

AXMINSTER

PROfessional

Code 111887

Original Instructions

AP370WL Bench Lathe 230V



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1. Safety

This 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.



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 and once a week.

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 minimize 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

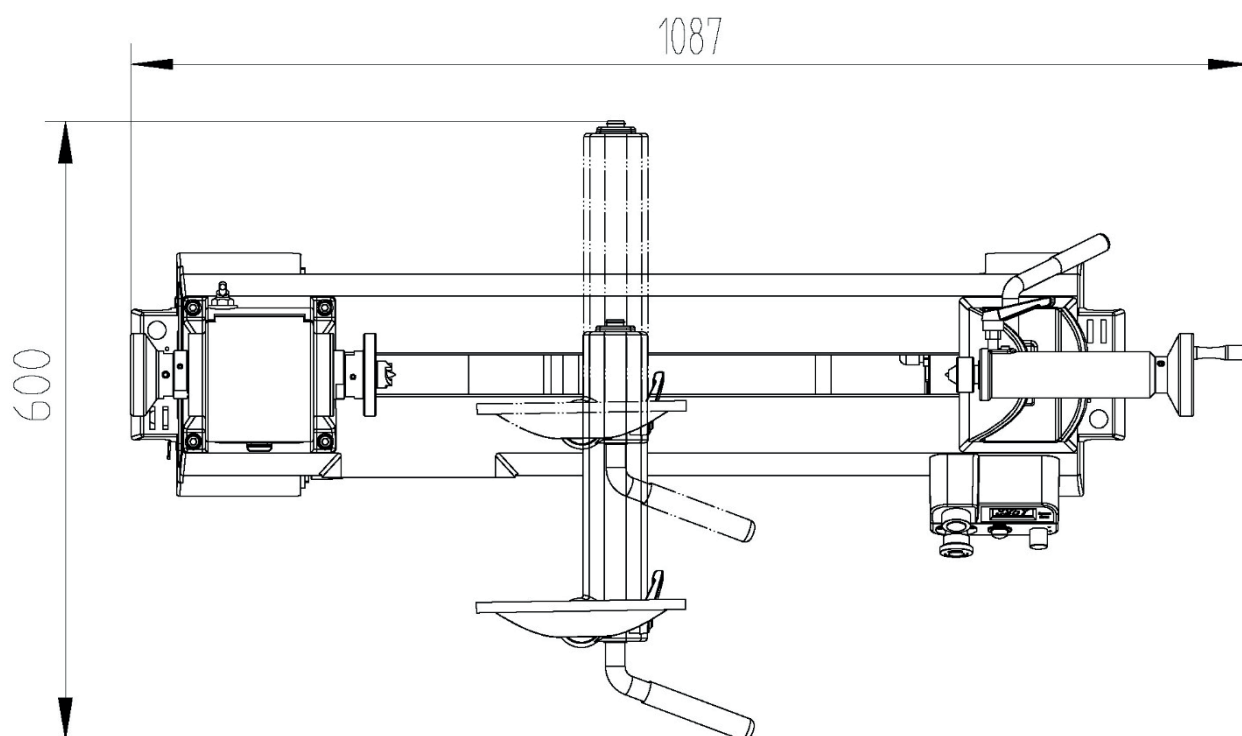


The following information represents the dimensions and weight information and the manufacturer's approved machine data.

2.1 Specification

Model Number	AP530WL
Motor Power	1100W/1400W DC brushless motor
Spindle RPM/50Hz	60-720 130-1700 300-3550
Spindle Thread	M33X3.5 or other
Spindle /Tailstock Taper	MT2
No. of Indexes	24
Tailstock Quill Travel	4"(100mm)
Swing Over Bed	14.5"
Swing Over Tool Rest Base	10.55"
Distance Between Centers	21"
Faceplate Diameter	3"
Tool rest Width	8"
Packing size(mm)	970X525X300
Net/Gross Weight (kgs)	56.5/59

2.2 Dimensions



3. Assembly



The wood turning lathe is delivered pre-assembled. After unpacking, the lathe must be installed.



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.

3.1 Needed for Setup



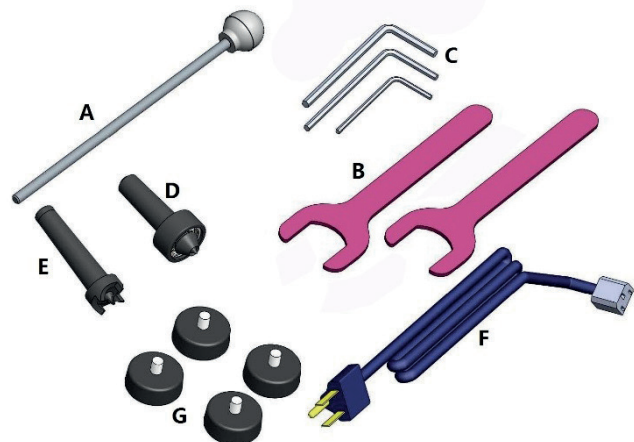
This machine is heavy. **DO NOT** over-exert yourself while unpacking or moving machine—get assistance!!

3.2 Unpacking the machine

Inspect the machine completely and carefully, making sure that all materials, such as shipping documents, instructions and accessories supplied with the machine have been received.

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

- | | |
|---|---|
| A. Knockout Rod..... | 1 |
| B. Open-End Wrench 41mm..... | 2 |
| C. Hex Wrenches 3, 4, 5mm..... | 1 |
| D. Live Center MT#2..... | 1 |
| E. Spur Center MT#2..... | 1 |
| F. Power Cord..... | 1 |
| G. Rubber Feet M8-1.25 x 15..... | 4 |



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 Placement location

Workbench Load

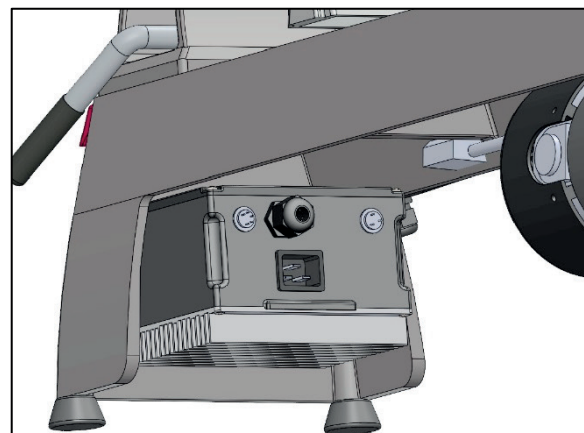
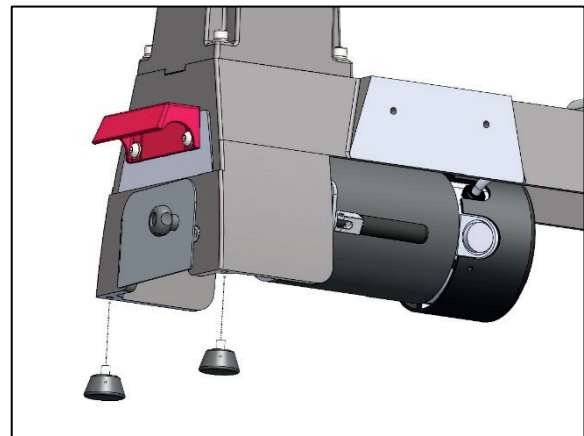
Refer to the Machine Data Sheet for the weight and footprint specifications of your machine. Some workbenches may require additional reinforcement to support the weight of the machine and workpiece materials.

3.5 Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

To assemble machine

1. Install (4) rubber feet into holes in bottom of legs and adjust feet so lathe sits level without rocking.
2. Insert end of power cord into receptacle in back of control box.



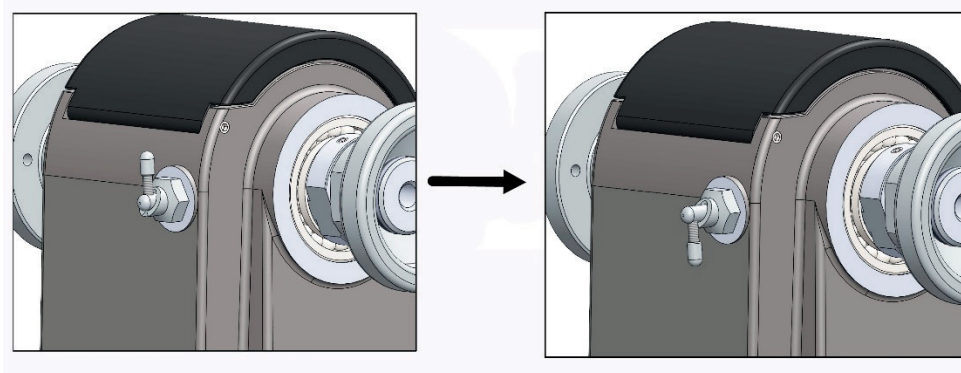
3.6 Initial commissioning

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 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. Open the indexing pin knob and rotate so detent is seated on roll pin. This disables the indexing pin knob.

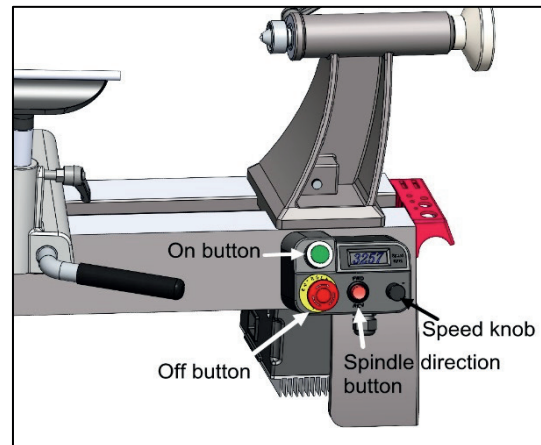


3. Turn spindle speed knob all the way counterclockwise.
4. Connect machine to power supply.



Verify machine is operating correctly by setting spindle direction switch in forward position, pressing ON button, then slowly turning spindle speed dial clockwise. The digital readout should illuminate, and spindle should rotate down toward front of lathe.

5. Turn spindle speed dial all the way counterclockwise.
6. Press OFF button.
7. Set spindle direction switch to reverse position, press ON button, then slowly turn spindle speed dial clockwise.
8. When operating correctly, machine runs smoothly with little or no vibration or rubbing noises. Spindle should rotate up toward rear of lathe.
9. Press OFF button.

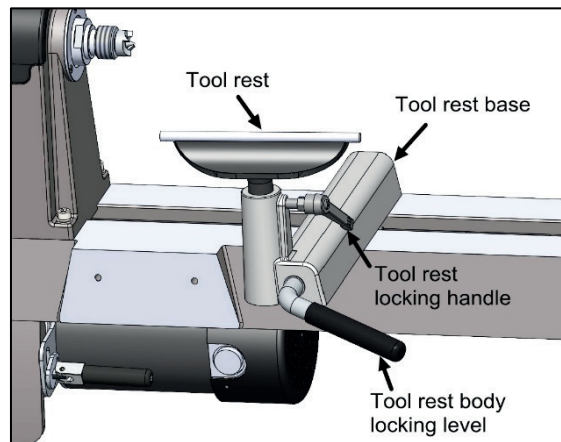


3.7 Adjustment

3.7.1 Tool rest adjustment

You can adjust the position, height and angle of the tool rest assembly to suit your task at hand.

1. The tool rest locking lever (locks the tool rest body) in position. Loosen the lever to slide the tool rest body along the lathe bed. Tighten the lever firmly when the tool rest



body is properly positioned.

NOTE: There is a nut on the underside of tool rest body that needs to be tightened periodically to enable the tool rest body locking lever to tighten properly.

2. The small tool rest locking handle locks the tool rest in place. Loosen the handle to position the tool rest at the specific angle or height. Tighten the handle firmly when the tool rest is properly positioned.

3.7.2 Setting up the face plate

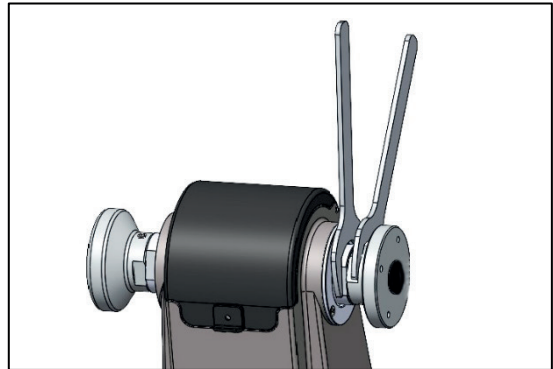
NOTE: When installing the face plate for turning bowls and plates, mount the workpiece onto the face plate prior to installing the face plate on the headstock.

To install the face plate:

1. Thread the face plate onto the headstock spindle by turning it clockwise as far as it will go, and then tighten the two set screws with a hex wrench.
2. Lock the spindle lock by engaging the knob in the deep groove. Insert the knockout rod into a hole on the side of the face plate and use the wrench to fully tighten the face plate.

To remove the face plate:

1. Loosen the two face plate set screws.
2. Lock the spindle lock and use the two wrenches to unscrew the face plate by turning it towards the operator.



3.7.3 Setting up the headstock spur center

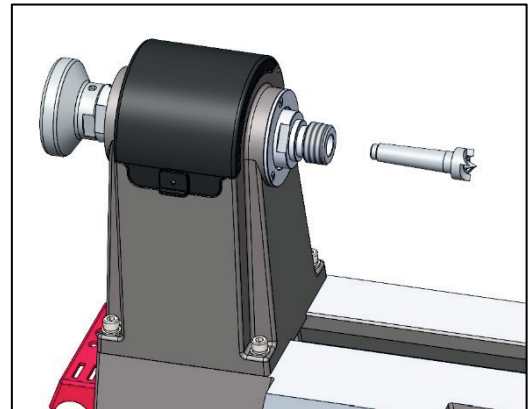
To install the spur center:

1. Make sure the mating surfaces of both the spur center and the headstock spindle are clean. You can use an acetone-moistened cloth to remove any other debris, oil, etc.
2. Drive the spur center into the workpiece, using a rubber mallet or a piece of scrap wood.



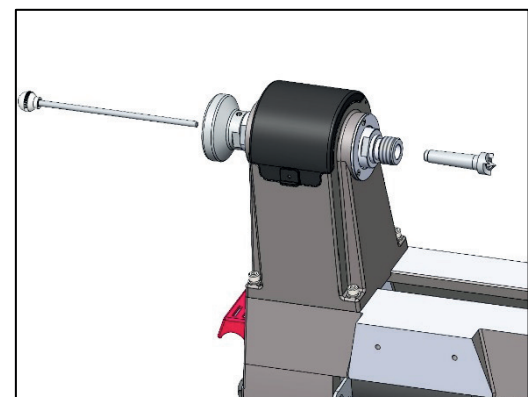
CAUTION: Never drive the workpiece into the spur center while the spur center is in the headstock.

3. Push the spur center into the headstock spindle.



To remove the spur center:

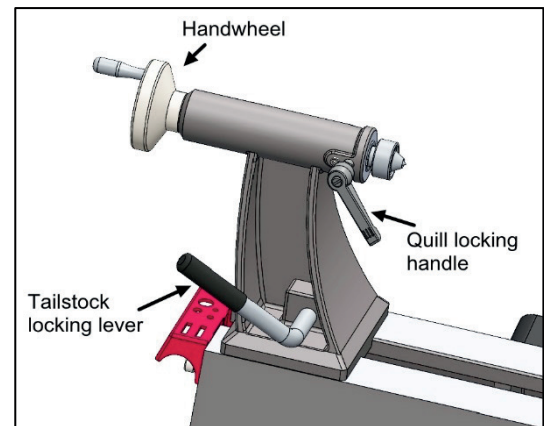
1. Hold the spur center to prevent it from falling. Use a rag to protect your hand from the sharp edges.
2. Insert the knockout rod through the spindle hole to tap out the spur center.



3.7.4 Tailstock adjustment

Loosen the tailstock locking lever and slide the tailstock along the lathe bed into the desired position. Retighten the locking lever.

Loosen the quill locking handle just enough to unlock the tailstock quill. Turn the handwheel clockwise to advance the quill and counterclockwise to retract the quill. Retighten the quill locking handle.



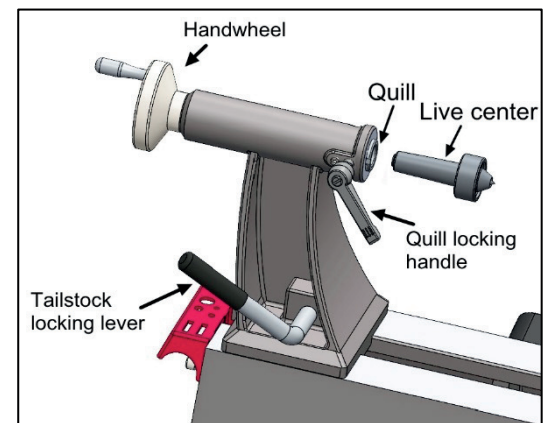
3.7.5 Setting up the tailstock live center

To install the live center:

1. Rotate the tailstock handwheel clockwise a few times to advance the quill forward.
2. Make sure the mating surfaces are clean. Push the live center into the quill.



NOTE: If the tailstock quill gets fully retracted when the live center is mounted, it will dismount the live center. This is normal. Remount the live center by extending the tailstock quill approximately 0.5 inch and pushing the live center in place.



To remove the live center:

1. Hold the live center to prevent it from falling. Use a rag to protect your hand from the sharp edges.
2. Rotate the handwheel counterclockwise to retract the quill until the live center is released from the quill.

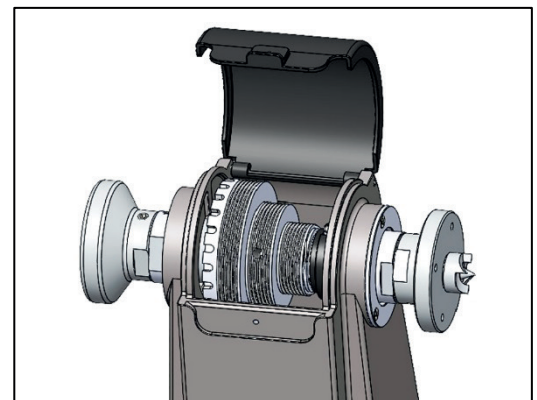
3.7.6 Indexing/Spindle lock

Indexing is used to create evenly spaced features around the circumference of the workpiece while keeping the spindle locked. There are 24 index positions in the spindle pulley, each 15° apart, to help you rotate the workpiece evenly for accurately spaced features.

Place the spindle lock in the locked position to help maintain the certain index point.

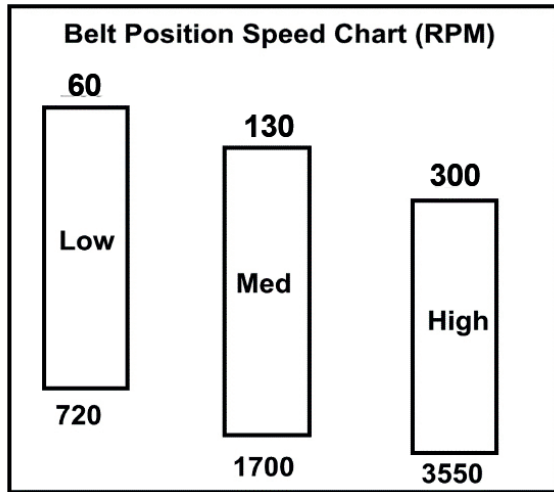


CAUTION: Make sure to DISENGAGE the spindle lock before starting the lathe again. Never start the lathe with the index pin engaged in the spindle pulley!!

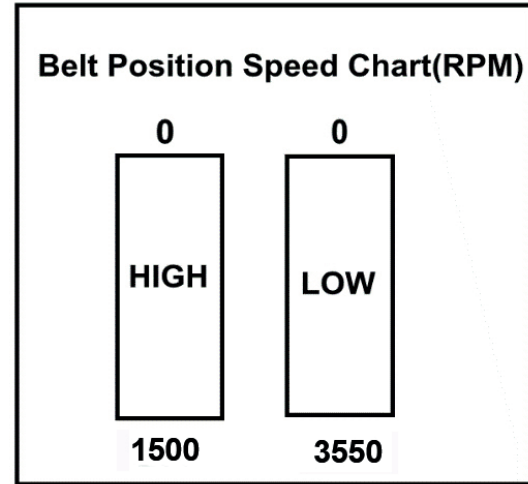


3.7.7 Adjusting the speed

MC1421VDA MC1421VDB: Three speed ranges: 60-720, 130-1700 RPM, and 300-3550 RPM.
MC1421VF: Two speed ranges: Low 0-1500 RPM and High 0-3550 RPM.



FOR MC1421VDA MC1421VDB



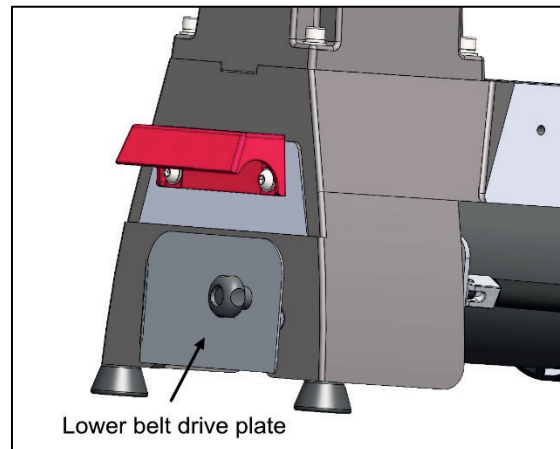
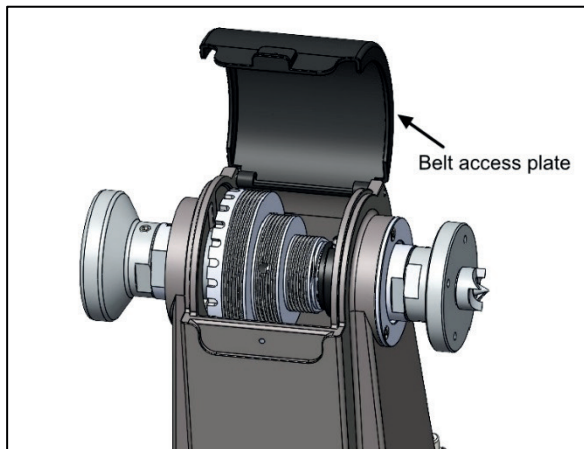
FOR MC1421VF



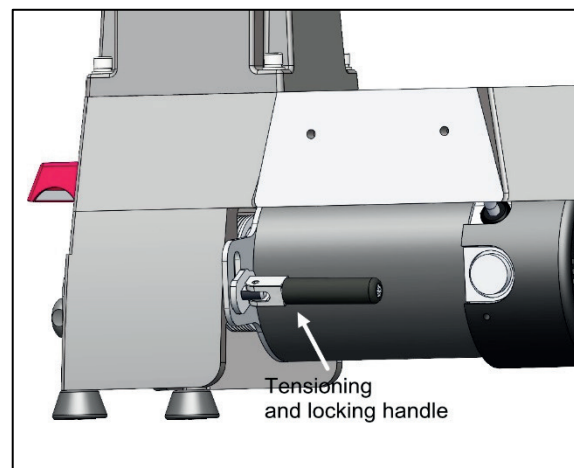
Always start at slower speeds for rough cuts and larger workpieces. Use faster speeds for refined cuts and detailed work. Set the suitable speed range for your operation by adjusting the belt position. Change the speed within a speed range using the speed adjustment knob. The speed will be displayed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

readout on the front panel.

1. When changing speed, make sure to turn off and disconnect the lathe.
2. Loosen the knob on the top front of the headstock and open the belt drive access plate.
3. Open lower belt drive plate onto the left side of the headstock.



4. Loosen the motor tensioning locking handle.
5. Adjust the belt's position on both the upper and lower drive pulleys to the desired speed range setting. Make sure the belt is vertically aligned on the upper and lower pulleys.
6. Tighten the locking handle to its original position, allowing the weight of the motor to place the belt under tension.
8. Close the lower belt drive plate. Close the upper belt drive access plate and tighten the belt drive access panel knob.
9. Use the speed adjustment knob on the front



panel to set the speed within your selected speed range. Use the forward/reverse switch to set the rotational direction.

3.7.8 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.

Diameter of Work-piece	Roughing RPM	General Cutting RPM	Finishing RPM
Under 2"	1520	3000	3000
2–4"	760	1600	2480
4–6"	510	1080	1650
6–8"	380	810	1240
8–10"	300	650	1000
10–12"	255	540	830
12–14"	220	460	710

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.



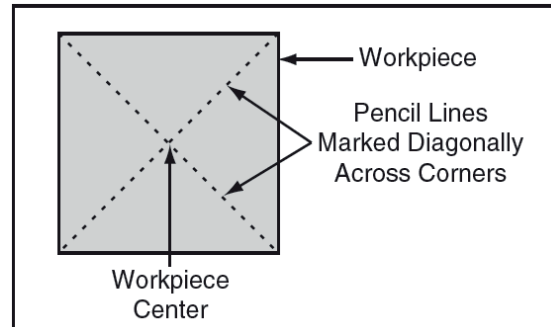
TURN OFF MACHINE BEFORE CHANGING ROTATIONAL DIRECTION.

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.

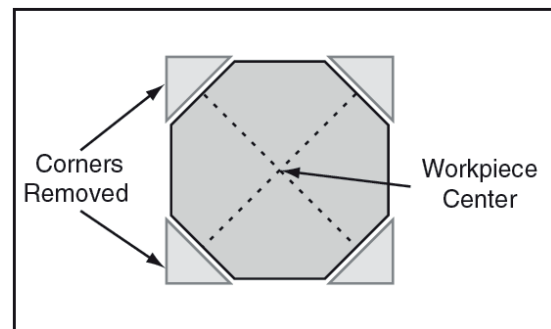


▲ Make a center mark by using a wood mallet and tapping point of spur center into center of workpiece on both ends.

▲ Using a $\frac{1}{4}$ " drill bit, drill a $\frac{1}{4}$ " deep hole at center mark on end of the workpiece to be mounted on headstock spur center.

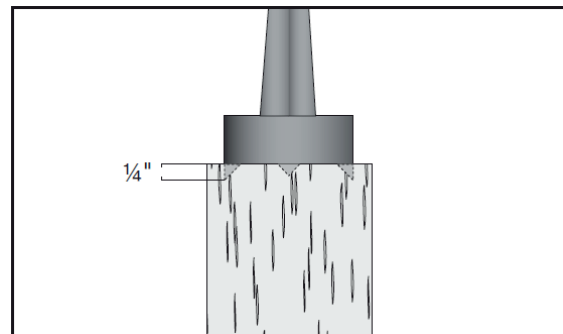
▲ To help embed spur center into workpiece, cut $\frac{1}{8}$ " deep saw kerfs in headstock end of workpiece along diagonal lines marked in **Step 1**.

▲ 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 $\frac{1}{4}$ " 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 $\frac{1}{4}$ ".

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

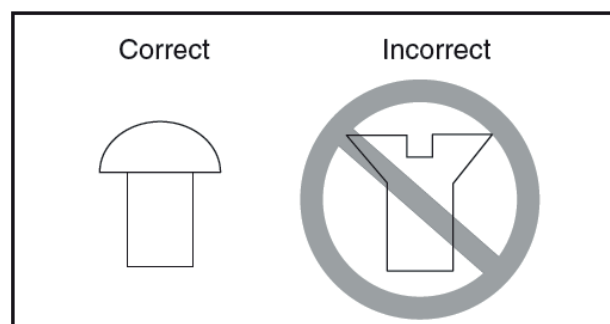
4.2.1 Mounting the workpiece onto the face plate

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.

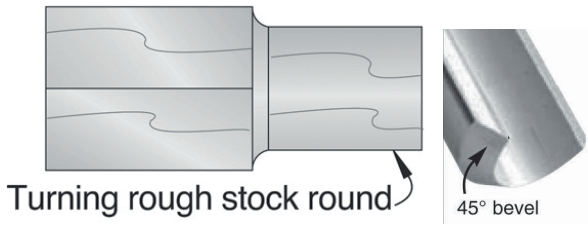
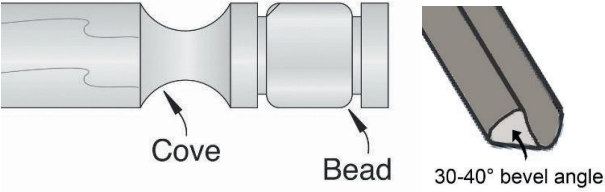
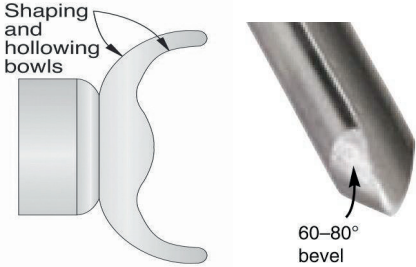
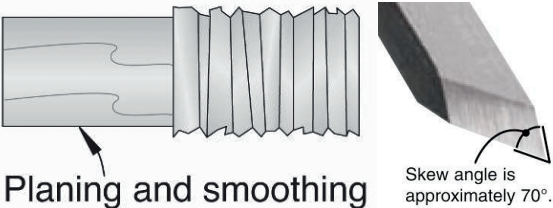
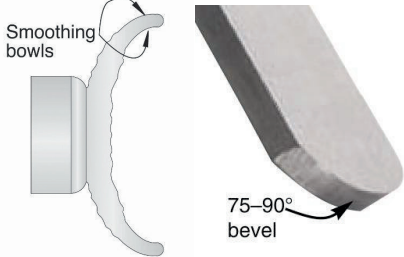
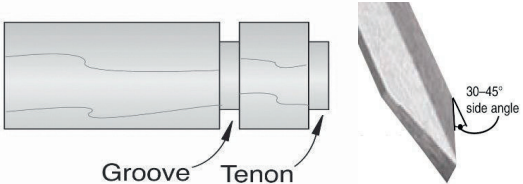
Develop the preferred wall thickness at the rim and maintain it as you work deeper into the bowl (once the piece is thin toward the bottom, you cannot make it thinner at the rim). When the interior is finished, move the tool rest back to the exterior to re-define the bottom of the bowl. Work the tight 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 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.	 Turning rough stock round 45° bevel
▲ Spindle gouge The spindle gouge cuts coves, beads and free-form contours. It can also be used for producing shallow hollows on faceplate turnings.	 Cove Bead 30-40° bevel angle
▲ 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.	 Shaping and hollowing bowls 60-80° bevel
▲ 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°).	 Planing and smoothing Skew angle is approximately 70°.
▲ 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.	 Smoothing bowls 75-90° bevel
▲ Parting tool Use the parting tool to form grooves and tenons and to remove stock. It can also be used for rolling small beads.	 Groove Tenon 30-45° side angle



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 project.

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 this machine, this maintenance schedule must be strictly followed.

Ongoing	Daily Check	Monthly Check
To maintain a low risk of injury and proper machine operation, if you ever observe any of the items below, shut down the machine immediately and fix the problem before continuing operations: • Loose faceplate or mounting bolts. • Damaged center or tooling. • Worn or damaged wires. • Loose machine components. • Any other unsafe condition.	• Clean off dust buildup. • Clean and lubricate lathe bed, spindle, and quill.	• Belt tension, damage, or wear.

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.

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.



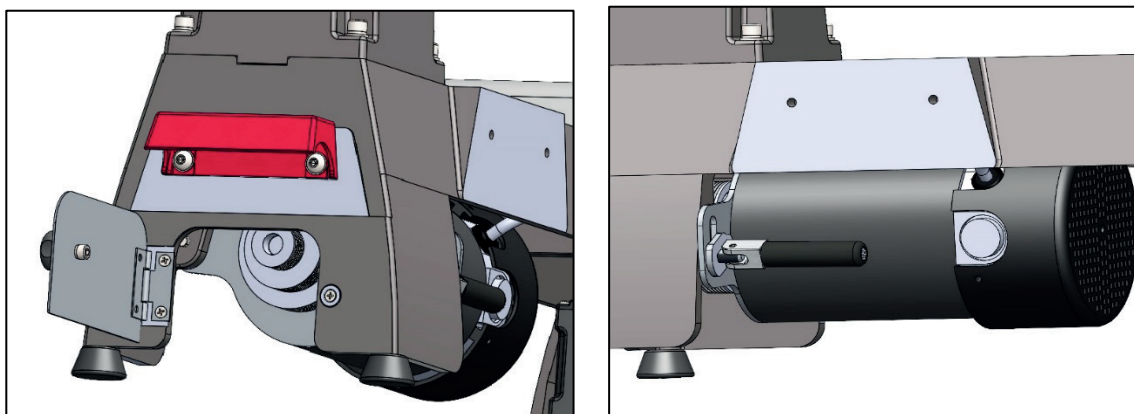
DO NOT allow any oil or grease to get on the inside mating surfaces of the quill.

5.4 Tensioning and replacing belt

Most of the stretching will occur during the first 16 hours, but may continue with further use. If the lathe loses power while making a cut, the belt may be slipping and need tensioning. If the belt shows signs of excessive wear, or damage, replace it.

5.4.1 Tension belt

1. Disconnect machine from power!
2. Open the front and lower belt drive access plates, and loosen belt-tension lock handle.



3. Press belt with moderate pressure in center to check tension. Belt is correctly tensioned when there is approximately 1/2" deflection.
4. Re-install side access cover and close front access cover.

5.4.2 Replacing belt

1. Disconnect machine from power!
2. Open the front and lower belt drive access plates.
3. Loosen belt-tension locking handle, release belt tension, then remove belt from motor pulley.
4. Unthread and remove spindle handwheel, then remove (3) Phillips head screws from spindle end cover and remove cover.
5. Move belt around pulley and spindle, then remove belt through upper opening.
6. Insert new belt through lower opening, and pull it around end of spindle onto pulley.
7. Re-install headstock spindle handwheel.
8. Loosely install belt on inner or outermost motor pulley position.
9. Tighten belt-tension lock handle.
10. Follow Step 4 in the Tensioning Belt procedure to set belt tension.
11. Close the front and lower belt drive access plates.

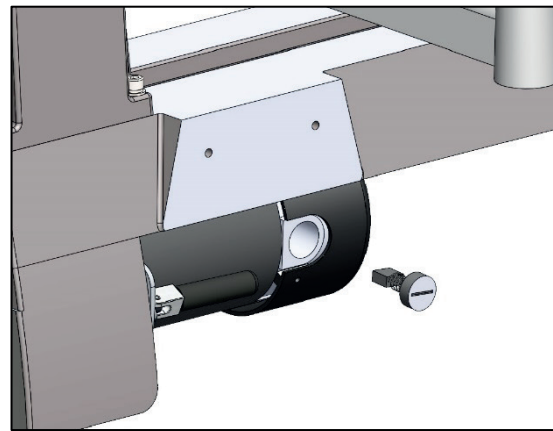
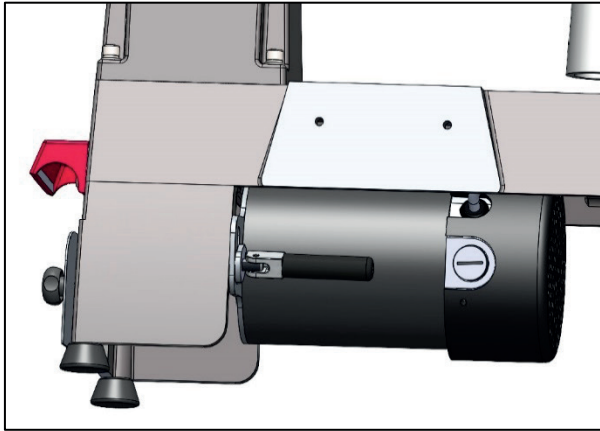
5.5 Replacing brushes (FOR MC1421VDA ONLY)

This machine is equipped with a universal motor that uses a pair of carbon brushes to transmit power. These brushes are considered to be regular "wear items" or "consumables" that will eventually need to be replaced. The frequency of this replacement is directly related to how much the motor is used and how hard it is pushed. These brushes are not covered under warranty.

Replace both brushes at the same time if the motor no longer reaches full power, operates inconsistently, or when the brushes measure less than 1/4" long (new brushes are 5/8" long).

To replace motor brushes:

1. Disconnect machine from power!
2. Use dime to unscrew and remove brush caps on front and rear of motor.



4. Use a ruler to measure wear of each carbon brush. If either brush is worn to less than 1/4" in length, replace both brushes.
5. Insert new brush assemblies, positioning them to slide into slots in motor sockets. Individually, press each brush cap against its spring, pushing it into motor socket and turning each brush cap to lock it into motor housing.
6. Test run machine.

6. Troubleshooting

6.1 Motor& Electrical

DRO ERROR CODE LIST (FOR MC1421VDA ONLY)		
ERROR CODE	DESCRIPTION	SOLUTION
F1	low voltage protection (20% lower than standard)	check voltage, restart lathe
F2	high voltage protection (20% higher than standard)	check voltage, restart lathe
F3	incorrect operation of reverse	turn off main switch, restart lathe after the speed display showing "zero"

Symptom	Possible Cause	Possible Solution
Machine does not start, or power supply fuse/breaker trips immediately after startup.	1. Spindle direction switch in neutral position. 2. OFF button not pressed before toggling spindle direction switch. 3. Motor brushes worn or at fault. 4. Blown fuse. 5. Power supply circuit breaker tripped or fuse blown. 6. Motor wires connected incorrectly. 7. Wiring open/has high resistance. 8. ON/OFF switch at fault. 9. Circuit board at fault. 10. Variable-speed potentiometer at fault. 11. Motor at fault.	1. Toggle switch to forward/reverse. 2. Press OFF button before toggling spindle direction switch. 3. Remove/replace brushes. 4. Replace fuse/ensure no shorts. 5. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse. 6. Correct motor wiring connections. 7. Check/fix broken, disconnected, or corroded wires. 8. Replace switch/circuit breaker. 9. Inspect/replace if at fault. 10. Test/replace if at fault.
Machine stalls or is underpowered.	1. Machine undersized for task. 2. Workpiece material not suitable for machine. 3. Feed rate/cutting speed too fast. 4. Variable-speed potentiometer at fault. 5. Belt slipping. 6. Motor brushes worn or at fault. 7. Circuit board at fault. 8. Pulley slipping on shaft. 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. Test/replace if at fault. 5. Tension/replace belt; ensure pulleys are aligned, belts are clean and not damaged. 6. Remove/replace brushes. 7. Inspect/replace if at fault. 8. Tighten/replace loose pulley/shaft. 9. Test/repair/replace.
Machine has vibration or noisy operation.	1. Motor or component loose. 2. Machine sits unevenly on workbench. 3. V-belt worn, loose, or misaligned. 4. Pulley loose. 5. Motor fan rubbing on fan cover. 6. Workpiece/faceplate at fault. 7. Motor mount loose/broken. 8. Motor bearings at fault.	1. Inspect/replace damaged bolts/nuts, and retighten with thread-locking fluid. 2. Adjust feet. 3. Inspect/replace belt. Re-align pulleys if necessary 4. Re-align/replace shaft, pulley, set screw, and key. 5. Fix/replace fan cover; replace damaged fan. 6. Center workpiece in chuck/faceplate; reduce RPM; replace defective chuck. 7. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

6.2 Wood lathe operations

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 (Page 23). 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. Optional accessories

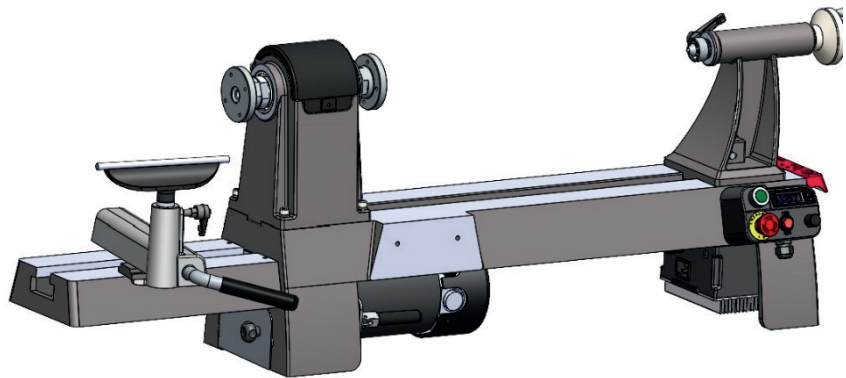


Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine.

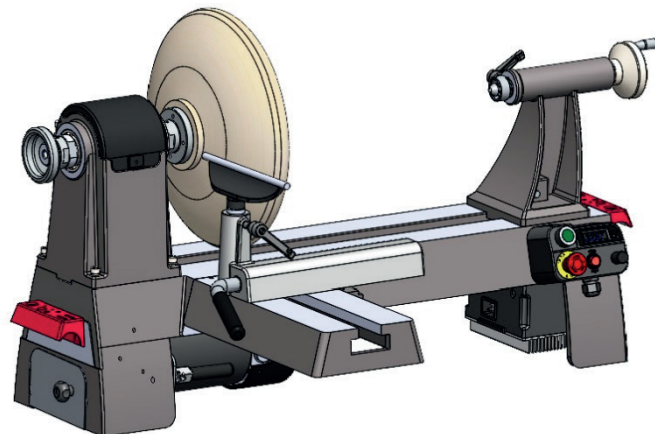
7.1 New extension bed

The lathe is designed with three positions for installing the optional extension bed. When installed on the left side, the maximum swing over bed can reach to 16" for outboard turning. When installed on the front side of the bed, it could be easily to turn the bottom side of bowls, platters etc. When installed on the right side, the distance between centers could reach to 34.5" with new 13.5" extension bed and 45" with the original MC1420 extension bed.

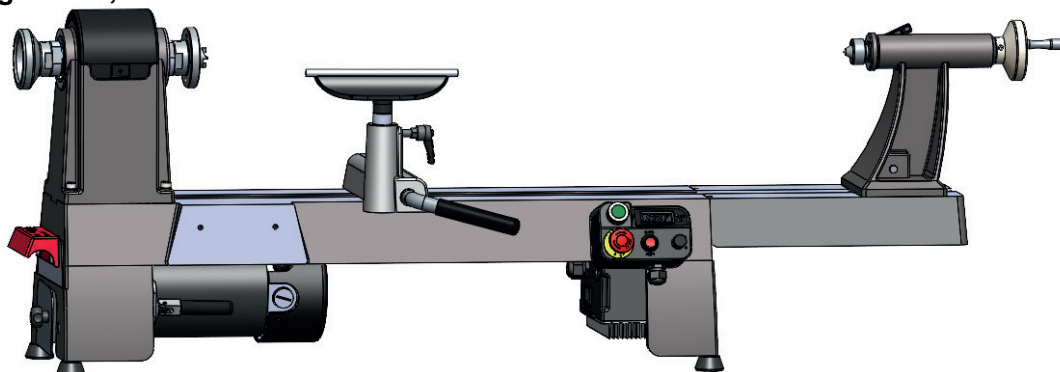
On the left side, the maximum swing over bed can reach to 16" for outboard turning.



On the front side of the bed, it could be easily to turn the bottom side of bowls, platters etc.



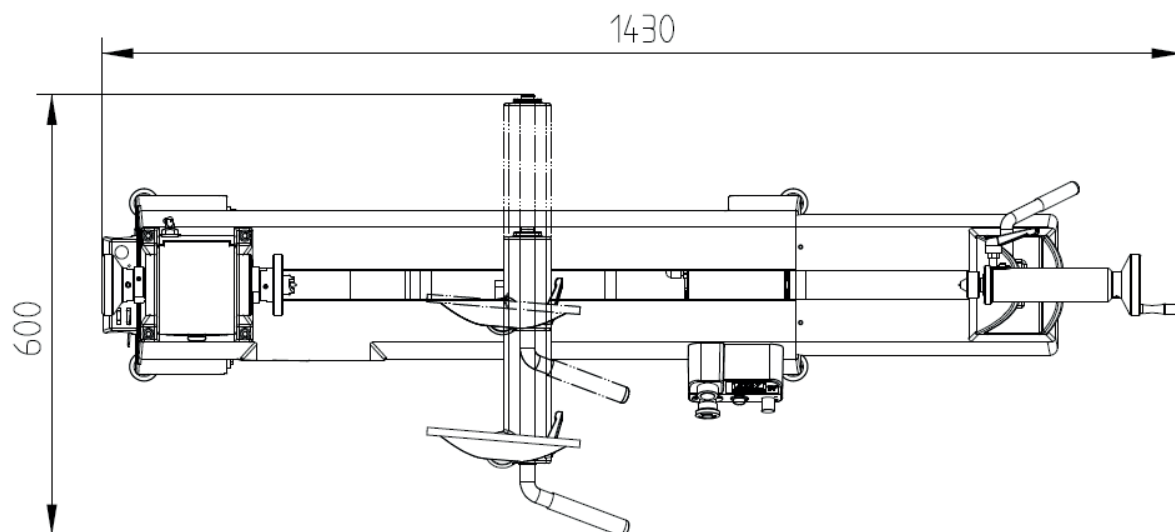
On the right side, the distance between centers could reach to 34.5".



7.1.1 Dimensions

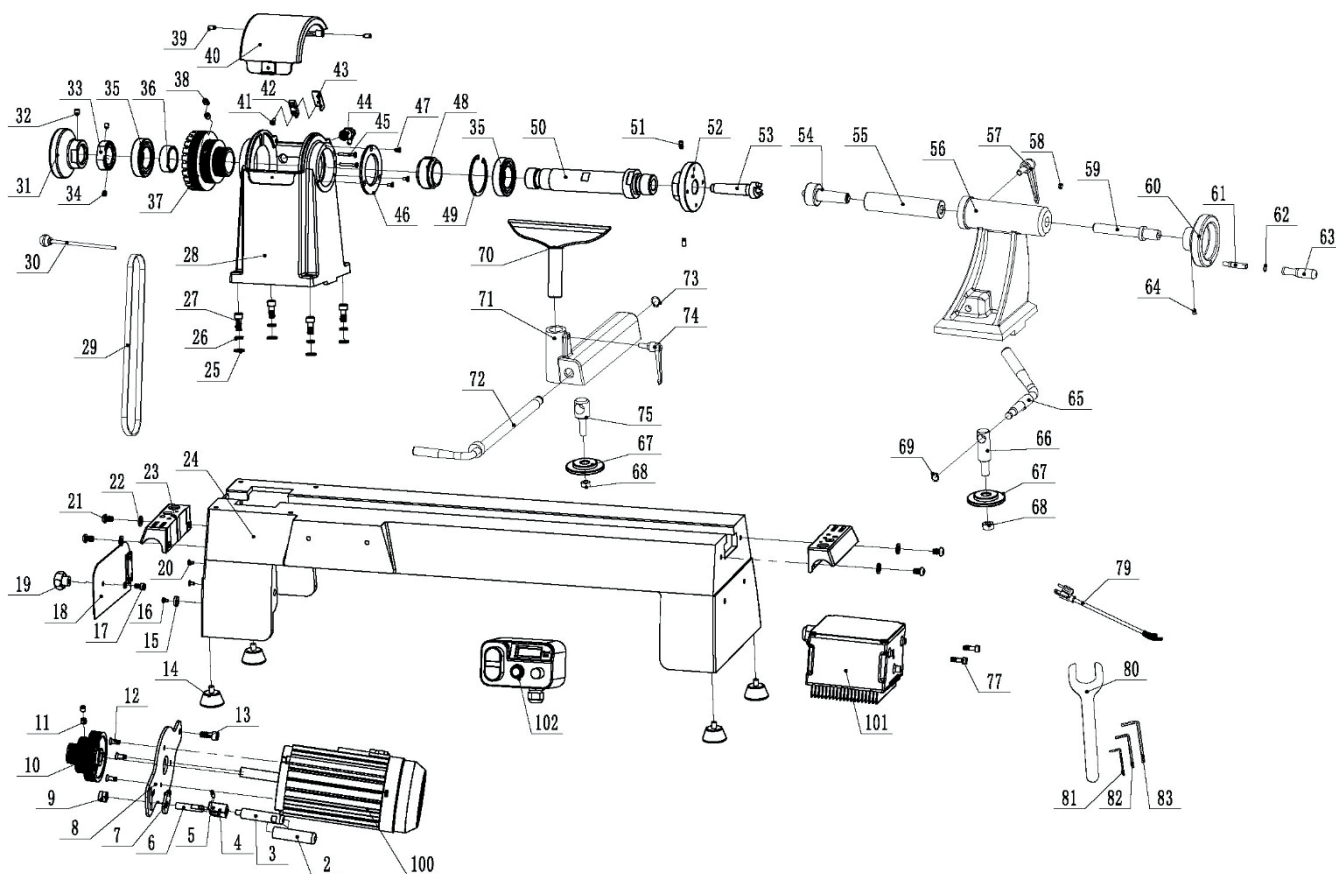
Consider anticipated workpiece sizes and additional space needed for auxiliary stands, work tables, or other machinery when establishing a location for this machine in the shop.

Below is the minimum amount of space needed for the machine with new extension bed when install it on the right side of the lathe bed.



8. Diagram and part list

8.1 Diagram for MC1421VDB



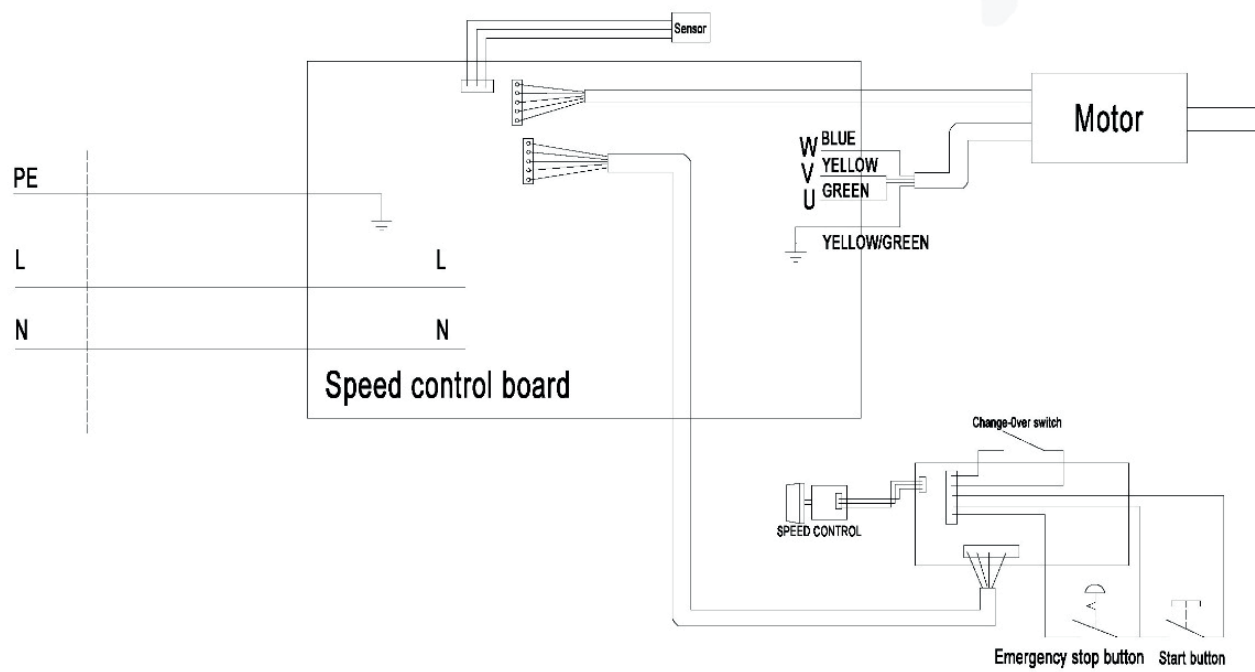
8.2 Part list for MC1421VDB

PART NO.	DESCRIPTION	QTY
2	Handle sleeve	1
3	Locking handle	1
4	Locking cam	1
5	Elastic cylindrical pin	1
6	Locking screw	1
7	Pressing plate	1
8	Motor base	1
9	Hexagon lock nut	1
10	Motor Pulley	1
11	Screw	2
12	Screw	3
13	Screw	1
14	Rubber foot	4
15	Magnet	1
16	Screw	1
17	Screw	1
18	Bed cover plate	1
19	Locking handle	1
20	Screw	2
21	Screw	4
22	Flat washer	4
23	Tool holder	1
24	Bed	1
25	Flat washer	4
26	Spring washer	4
27	Screw	4
28	Headstock	1
29	Belt	1
30	Rod	1
31	Spindle handwheel	1
32	Screw	1
33	Positioning nut	1
34	Screw	2
35	Ball bearing	2
36	Spacer	2
37	Spindle pulley	1
38	Screw	2
39	Screw	2
40	Front access plate	1
41	Screw	1
42	Sensor	1
43	Bracket	1

PART NO.	DESCRIPTION	QTY
44	Indexing pin	1
45	Screw	2
46	Bearing cover	1
47	Screw	3
48	Plastic Spacer	1
49	Elastic retaining ring	1
50	Spindle	1
51	Screw	2
52	Face plate	1
53	Spur Center	1
54	Live Center	1
55	Quill	1
56	Tailstock	1
57	Handle	1
58	Screw	1
59	Guide screw	1
60	Tailstock handwheel	1
61	Handle lever	1
62	Retaining ring	1
63	Handle	1
64	Screw	1
65	Eccentric Handle	1
66	Tailstock support	1
67	Fixed plate	1
68	Locking nut	1
69	Elastic retaining ring	1
70	Tool rest	1
71	Tool rest base	1
72	Eccentric handle	1
73	Retaining ring	1
74	Handle	1
75	Locking support	1
77	Screw	2
79	Power plug	1
80	Wrench	2
81	Hexagonal wrench	1
82	Hexagonal wrench	1
83	Hexagonal wrench	1
100	DC brushless motor	1
101	Motor Driver Assembly	1
102	Switch box assembly	1

8.3

Wiring diagram for MC1421VDB



Object of the Declaration: Axminster Professional AP370WL Woodturning Lathe 230V 111887		
UK: Supply of Machinery (Safety) Regulations 2008 as amended Electromagnetic Compatibility Regulations 2016 as amended Directive 2011/65/EU (RoHS 2) Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	EU: Machinery Directive 2006/42/EC EMC Directive 2014/35/EU Directive 2011/65/EU (RoHS 2) Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012	UK Address: Axminster Tool Centre Ltd Weycroft Avenue Axminster, Devon EX13 5PH
Standards used or references to the other technical specifications in relation to which conformity is declared: ISO 12100:2010, EN 60204-1:2018+A1:2025 IEC 55014-1:2021, IEC 55014-2:2021, IEC 61000-3-2:2019+A1:2021, 61000-3-3:2013+A1:2019+A2:2021		European Address: Axminster Tool Centre Ltd A-201, Haagsche Hof Parkstraat 83 The Hague 2514 JG Netherlands
Date: 3/18/2026 Place: Axminster	 Charlie Cross Product Director	



The packaging is suitable for recycling.
Please dispose of it in a responsible manner.



EU Countries Only

Do not dispose of electric tools together with household waste material.
By law they must be collected and recycled separately.



Axminster Tools, Axminster Devon EX13 5PH

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