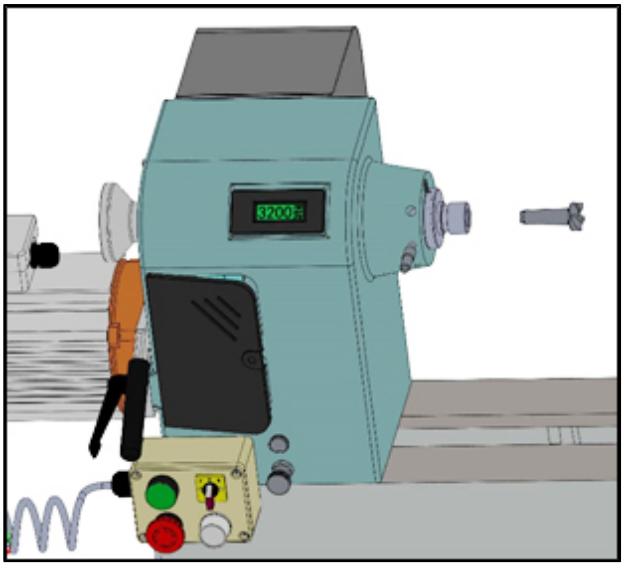
As a rule of thumb: For most (spindle) turning operations, the cutting tool should contact the workpiece slightly above centerline. For most inside (bowl) turning operations, the cutting tool should contact the workpiece slightly below centerline.
Keeping all these factors in mind, your main goal when adjusting the tool rest should be providing maximum support for the type of tool being used, in a position that is safe and comfortable for you.

Improperly supported or positioned cutting tools can "catch" on workpiece, ejecting tool from your hands with great force. To reduce this risk, always ensure tool rest is properly positioned for each type of operation, cutting tool is firmly supported against tool rest BEFORE cutting, and cutting tool is properly positioned to cut at the correct angle for tool and operation type.



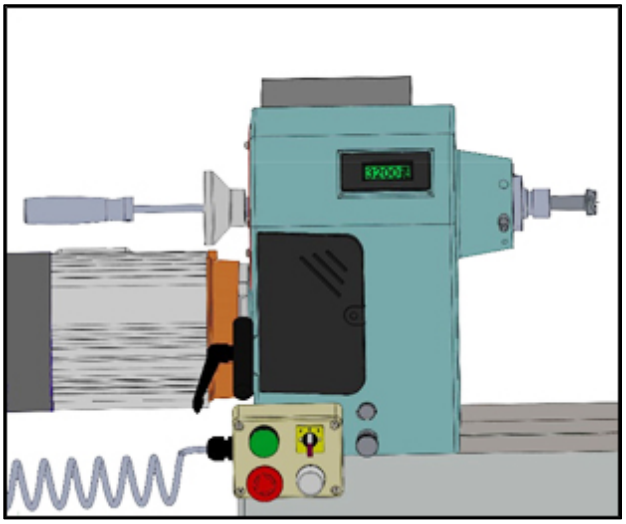
To adjust tool rest:
1. Loosen tool rest base locking handle (B) and move tool rest assembly to desired position on lathe bed.
Note: To maximise support, the tool rest base should always be locked on both sides of the bed. Never pull the tool rest so far back that it is only secured on one side.
2. Re-tighten tool rest base locking handle to secure tool rest assembly in position.
Note: The large clamping lock nut underneath the tool rest base will require occasional adjusting to ensure proper clamping pressure of the tool rest assembly to the bed. Turn this lock nut in small increments to fine tune the clamping pressure as needed.
3. Loosen tool rest lock handle(C).
4. Position tool rest in desired location.
5. Re-tighten tool rest lock handle(C) to secure tool rest in position.

3.6.4 Installing/Removing Headstock Center



To install the live center:

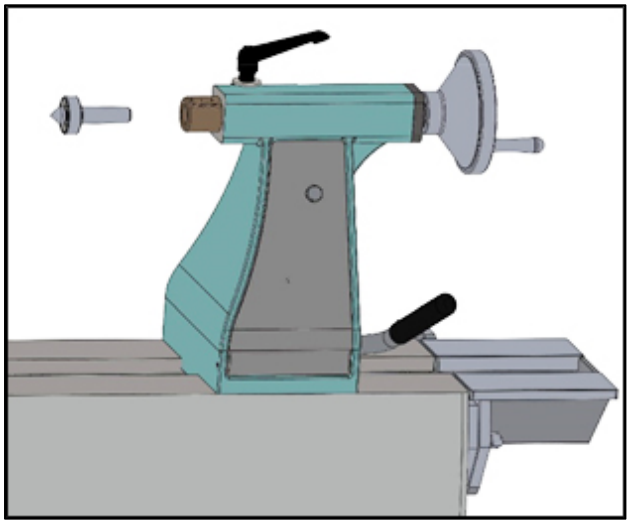
1. DISCONNECT MACHINE FROM POWER!
2. Make sure mating surfaces of center and spindle are free of debris and oily substances before inserting center to ensure a good fit and reduce runout.
3. Insert tapered end of center into spindle, and push it in with a quick, firm motion.
4. Make sure center is securely installed by attempting to pull it out by hand—a properly installed center will not pull out easily.



To remove the live center:

1. DISCONNECT MACHINE FROM POWER!
2. Hold a clean rag under spindle or wear leather glove to catch center when you remove it.
3. Insert knockout rod through outbound end of spindle and firmly tap back of center, catching it as it falls.

3.6.5 Installing/Removing Tailstock Center



The included live center installs into the tailstock quill with an MT2 tapered fit.

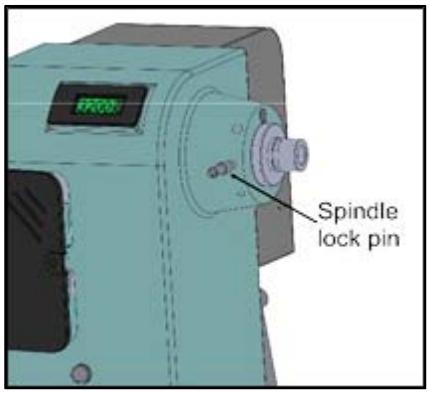
Installing Tailstock Center

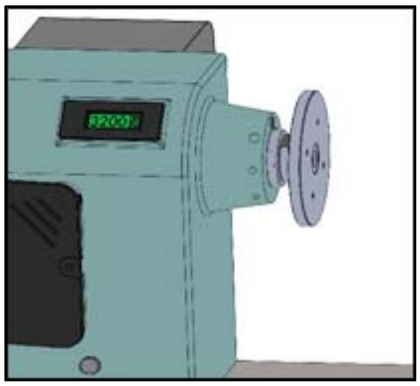
1. Loosen quill lock handle, and rotate handwheel until quill extends about 1".
2. Make sure mating surfaces of center and quill are free of debris and oily substances before inserting center to ensure a good fit and reduce runout.
3. Firmly insert tapered end of center into tailstock quill.
4. Make sure center is securely installed by attempting to pull it out by hand—a properly installed center will not pull out easily.
5. Secure quill in place by retightening quill lock handle.

Removing Tailstock Center

1. Loosen quill lock handle.
2. Hold a clean rag under spindle or wear a glove to catch center when you remove it.
3. Rotate handwheel counterclockwise— tailstock quill will retract back into quill, causing center to be forced out.

3.6.6 Installing Faceplate

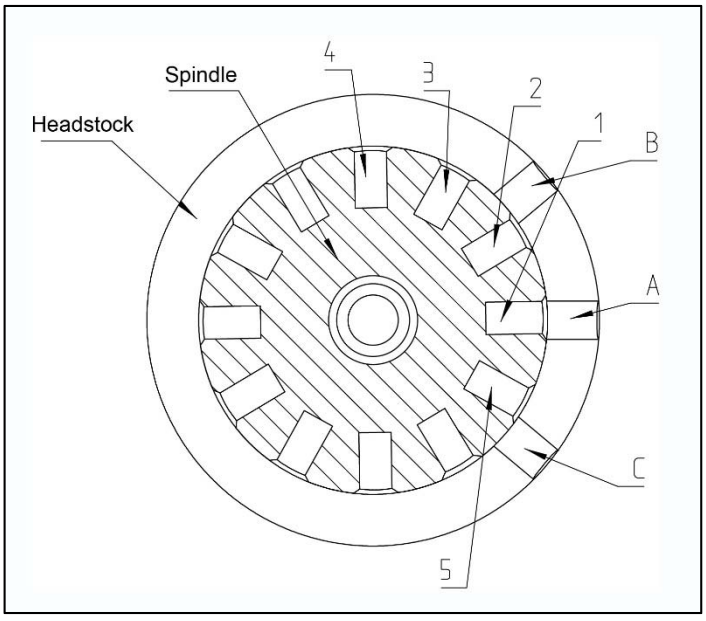




To install faceplate:

1. DISCONNECT MACHINE FROM POWER!
2. Rotate spindle lock pin into the holes to prevent spindle from turning while you tighten faceplate.
3. Thread faceplate onto spindle until it is snug.
4. Tighten screws along inside diameter of faceplate to secure it to spindle.

3.6.7 Indexing/Spindle lock



Indexing on a lathe is typically used for workpiece layout and other auxiliary operations that require equal distances around the workpiece circumference, such as clock faces or inlays.

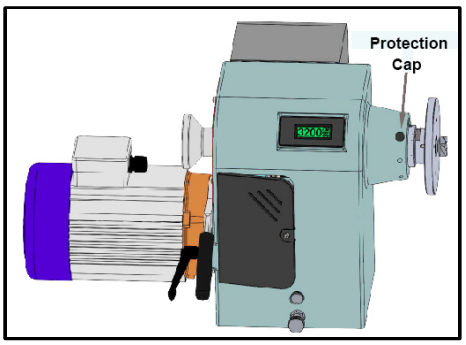
There are 12 holes on the spindle, so they are 30 degree from each other. The 3 holes on the headstock are 40 degrees from each other.

For 10 degree indexing: Align 1 and A as initial position. When spindle rotates clockwise, 5 aligns to C, this locates the 1st 10 degree position. Spindle rotates clockwise further, 3 aligns to B, this locates the 2nd 10 degree position. Spindle rotates clockwise further, 2 aligns to A, this locates the 3rd 10 degree position. Repeat the cycle for further positions.

For 20 degree indexing: Align 1 and A as initial position. When spindle rotates clockwise, 3 aligns to B, this locates the 1st 20 degree position. Spindle rotates clockwise further, 1 aligns to C, it locate the 2nd 20 degree positions. Then 3 just aligns to A for further positions.

For 30 degree indexing: Choose one hole on the headstock as the initial position and only use this hole align each hole on the spindle to locate 30 degree positions.

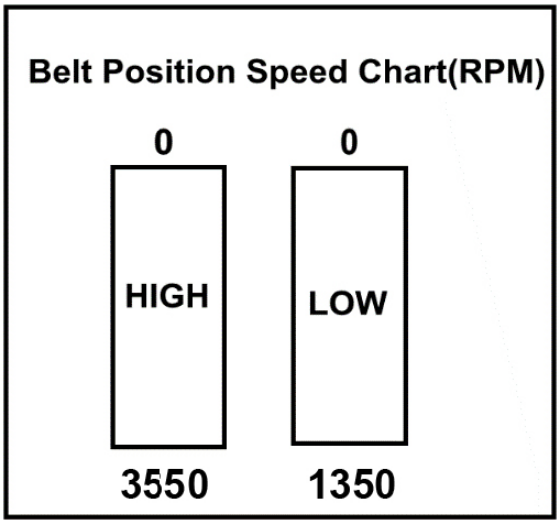
Remove the protection cap (from wood particles) when necessary



3.6.8 Adjusting the speed

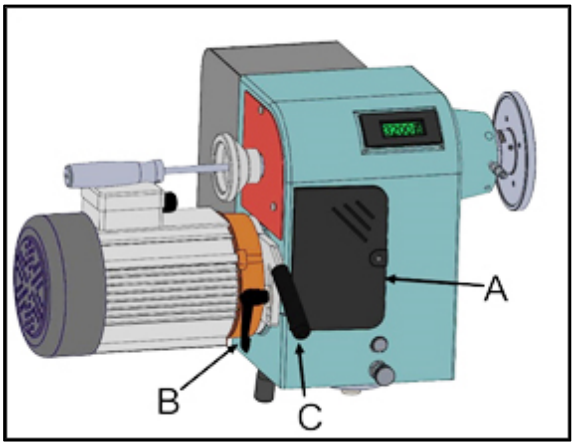
The pulley belt configurations on this lathe provide two speed ranges.

Note: Always start at slower speeds for rough cuts and larger workpieces. Use faster speeds for refined cuts and detailed work. Set the suitable speed range for your operation by adjusting the belt position. Change the speed within a speed range using the speed adjustment knob. The speed will be displayed on the digital RPM readout on the front panel.



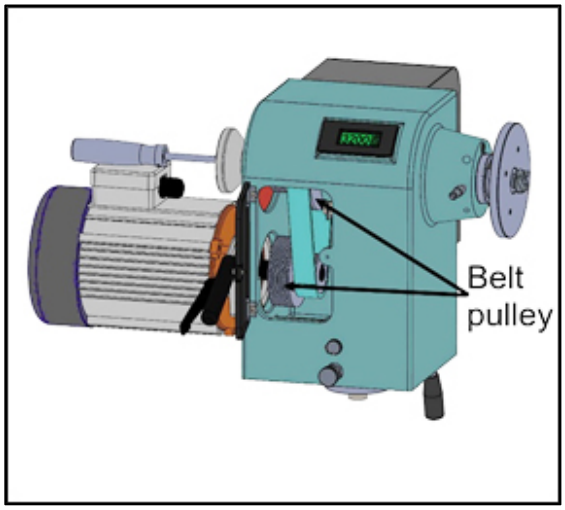
To change speed ranges:

1. Disconnect machine from power.
2. Open belt access cover (A).
3. Loosen belt tension lock handle (B).
4. Use belt tension lever(C) to lift motor assembly all the way up, then retighten belt tension lock handle—this will hold motor in place while you change belt position.
5. Reach into belt access cavity and roll belt onto desired set of pulleys.
6. Loosen belt tension lock handle and lower motor.
7. Apply downward pressure on belt tension lever to properly tension drive belt, then retighten belt tension lock handle.
8. Close front belt access cover.

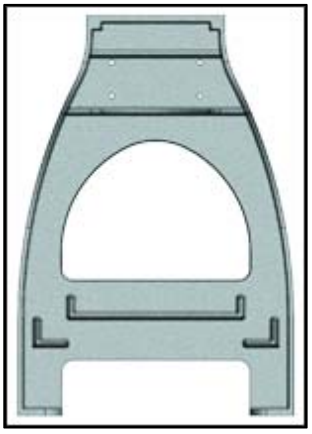


3.6.9 Speed recommendations

High range is best when turning a workpiece where a clean finish is required and only light cuts are made. Mid range is a compromise between high and low ranges. Low range, which has more torque, is best when turning a workpiece where a lot of material must be removed and a rough finish does not matter. Use the speed dial to adjust spindle speed within each range.



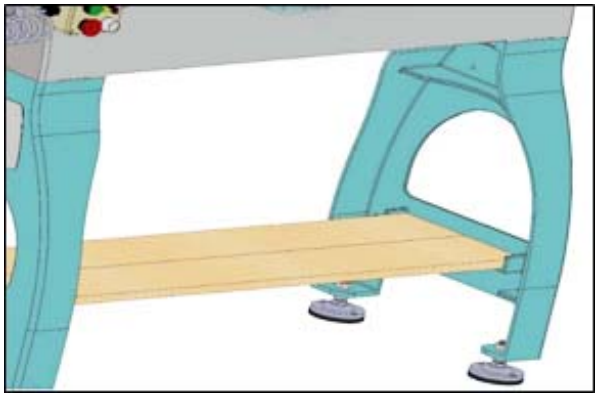
3.7 User-made shelf (optional)



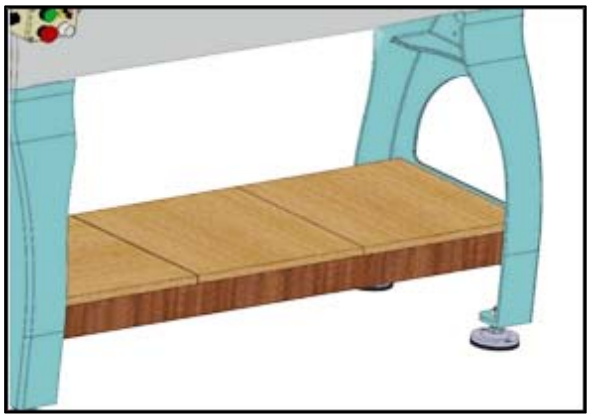
The double ledges on the inside of the Lathe legs provide support for a shelf (not provided), which is convenient for storing larger items while keeping them easily accessible.

IMPORTANT TIP: It is unlikely that a full-size shelf can be completely built and then inserted between the Lathe legs. Therefore, construct the shelf in pieces and insert screws only after the shelf has been established beneath the Lathe.

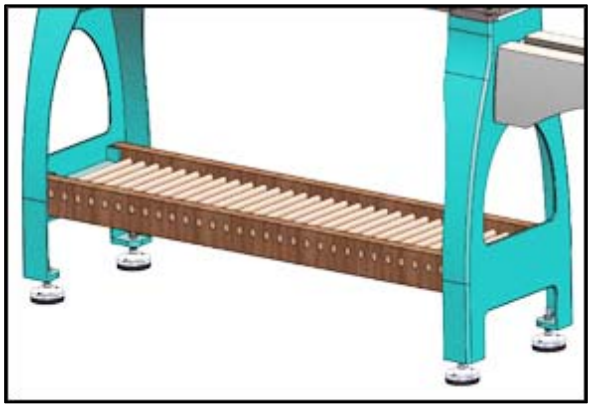
Shelf Style 1: Lay two boards flat upon the inner ledges.



Shelf Style 2: Lay two boards on edge into the outer ledges. Cut two pieces from a plywood board, and screw them to the top edges of the two boards. Make the plywood pieces flush with the outside edge of the two boards

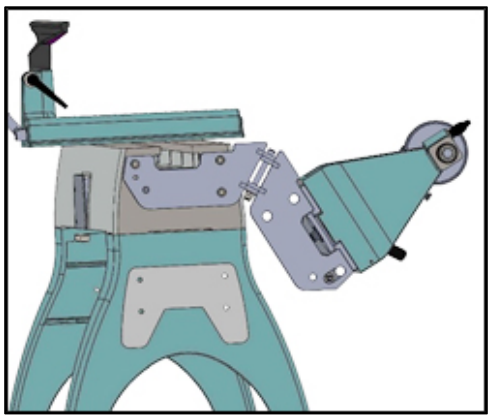


Shelf Style 3: A basket-style shelf consisting of two boards and dowel rods. The advantage of this design is that most wood chips will fall through the shelf instead of accumulating on it.



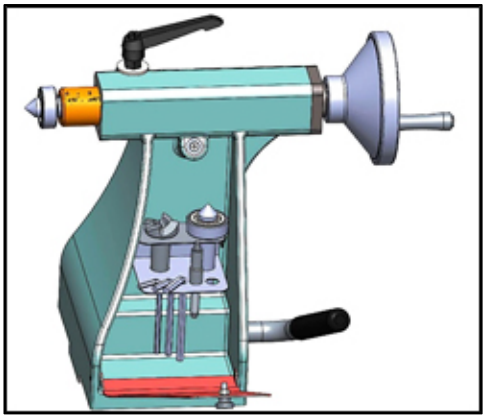
3.8 Tailstock swing away

This lathe is fitted with tailstock swing-away function. Under certain working conditions, such as hollowing we could quickly swing the lathe tailstock out of the way.



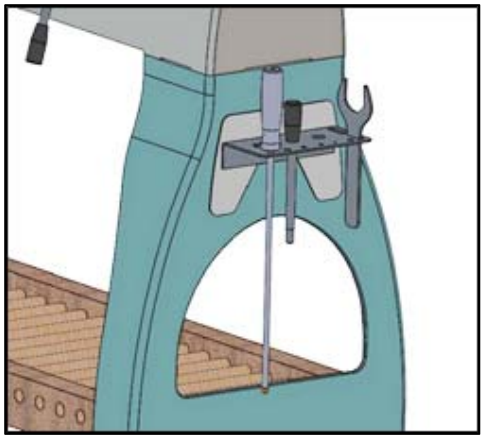
3.9 Storage in Tailstock

Storage in tailstock design on the side of the tailstock is convenient for users to store small accessories such as the centers, spanners etc.



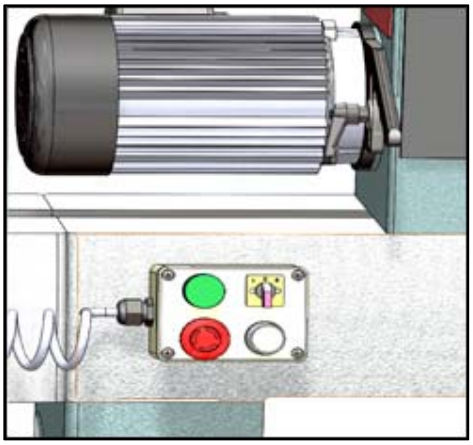
3.10 Tool holder

The tool holder can be mounted to left or right end of Lathe. The left end, near headstock area, is generally preferred for convenience. Use screws and washers to secure tool caddy to threaded holes in Lathe leg. Accessories can be stored in the tool caddy, including knockout rod, spur center, live center, live center pin, comparator centers, and faceplate wrench.



3.11 Magnetic mobile control box

Based on magnetic, users can move and attach the control box at any convenient position.



4. Operation

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand. Due to the generic nature of this overview, it is not intended to be an instructional guide. To learn more about specific operations, read this entire manual, seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects.

To complete a typical operation, the operator does the following:

1. Make sure the workpiece is suitable for turning. No extreme bows, knots, or cracks should exist.

2. Prepare and trim workpiece with a bandsaw or table saw to make it roughly concentric.

3. Install workpiece between centers, or attach it to faceplate or chuck.

4. Adjust tool rest according to type of operation, and set minimum clearance between workpiece and lip of tool rest to ¼" gap.

5. Rotate workpiece by hand to verify spindle and workpiece rotate freely throughout full range of motion.

6. Verify pulley speed range is set for type of wood and size of workpiece installed.

7. Verify spindle speed dial is turned all the way counterclockwise, so spindle won't start in high speed.

8. Verify spindle direction switch is set in neutral position.

9. Put on safety glasses, face shield, and respirator.

10. Set spindle direction switch to forward or reverse, starts spindle, adjusts spindle speed, and carefully begins turning operation, keeping chisel against tool rest entire time it is cutting.

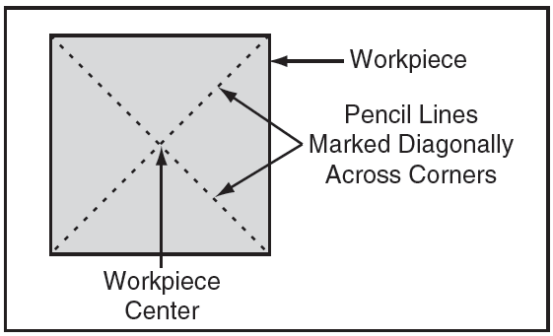
11. Turn spindle ***OFF*** when cutting operation is complete.

4.1 Spindle turning

Spindle turning is the operation performed when a workpiece is mounted between centers. Bowls, table legs, tool handles, and candlesticks are typical projects where this operation is used.

To set up a spindle turning operation:

▲ Find center point of both ends of your workpiece by drawing diagonal lines from corner to corner across end of workpiece.

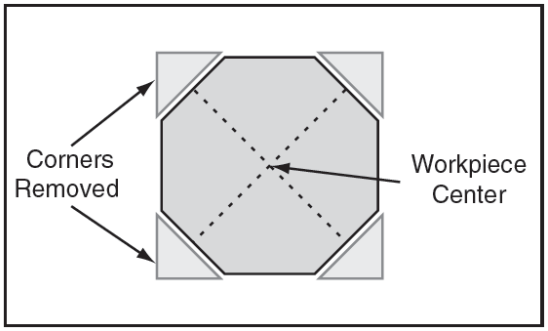


▲ Make a center mark by using a wood mallet and tapping point of spur center into center of workpiece on both ends.

▲ Using a ¼" drill bit, drill a ¼" deep hole at center mark on end of the workpiece to be mounted on headstock spur center.

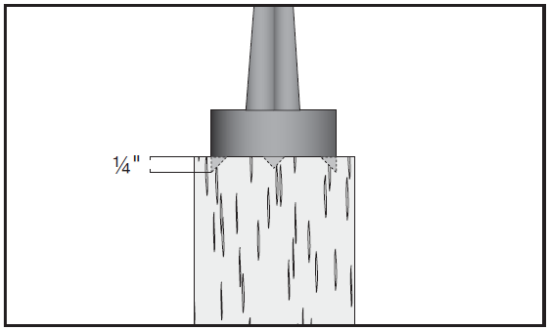
▲ To help embed spur center into workpiece, cut ⅛" deep saw kerfs in headstock end of workpiece along diagonal lines marked in **Step 1**.

▲ If your workpiece is over 2" x 2", cut corners off workpiece lengthwise to make turning safer and easier.



6. Drive spur center into end center mark of workpiece with a wood mallet to embed it at least ¼" into workpiece.

7. With workpiece still attached, insert spur center into headstock spindle.



Note: Use tool rest to support opposite end of workpiece so that workpiece and spur center do not separate during installation.

8. Install live center into tailstock quill and tighten quill-lock handle to lock quill in position.

9. Slide tailstock toward workpiece until point of live center touches workpiece center mark, then lock tailstock in this position.

10. Loosen quill-lock handle and rotate tailstock handwheel to push live center into workpiece at least 1⁄4".

11. Properly adjust tool rest to workpiece.

12. Before beginning lathe operation, rotate workpiece by hand to ensure there is safe clearance on all sides.

4.1.1 Spindle turning tips

▲ When turning the lathe ***ON***, stand away from the path of the spinning workpiece until the spindle reaches full speed and you can verify that the workpiece will not come loose.

▲ Use the slowest speed when starting or stopping the lathe.

▲ Select the right speed for the size of workpiece that you are turning.

▲ Keep the turning tool on the tool rest the ENTIRE time that it is in contact with the workpiece.

▲ Learn the correct techniques for each tool you will use. If you are unsure about how to use the lathe tools, read books or magazines about lathe techniques, and seek training from experienced and knowledgeable lathe users.

The following operation instructions serves as a beginning point for some common lathe operations. Practice on scrap material to become familiarized with the operation process and make the necessary adjustments before working on your workpiece.

4.1.2 Roughing out cut

Roughing out is the first step of the lathe operation, which uses the large roughing gouge tool to smooth out sharp corners to make the workpiece cylindrical. When roughing out a workpiece, run the lathe at low speed and always cut downhill, from the large diameter side of the workpiece to the small diameter side.

1. Make sure the lathe turned off and disconnected. The first cut will start about 2 inches from the tailstock end of the workpiece. Adjust the tool rest to the suitable position and set the lathe to a slow speed.
2. Plug in and turn on the lathe. Wait for the motor to reach full speed. Place the roughing gouge on the tool rest about 2 inches from the tailstock end of the workpiece. Slowly and gently raise the tool handle until the cutting edge comes into contact with the workpiece.

NOTE: Make sure that the tool is being held well on the work, with the bevel or grind tangent to the revolving surface or the workpiece. This position will generate a clean shearing cut. Do not push the tool straight into the work.

3. To make the first pass, rolling the flute of the tool (the hollowed-out portion) towards the end of the tailstock.
4. Make the second pass, starting at about 2 or 3 inches to the left of the first cut. Again, advance the tool towards the tailstock, and merge with the previous cut.
5. As your cuts get close to the headstock live center end of the workpiece, roll the gouge in the opposite direction to carry the final cut off the live center end of the workpiece.

Always work towards the end of the workpiece; NEVER start a cut at the end.

6. Make long sweeping cuts in a continuous motion to turn the workpiece to a cylinder. Keep as much of the bevel of the tool in contact with the workpiece as possible to ensure control and avoid catches. The roughing cut is continued until the work approaches about 1/8 inch to the required cylinder diameter.
7. Once the workpiece is roughed down to a cylinder, smooth it with a large skew chisel tool. The turning speed can be increased. Keep the skew handle perpendicular to the spindle and use only the center third of the cutting edge for a long smoothing cut (touching one of the points of the skew to the spinning workpiece may cause a catch and ruin the workpiece).

NOTE: Constantly remember to move the tool rest inward towards the workpiece to keep a safe distance between the tool and your workpiece.

4.1.3 Creating Beads

Making a parting cut for the desired depth and location of your bead.

1. Place the parting tool on the tool rest and move the tool forward to make the full bevel of the tool come into contact with the workpiece. Gently raise the handle to make cuts of the appropriate depth. Repeat for the other side of the bead.
2. Using a small skew or spindle gouge, start in the center between the two cuts and cut down each side to form the bead. Roll the tool in the direction of the cut.

4.1.4 Creating coves

Using a spindle gouge to create a cove.
1. With the flute of the tool at 90 degrees to the workpiece, touch the point of the tool to the workpiece and roll in towards the bottom of the cove. Stop at the bottom, as attempting to go up the opposite side may cause the tool to catch.
2. Move the tool over the desired width of the cove. With the flute facing the opposite direction, repeat the step for the other side of the cove. Stop at the bottom of the cut.

4.1.5 Creating V-grooves

Using the point of the skew to create a V-groove in the workpiece.
1. Lightly mark the center of the V with the top of the skew. Move the point of the skew to the right half of the desired width of your cut.
2. With the bevel parallel to the right side of the cut, raise the handle and push the tool in to the desired depth. Repeat from the left side.

NOTE: The two cuts should meet at the bottom and leave a clean V-groove. Additional cuts may be taken to add to either the depth or the width of the cut.

4.1.6 Sanding the workpiece

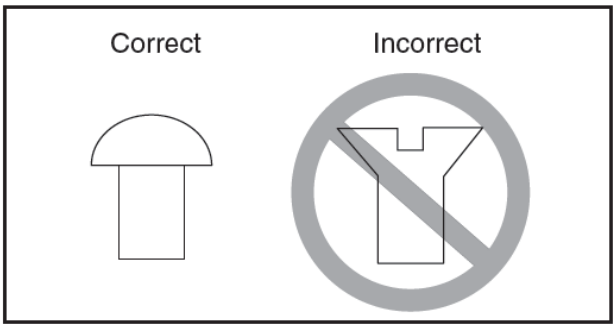
Adjust the lathe to a slower speed for sanding and finishing. High speed can build friction while sanding and cause burns in some woods. The cleaner the cuts, the less sanding will be required. So try to make the cuts as refined as you can before moving to the sanding process.
1. Use sandpaper finer than 120 grit, as coarse sandpaper may scratch the workpiece. Fold the sandpaper into a pad will allow easier and safer sanding. Do not wrap the sandpaper around your fingers or the workpiece.
2. Apply light pressure to the workpiece during sanding. Use power-sanding techniques to avoid concentric sanding marks around your finished piece.
3. Progress through finer grits of sandpaper until the desired surface is achieved. Finish sanding with 220 grit sandpaper.

4.2 Bowl turning

4.2.1 Mounting the workpiece onto the face plate

When turning bowls or plates with a large diameter, mounting it to the face plate to gives the maximum amount of support. While face plates are the most reliable method for holding a larger block of wood for turning, a lathe chucks can also be used. A chuck is handy when working on more than one piece at a time, allowing you to open the chuck and change workpieces instead of having to remove the mounting screws.
1. Select a stock that is at least .2 inches (5 mm) larger than each dimension of the finished workpiece.
2. Remove any bark from the top of the wood stock (that will be later attached onto a face plate or in a chuck).
3. True one of the surfaces of the workpiece for mounting against the face plate. Using the face plate as a template, mark the location of the mounting holes on the workpiece and drill pilot holes of the appropriate size.

If the mounting screws on the face plate will interfere with the workpiece, a waste block can be used. Shape the waste block so that it is of the same diameter as the face plate. Flatten the mating surfaces of the waste block and the workpiece. Use a high quality glue suitable for the particular workpiece to prevent the workpiece from falling off during operation. Glue the waste block to the workpiece securely. If you plan to use a chuck, turn the waste block into a tenon of the appropriate length and diameter to fit your chuck.



4.2.2 To shape the inside of a bowl or plate

▲ Turn off the lathe and move the tailstock out of the way.
▲ Mount the workpiece onto the face plate and install the face plate on to the headstock.
▲ Adjust the tool rest in front of the workpiece to be just below the centerline and at the right angle to the lathe's turning axis.
▲ Rotate the workpiece by hand to check for proper seating and clearance.
▲ Begin shaping by lightly shearing across the top of the bowl from rim to center. Place a bowl gouge tool on the tool rest at the center of the workpiece with the flute facing the top of the bowl. The tool handle should be level and pointed toward the four o'clock position.
▲ Control the cutting edge of the gouge with the left hand, while swinging the tool handle around towards your body with the right hand. The flute should start out facing the top of the workpiece, rotating it upwards as it moves deeper into the bowl to maintain a clean and even curve. As the tool goes deeper into the bowl, progressively work outwards towards the rim of the bowl. It may be necessary to turn the tool rest into the piece as you get deeper into the bowl.

NOTE: Try to make one light continuous movement from the rim to the bottom of the bowl to ensure a clean, sweeping curve through the piece. Should there be a few small ridges left, a light cut with a large domed scraper can even out the surface.

Develop the preferred wall thickness at the rim and maintain it as you work deeper into the bowl (once the piece is thin toward the bottom, you cannot make it thinner at the rim). When the interior is finished, move the tool rest back to the exterior to re-define the bottom of the bowl. Work the tight area around the face plate or the chuck with a bowl gouge. Begin the separation with a parting tool, but do not cut all the way through.

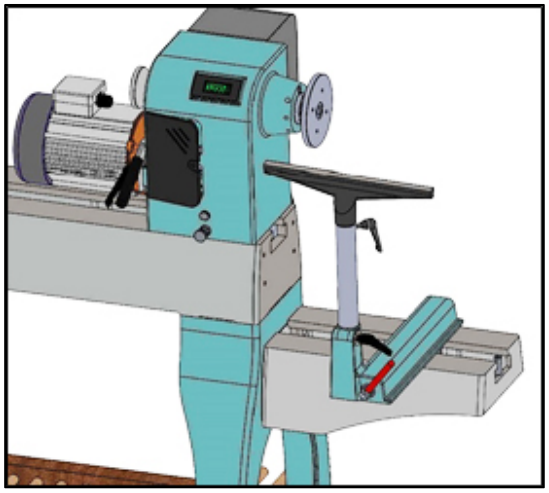
4.3 Outboard turning

Outboard turning is a variation of faceplate turning and is accomplished with the headstock positioned so the faceplate is not directly over the bed, allowing a larger turning capacity than the swing specification of the lathe.
This lathe can be easily configured for outboard turning by sliding the tailstock onto the swing away bed and rotating it out of the way. The headstock can then be moved all the way to the other end of the bed.

For convenient outboard turning, the machine has optional extension bed.

To outboard turn:

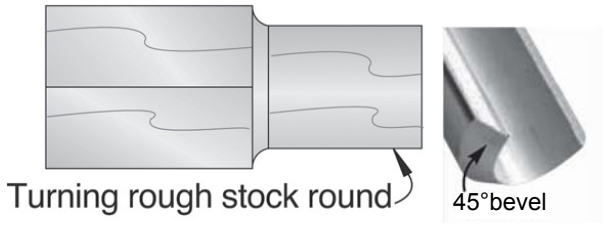
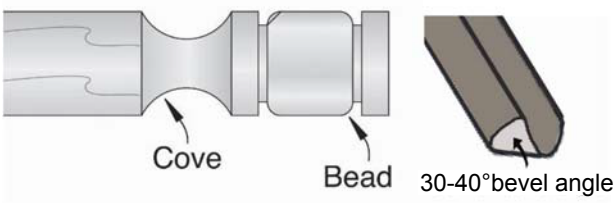
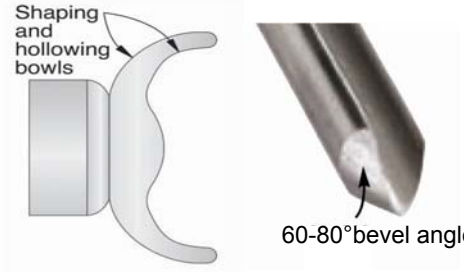
1. DISCONNECT MACHINE FROM POWER!
2. Loosen tailstock, slide onto swing-away bed, and rotate out of the way.
3. Remove toolrest base from machine by removing hex nuts and clamp washers located underneath assembly, then slide it out from lathe bed.
4. Loosen headstock, then move it all the way to tail end of lathe bed.
5. Retighten headstock to bed.

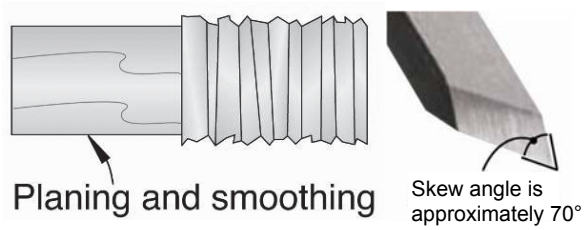
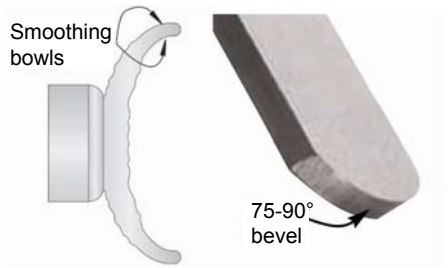
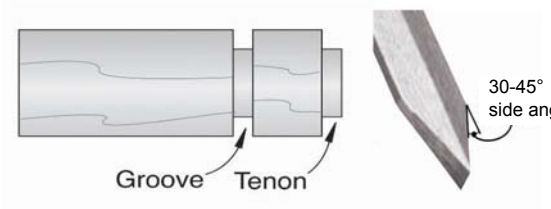


4.4 Turning tools

Lathe tools come in a variety of shapes and sizes, and usually fall into five major categories.

WARNING: Select the right tool for your task at hand. Make sure all tools, chisels and accessories are sharp before using them.
DO NOT use dull or damaged tools!!

▲ Roughing gouge Mainly used for rough cutting, detail cutting, and cove profiles. The rough gouge is a hollow, double-ground tool with a round nose, and the detail gouge is a hollow, double-ground tool with either a round or pointed nose.	
▲ Spindle gouge The spindle gouge cuts coves, beads and free-form contours. It can also be used for producing shallow hollows on faceplate turnings.	
▲ Bowl gouge The bowl gouge cuts external and internal profiles on faceplate-mounted stock, such as bowls and platters. It can also be used for creating ultra smooth cuts on bowls and spindles by using it as a shearing scraper.	

▲ **Skew Chisel** A very versatile tool that can be used for planing, squaring, V-cutting, beading, and parting off. The skew chisel is flat, double-ground with one side higher than the other (usually at an angle of 20°–40°).	
▲ **Round nose scraper** Typically used where access for other tools is limited, such as hollowing operations. This is a flat, double-ground tool that comes in a variety of profiles (round nose, spear point, square nose, etc.) to match many different contours.	
▲ **Parting tool** Use the parting tool to form grooves and tenons and to remove stock. It can also be used for rolling small beads.	

If possible, select only quality high-speed steel turning tools. High-speed steel tools hold an edge and last longer than ordinary carbon steel. As one becomes proficient in turning, a variety of specialty tools for specific applications can be acquired. The following tools provide the basics for most woodturning projects

5. Maintenance

This chapter contains important information about

▲ Inspection

▲ Maintenance

ATTENTION!

Properly performed regular maintenance is an essential prerequisite for operational safety, failure-free operation, a long service life of the wood lathe and the quality of the products which you manufacture. Installations and equipment from other manufacturers must also be in good condition.

5.1 Schedule

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

Ongoing:

• Loose faceplate or mounting bolts.
• Damaged center or tooling.
• Worn or damaged wires.
• Loose machine components.
• Any other unsafe condition.

Daily:

• Clean off dust buildup.

• Clean and lubricate lathe bed, spindle, and quill.

Monthly:

• Belt tension, damage, or wear.

• Clean out dust buildup from inside belt/pulley cavity.

5.2 Cleaning

Cleaning this lathe is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it.

Protect the unpainted cast iron surfaces by wiping them clean after every use—this ensures moisture from wood dust does not remain on bare metal surfaces. Keep the surfaces rust-free.

5.3 Lubrication

All bearings on this lathe are lubricated and sealed at the factory, and do not need additional lubrication.

Wipe a lightly oiled shop rag on the outside of the headstock spindle. DO NOT allow any oil to get on the inside mating surfaces of the spindle.

Use the tailstock handwheel to extend the quill out to the furthest position and apply a thin coat of white lithium grease to the outside of the quill. DO NOT allow any oil or grease to get on the inside mating surfaces of the quill.

Every 4–6 months, apply a few drops of light machine oil to the swing-away bed hinge. DO NOT allow any oil or grease to get on the inside mating surfaces of the quill.

6. Troubleshooting

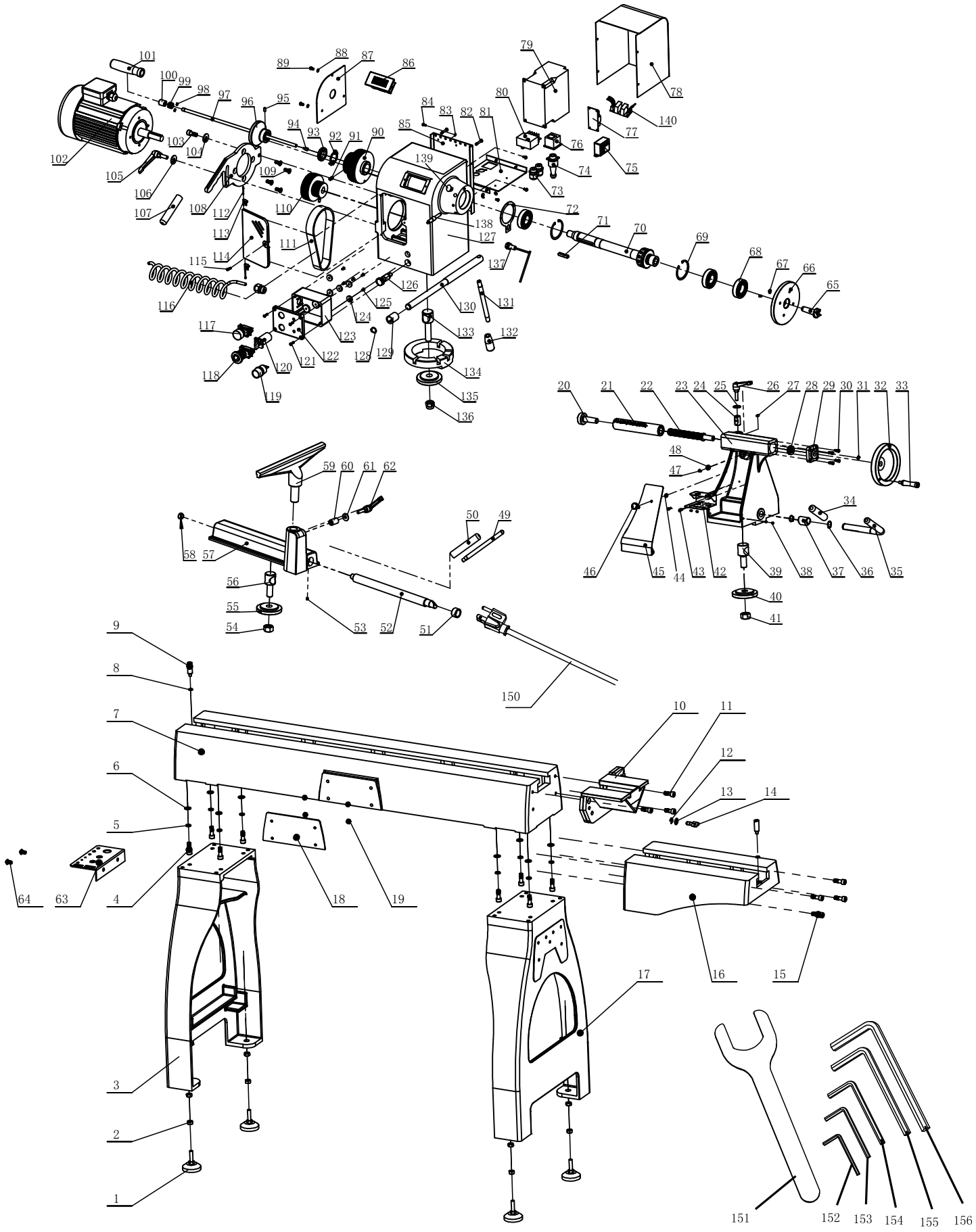
6.1 Motor& Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or immediately shuts down after startup.	1. Emergency stop button depressed. 2. Incorrect power supply voltage or circuit size. 3. Power supply circuit breaker tripped or fuse blown. 4. Motor wires connected incorrectly. 5. Wiring open/has high resistance. 6. ON/OFF switch at fault. 7. Emergency stop button at fault. 8. Variable-speed potentiometer at fault. 9. Inverter/control box at fault. 10. Motor at fault.	1. Twist button clockwise to reset. 2. Ensure correct power supply voltage and circuit size. 3. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse. 4. Correct motor wiring connections. 5. Check/fix broken, disconnected, or corroded wires. 6. Replace switch. 7. Replace. 8. Replace. 9. Inspect inverter/controller box; replace. 10. Repair/replace.
Machine stalls or is underpowered.	1. Machine undersized for task. 2. Workpiece material not suitable form machine. 3. Feed rate/cutting speed too fast. 4. Belt slipping. 5. Pulley slipping on shaft. 6. Motor overheated. 7. Motor wired incorrectly. 8. Plug/receptacle at fault. 9. Motor at fault.	1. Use sharp chisels; reduce feed rate/depth of cut. 2. Only cut wood/ensure moisture is below 20%. 3. Decrease feed rate/cutting speed. 4. Tension/replace belt; ensure pulleys are aligned; belts are clean and not damaged. 5. Replace loose pulley/shaft; tighten pulley set screws. 6. Clean motor, let cool, and reduce workload. 7. Wire motor correctly. 8. Test for good contacts/correct wiring. 9. Repair/replace.
Machine has vibration or noisy operation.	1. Motor or component loose. 2. Machine incorrectly mounted or sits unevenly on floor. 3. Belt worn, loose, or slapping cover. 4. Pulley loose. 5. Motor fan rubbing on fan cover. 6. Motor mount loose/broken. 7. Motor bearings at fault. 8. Workpiece/faceplate at fault.	1. Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid. 2. Tighten/replace anchor studs in floor; relocate/shim machine; adjust feet. 3. Inspect/replace belt. Ensure pulleys are aligned. 4. Tighten pulley set screw; re-align/replace shaft, pulley set screw, and key. 5. Fix/replace fan cover; replace loose/damaged fan. 6. Tighten/replace. 7. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 8. Center workpiece in chuck/faceplate; reduce RPM.

6.2 Wood lathe operation

Symptom	Possible Cause	Possible Solution
Bad surface finish.	1. Dull tooling or wrong tool used for task. 2. Tool height is not 1⁄8" above spindle centerline. 3. Spindle speed is wrong. 4. Excessive vibration.	1. Sharpen tooling, select correct tool for operation. 2. Adjust tool rest so tool is 1⁄8" above spindle centerline. 3. Adjust for appropriate spindle speed. 4. Troubleshoot possible causes/solutions in this table.
Excessive vibration upon startup (when workpiece is installed).	1. Workpiece is mounted incorrectly. 2. Workpiece warped, out of round, or flawed. 3. Lathe is resting on an uneven surface. 4. Spindle speed too fast for workpiece. 5. Workpiece hitting stationary object. 6. Tailstock or tool rest not securely clamped to lathe bed. 7. Belt pulleys are not properly aligned. 8. Motor mount bolts are loose. 9. Belt is worn or damaged. 10. Spindle bearings are worn or damaged.	1. Remount workpiece, making sure that centers are embedded in true center of workpiece. 2. Cut workpiece to be concentric, or use a different workpiece. 3. Adjust feet to eliminate wobble. 4. Reduce spindle speed. 5. Stop lathe and fix interference problem. 6. Check lock levers and tighten if necessary. 7. Align belt pulleys. 8. Tighten motor mount bolts. 9. Replace belt. 10. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
Chisel grabs or digs into workpiece	1. Wrong chisel/tool being used. 2. Chisel/tool too dull. 3. Tool rest height not set correctly. 4. Tool rest is set too far from workpiece.	1. Use correct chisel/tool. 2. Sharpen or replace chisel/tool. 3. Correct tool rest height. 4. Move tool rest closer to workpiece.
Tailstock moves under load.	1. Tailstock mounting bolt/hex nut is loose. 2. Bed or clamping surface is excessively oily or greasy.	1. Tighten mounting bolt/hex nut. 2. Clean bed or clamping surface to remove excess oil/grease.
Spindle lacks turning power or starts up slowly.	1. Belt is slipping. 2. Pulleys loose. 3. Workpiece too heavy for spindle.	1. Tighten/adjust belt. 2. Tighten pulley set screw; re-align/replace shaft, pulley set screw, and key. 3. Remove excess material before remounting; use lighter workpiece.
Quill will not move forward when handwheel is turned	Keyway is not aligned with quill lock lever.	1. Align quill keyway and quill lock lever and slightly tighten lever to engage keyway.
DRO doesn't give reading; reading incorrect.	1. Shorted/disconnected wiring/plugs. 2. Variable-speed potentiometer at fault. 3. DRO speed sensor at fault. 4. Circuit board at fault.	1. Inspect wiring connections on circuit boards, sensors, and plugs. Replace/repair as necessary. 2. Test/replace if at fault. 3. Test/replace if at fault. 4. Inspect/replace if at fault.

7. Diagram and part list



Part list

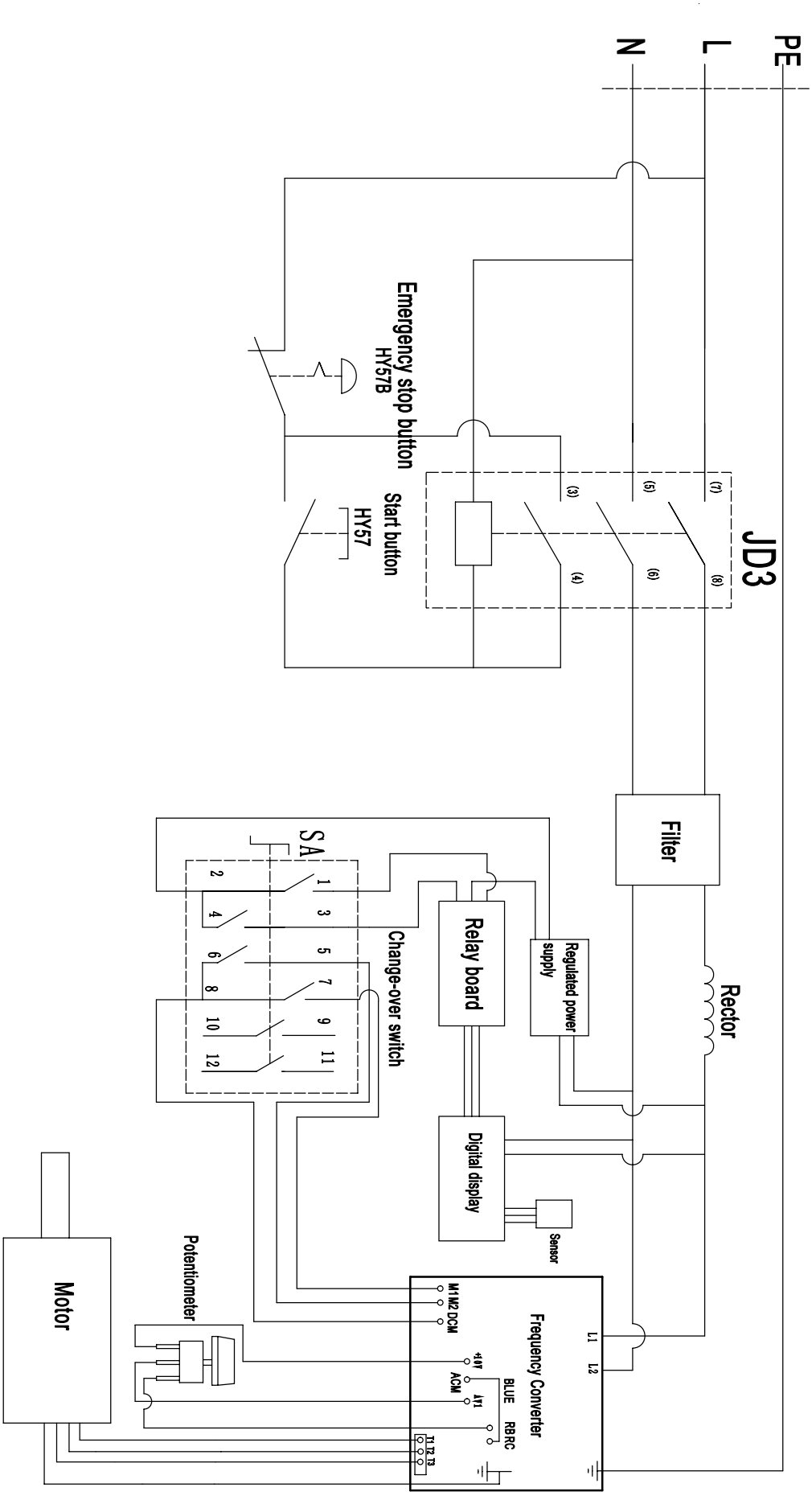
No.	Description	Size	Qty
1	Feet		4
2	Hex nut	M16	8
3	Left cast iron leg		1
4	Hexagon screw	M10x30	8
5	Spring washer	10	8
6	Flat washer	10	8
7	Bed		1
8	Spring washer	8	1
9	Stop bolt		1
10	Hinge		1
11	Hexagon screw	M10x25	3
12	Circlip for shaft	9	1
13	Flat washer	10	1
14	Handle		1
15	Hexagon screw(Optional)	M10x30	1
16	Extension bed (Optional)		1
17	Right cast iron leg		1
18	Backing plate		1
19	Hexagon nut	M8	4
20	Live center		1
21	Quill		1
22	Guide screw		1
23	Tailstock		1
24	Nut		1
25	Washer		1
26	Handle	M10x25	1
27	Hexagon screw	M6x12	1
28	Ball bearing		1
29	Tailstock cover		1
30	Hexagon screw	M5x14	4
31	Hexagon screw	M6x10	1
32	Handwheel		1
33	Handle		1
34	Handle sleeve		1
35	Locking lever		1
36	Circlip for shaft	19	2
37	Eccentric sleeve		1
38	Hexagon screw	M5x10	2
39	Locking support		1
40	Fixed plate		1
41	Hex nut	M18	1
42	Bracket		1

No.	Description	Size	Qty
43	Head screw	M4x8	2
44	Hexagon nut	M5	1
45	Tailstock cover		1
46	Screw		1
47	Screw	M4x8	1
48	Magnet		1
49	Handle bar		1
50	Handle sleeve		1
51	Bush		1
52	Eccentric rod		1
53	Screw	M6x6	1
54	Nut	M18	1
55	Fixed plate		1
56	Locking support		1
57	Tool rest base		1
58	Round cover		1
59	1" Tool rest		1
60	Nut		1
61	Washer		1
62	Handle	M10x25	1
63	Tool's Shelf		1
64	Screw	M8x16	2
65	Center		1
66	Face plate		1
67	Screw	M6x10	2
68	Ball bearing	6206	3
69	Circlip	62	2
70	Spindle		1
71	Flat key	A8x60	1
72	Support plate		1
73	Strain relief	M20X1.5	3
74	Aviation plug		1
75	Reactor		1
76	USB socket		1
77	Rejector		1
78	Inverter box		1
79	Inverter		1
80	AC contactor		1
81	PC board		1
82	Screw	M5x30	4
83	Flat washer	4	16
84	Screw	M4x8	8

85	Bottom plate		1
86	DRO		1
87	Headstock cover		1
88	Flat washer	5	3
89	Screw	M5x10	3
90	Spindle pulley		1
91	Screw	M8x10	4
92	Stop washer	30	1
93	Round nut		1
94	Head of knock out rod		1
95	Screw	M8x10	1
96	Handwheel		1
97	Knock out rod		1
98	Screw	M5x10	2
99	Sleeve for Knockout rod		1
100	Base for Knockout rod		1
101	Hitting hammer		1
102	Motor		
103	Screw	M10x25	1
104	Flat washer	10	1
105	Handle	M10x25	1
106	Washer		1
107	Handle sleeve		1
108	Motor base		1
109	Screw	M8x20	4
110	Motor pulley		1
111	Belt		1
112	Hinge shaft		2
113	Hinge		2
114	Headstock cover		1
115	Screw	M4x16	1

116	Spiral wire		1
117	Green button		1
118	Emergency switch		1
119	Potentiometer		1
120	Transfer switch		1
121	Screw	M4x10	4
122	Control box cover		1
123	control box		1
124	Magnet		5
125	Screw	M4x10	5
126	Locating pin		1
127	Headstock		1
128	Circlip for shaft	19	1
129	Eccentric sleeve		1
130	Lock lever		1
131	Lever bar		1
132	Handle		1
133	Locking support		1
134	Rotary plate		1
135	Fixed plate		1
136	Lock nut	M18	1
137	Proximity switch		1
138	Locking pin		1
139	Protection Cap		1
140	Relay control		1
150	Power plug		1
151	Fork wrench		1
152	Allen wrench	S3	1
153	Allen wrench	S4	1
154	Allen wrench	S5	1
155	Allen wrench	S6	1
156	Allen wrench	S8	1

Wiring diagram



DECLARATION OF CONFORMITY

We Importer:
TOOLSAVE LTD

Unit C, Manders Ind. Est.,
Old Heath Road, Wolverhampton,
WV1 2RP.

Declare that the product:

Designation: Wood Lathe
Model: VSL2200

Complies with the following Directives:

Variable Speed Wood Lathe

Standards & technical specifications referred to:

EC Council Directive 2006/42/EC
Machinery

Certificate No.	TA 385213729
Report No.	EN ISO 12100:2010
	EN 60204-1:2018

Authorised Technical File Holder: Bill Evans

01/01/2025

The Director