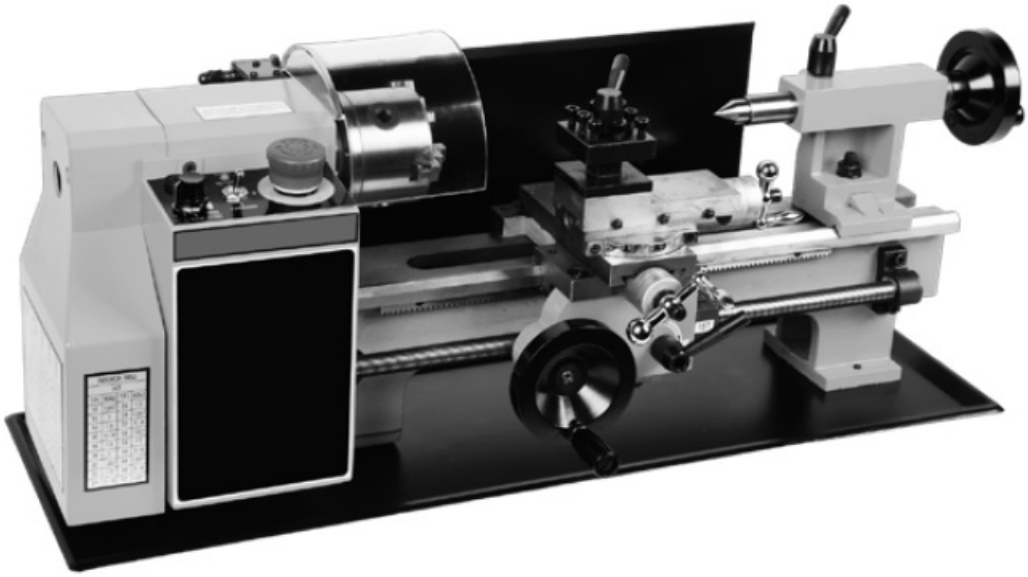
WEN ML712 Variable Speed Benchtop Metal Lathe Instruction Manual

Contents

1 WEN ML712 Variable Speed Benchtop Metal Lathe
2 INTRODUCTION
3 SPECIFICATIONS
4 ELECTRICAL INFORMATION
5 KNOW YOUR METAL LATHE
6 UNPACKING & PACKING LIST
7 ASSEMBLY
8 OPERATION
9 INSTALLING THE CHUCK OR FACEPLATE
10 MAINTENANCE
11 TROUBLESHOOTING GUIDE
12 EXPLODED VIEW & PARTS LIST
13 WARRANTY STATEMENT
14 Documents / Resources
14.1 References
15 Related Posts

WEN ML712 Variable Speed Benchtop Metal Lathe



MODEL ML712, ML716

VARIABLE SPEED BENCHTOP METAL LATHE

Instruction Manual

NEED HELP? CONTACT US!

Have product questions? Need technical support? Please feel free to contact us:

- 1-**847-429-9263** (M-F 8AM-5PM CST)
- **TECHSUPPORT@WENPRODUCTS.COM**

IMPORTANT: Your new tool has been engineered and manufactured to WEN's highest standards for dependability, ease of operation, and operator safety. When properly cared for, this product will supply you years of rugged, trouble-free performance. Pay close attention to the rules for safe operation, warnings, and cautions. If you use your tool properly and for its intended purpose, you will enjoy years of safe, reliable service.

For replacement parts and the most up-to-date instruction manuals, visit **WENPRODUCTS.COM**

To purchase accessories and replacement parts for your tool, visit **WENPRODUCTS.COM**

Premium 5/16-Inch Nickel-Plated Indexable Carbide-Tipped Metal Lathe Tool Bits (Model MLA007)

- 5/8-Inch Keyless Drill Chuck with MT2 Arbor Taper (Model LA162L)
- 5/8-Inch Keyed Drill Chuck with MT2 Arbor Taper (Model LA164K)

INTRODUCTION

Thanks for purchasing the WEN Metal Lathe. We know you are excited to put your tool to work, but first, please take a moment to read through the manual. Safe operation of this tool requires that you read and understand this operator's manual and all the labels affixed to the tool. This manual provides information regarding potential safety concerns, as well as helpful assembly and operating instructions for your tool.

Indicates danger, warning, or caution. The safety symbols and the explanations with them deserve your careful attention and understanding. Always follow the safety precautions to reduce the risk of fire, electric shock or personal injury. However, please note that these instructions and warnings are not substitutes for proper accident prevention measures.

NOTE: The following safety information is not meant to cover all possible conditions and situations that may occur. WEN reserves the right to change this product and specifications at any time without prior notice.
At WEN, we are continuously improving our products. If you find that your tool does not exactly match this manual, please visit **wenproducts.com** for the most up-to-date manual or contact our customer service at 1- **847-429-9263**.

Keep this manual available to all users during the entire life of the tool and review it frequently to maximize safety for both yourself and others.

SPECIFICATIONS

Model Number	ML712, ML716
Motor	110V, 60 Hz, 4A
Output Power	250W
Fuse	Glass, 5x20mm, 4A, 250V (F4AL250V)
Chuck	80mm, 3 Jaws
Swing Over Bed	7 Inches (180mm)
Distance Between Centers	ML712: 12 Inches (300mm)
	ML716: 16 Inches (400mm)
Spindle Bore	0.8 Inches (20mm)
Cross Slide Travel	2.5 Inches (65mm)
Compound Slide Travel	2.16 Inches (55mm)
Variable Speed	100 – 2500 RPM
Spindle Taper	MT3
Tailstock Taper	MT2
Minimum Longitudinal Feed Rate	0.004” (0.1mm) per rev.
Maximum Longitudinal Feed Rate	0.008” (0.2mm) per rev.
Screw Threads	12 – 52 TPI (18 Thread Pitches)
Product Weight	ML712: 79.4 Pounds
	ML716: 92.6 Pounds
Product Dimensions	ML712: 27-3/4 in. x 11-1/2 in. x 12 in.
	ML716: 31 in. x 11-1/2 in. x 12 in.

GENERAL SAFETY RULES

WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Safety is a combination of common sense, staying alert and knowing how your item works. The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

SAVE THESE SAFETY INSTRUCTIONS.

WORK AREA SAFETY

1. Keep work area clean and well lit. Cluttered or dark areas invite accidents.
2. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Power tools create sparks which may ignite the dust or fumes.
3. Keep children and bystanders away while operating a power tool. Distractions can cause you to lose control.

ELECTRICAL SAFETY

1. Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
2. Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is earthed or grounded.
3. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
4. Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
5. When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
6. If operating a power tool in a damp location is un-avoidable, use a ground fault circuit interrupter (GFCI) protected supply. Use of a GFCI reduces the risk of electric shock.

PERSONAL SAFETY

1. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
2. Use personal protective equipment. Always wear eye protection. Protective equipment such as a respiratory mask, non-skid safety shoes and hearing protection used for appropriate conditions will reduce the risk of personal injury.
3. Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking up or carrying the tool. Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
4. Remove any adjusting key or wrench before turning the power tool on. A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
5. Do not overreach. Keep proper footing and balance at all times. This enables better control of the power tool in unexpected situations.

6. Dress properly. Do not wear loose clothing or jewelry. Keep your hair and clothing away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
   WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.
   Safety is a combination of common sense, staying alert and knowing how your item works. The term “power tool” in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.
   SAVE THESE SAFETY INSTRUCTIONS.
7. If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used. Use of dust collection can reduce dust-related hazards.

POWER TOOL USE AND CARE

1. Do not force the power tool. Use the correct power tool for your application. The correct power tool will do the job better and safer at the rate for which it was designed.
2. Do not use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
3. Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventive safety measures reduce the risk of starting the power tool accidentally.
4. Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
5. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool’s operation. If damaged, have the power tool repaired before use. Many accidents are caused by poorly maintained power tools.
6. Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
7. Use the power tool, accessories and tool bits, etc. in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation.
8. Use clamps to secure your workpiece to a stable surface. Holding a workpiece by hand or using your body to support it may lead to loss of control.
9. KEEP GUARDS IN PLACE and in working order.

SERVICE
Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

CALIFORNIA PROPOSITION 65 WARNING
Some dust created by power sanding, sawing, grinding, drilling, and other construction activities may contain chemicals, including lead, known to the State of California to cause cancer, 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.

METAL LATHE SAFETY WARNINGS
WARNING! Do not let comfort or familiarity with the product replace strict adherence to product safety rules. Failure to follow the safety instructions may result in serious personal injury.

METAL LATHE SAFETY

1. This lathe is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a lathe, do not use it until proper training and knowledge have been acquired.
2. Always wear eye protection and a face shield / dust mask when using the lathe.
3. Make sure all tools, chisels, and accessories are sharp enough for the task at hand before using them. Always use the right tool at the correct speed and feed rate.
4. Turn off and unplug the machine before doing any cleaning or maintenance. Use a brush to remove chips or debris. Never use your hands to remove excess material and debris.
5. Check the workpiece carefully for inconsistencies or obstructions. These types of blemishes may cause a safety risk during turning.
6. Rotate the workpiece by hand to check clearance before turning the machine on.
7. Select the appropriate speed for the task at hand. Start at a low speed and allow the lathe to ramp up to the operating speed before engaging any chisels, tools, or other carving accessories.
8. Never stop a rotating workpiece with your hand.
9. When turning between centers, make sure the head-stock and tailstock are tight and snug against the work-piece.
10. Always use a brush or rag to clear away chips from the workpiece. Using your hand can cause serious injury.
11. Always remove the key from the chuck jaws before operation.
12. Always wear a full face mask. If a tool or workpiece breaks off, it can create a hazard to users and onlookers.
13. Always use the right cutting tool. An improper tool could break or cause unwanted strain on the machine.
14. Never attempt to stop the lathe with your hand. You will lose your hand.
15. Always use the proper feed rate for your workpiece. An overly fast feed rate can damage the lathe or the workpiece.
16. Secure the workpiece properly, make sure the chuck is tight and secure on the workpiece before beginning to turn. A loose workpiece can shoot out and severely injure you or anyone around.
17. Use a tailstock to support long work stock. Anything more than 2.5 times as long as it is thick needs the tail-stock to support it.
18. Never operate the lathe with damaged parts.
19. Never turn a workpiece at RPMs that are too high for the work material. This can cause the cutting tool to break and launch off, injuring you or a bystander.
20. Never reverse motor direction while the machine is running.
21. Never change the lead screw feed direction while the machine is running.
22. Always ensure proper clearance between the work-piece and the cross slide, compound slide, and tool post.

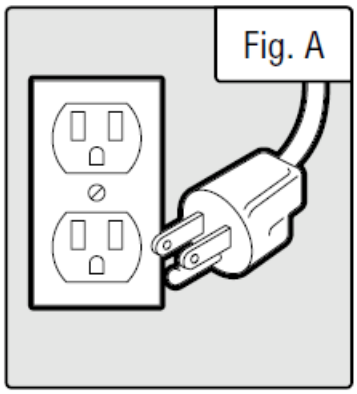
23. Always disengage automatic feed after a cutting pass, even if it is the final cut. You can forget and hurt yourself upon next use.
24. Always tie up long hair. Do not wear any loose /hanging clothing. Even aprons can be hazards when improperly secured.
25. Remove any and all jewelry, rings, watches, etc. to avoid getting them caught in the lathe.

ELECTRICAL INFORMATION

GROUNDING INSTRUCTIONS

In the event of a malfunction or breakdown, grounding provides the path of least resistance for an electric current and reduces the risk of electric shock. This tool is equipped with an electric cord that has an equipment grounding conductor and a grounding plug. The plug MUST be plugged into a matching outlet that is properly installed and grounded in accordance with ALL local codes and ordinances.

1. Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a licensed electrician.
2. Improper connection of the equipment grounding conductor can result in electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. If repair or replacement of the electric cord or plug is necessary, DO NOT connect the equipment grounding conductor to a live terminal.
3. Check with a licensed electrician or service personnel if you do not completely understand the grounding instructions or whether the tool is properly grounded.
4. Use only three-wire extension cords that have three-pronged plugs and outlets that accept the tool's plug. Repair or replace a damaged or worn cord immediately.



CAUTION! In all cases, make certain the outlet in question is properly grounded. If you are not sure, have a licensed electrician check the outlet.

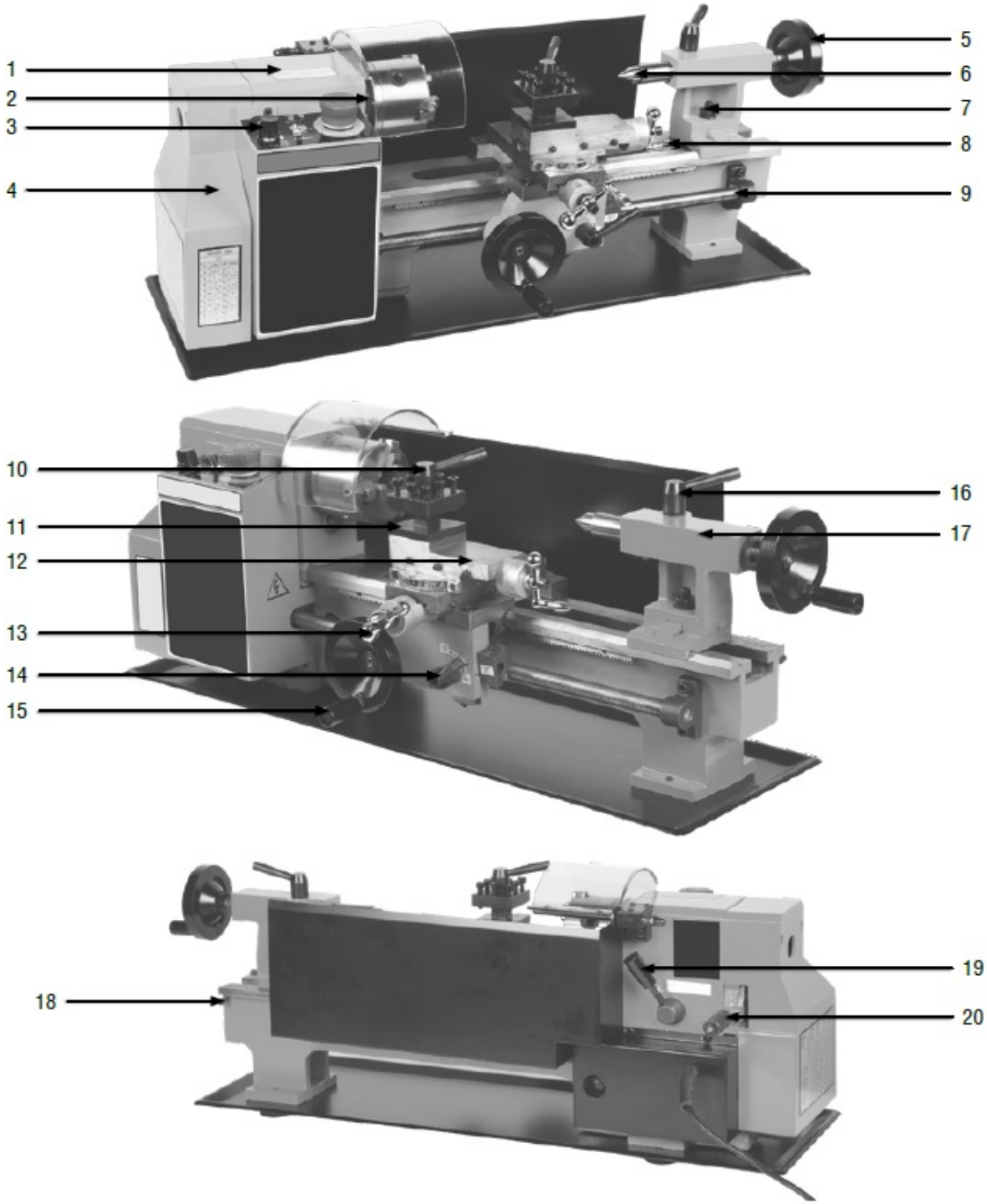
GUIDELINES AND RECOMMENDATIONS FOR EXTENSION CORDS

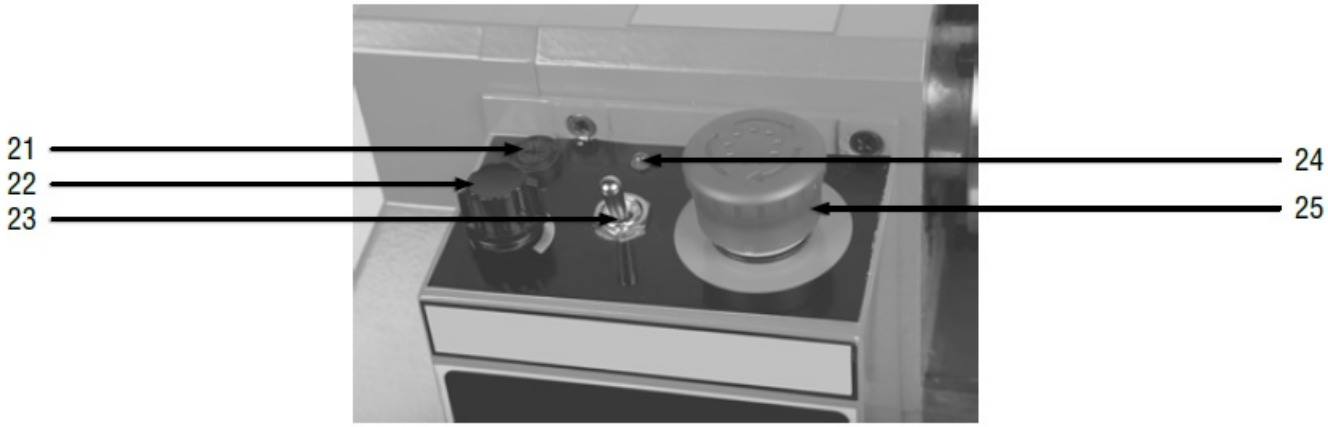
When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. The table below shows the correct size to be used according to cord length and ampere rating. When in doubt, use a heavier cord. The smaller the gauge number, the heavier the cord.

AMPERAGE	**REQUIRED GAUGE FOR EXTENSION CODS**			
	25 ft.	**50 ft.**	**100 ft.**	**150 ft.**
4A	18 Gauge	16 Gauge	16 Gauge	14 Gauge

1. Examine extension cord before use. Make sure your extension cord is properly wired and in good condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
2. Do not abuse extension cord. Do not pull on cord to disconnect from receptacle; always disconnect by pulling on plug. Disconnect the extension cord from the receptacle before disconnecting the product from the extension cord. Protect your extension cords from sharp objects, excessive heat and damp/wet areas.
3. Use a separate electrical circuit for your tool. This circuit must not be less than a 12-gauge wire and should be protected with a 15A time-delayed fuse. Before connecting the motor to the power line, make sure the switch is in the OFF position and the electric current is rated the same as the current stamped on the motor nameplate. Running at a lower voltage will damage the motor.

KNOW YOUR METAL LATHE





1. Headstock
2. Spindle
3. Lathe Control Panel
4. Gear Train Cover
5. Tailstock Handwheel
6. Quill
7. Tailstock Lock Nut
8. Compound Slide Handle
9. Thread-Cutting Lead Screw
10. Tool Post Lock
11. Tool Post
12. Compound Slide
13. Cross Slide Handle
14. Automatic Feed Lever
15. Manual (Carriage) Feed Lever
16. Quill Lock
17. Tailstock
18. Stop Screw
19. High / Low Speed Range Lever: Allows the user to shift the spindle speed range from HIGH (0 – 2500 RPM) to LOW (0 – 1100 RPM).
20. Forward / Neutral / Reverse Lever: Change the direction of the leadscrew rotation between forward, reverse, and neutral. The handle is spring-loaded; pull it out (away from the lathe's body), adjust its position, and release.
21. Fuse Cap: Contains the fuse (4A) that protects the unit from circuit overloads. The fuse can be removed by turning the cap a quarter turn counterclockwise with Phillips-head screwdriver, then pulling fuse and cap out. Replace the fuse if it is blown with a glass, 5x20mm, 4A, 250V fuse (F4AL250V).
22. Speed Control Knob: Allows the adjustment of the lathe's spindle speed from 0 to 2500 RPM.
23. Spindle Direction Selector: Allows the user to select the direction of the spindle between clockwise (forward), neutral (0), and counterclockwise (reverse). Forward = toward operator (clockwise when viewed from the headstock end); opposite for reverse.

    NOTE: When turning the lathe on, you may use the direction selector or variable speed knob first. If the knob is set to 0 when the direction selector is used, you must increase the speed using the knob before the spindle will start turning.

24. Fault Light: Illuminates if there is a motor fault, or if the emergency shutoff button is pushed during operation and is not released before trying to restart.
25. Emergency Shutoff: Stops power to the unit when pressed during operation. Button must be UP (clasp released) to permit operation. Turn the red button cap clockwise to release it.

UNPACKING & PACKING LIST

UNPACKING

With the help of a friend or trustworthy foe, such as one of your in-laws, carefully remove the metal lathe from the packaging and place it on a sturdy, flat surface. Make sure to take out all contents and accessories. Do not discard the packaging until everything is removed. Check the packing list below to make sure you have all of the parts and accessories. If any part is missing or broken, please contact customer service at 1-**847-429-9263** (M-F 8-5 CST), or email **techsupport@wenproducts.com** .

PACKING LIST

1. Metal Lathe……1
2. Rubber Feet……4
3. M6 Pan Head Screws……4
4. Hex Keys (3mm, 4mm, 5mm, 6mm)……4
5. Chuck Key……1
6. Plastic Oil Container (Oil Not Included)……1
7. Spare Fuse……..1
8. Plastic Handles with Nuts and Bolts……1
9. MT2 Dead Center (For Tailstock)……..1
10. External Jaws for 3-Jaw Chuck……..3
11. 8mm x 10mm Wrench……1
12. 14mm x 17mm Wrench……1
13. Gear Set……1
14. Chip Tray……1

ASSEMBLY

NOTE: Before assembling, carefully wipe off all grease and rust-protectant coating with a soft cloth. Use kerosene or acetone to fully remove the grease and coating. Apply a light coat of good-quality paste wax to all machined surfaces to prevent rusting and ensure ease of movement between parts.

Use the four M6x16 pan-head screws to attach the chip tray and rubber feet to the tapped holes in the underside of the lathe body. Insert the screws through the feet, through the chip tray, and into the lathe. Tighten using Phillips-head screwdriver (not included). We strongly recommend that to provide maximum stability and safety, users should secure the lathe to a firm foundation as described under “Mounting the Lathe” below.

Attach the plastic handles to the rims of the manual feed and tailstock feed handwheels. Ensure the nuts are tight and the handles spin freely about the bolts without excessive end play.

The carriage, cross slide, and compound slide adjustments are all factory-set to ensure smooth movement in both directions. However the adjustments may have been misaligned during transportation. This will be indicated by stiff or erratic movement. Refer to “ADJUSTING THE GIBS” on page 20 for adjustment methods.

All hex keys and wrenches necessary to carry out various adjustments are supplied together with a chuck key for the 3-jaw chuck. The fuse socket (21) is located on the main control panel.

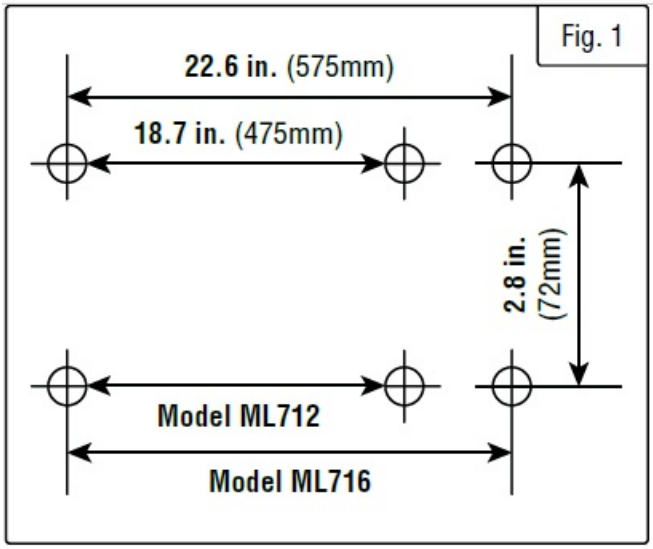
OPERATION

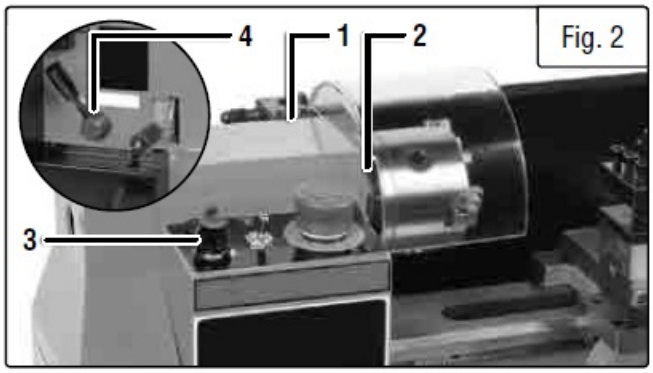
MOUNTING THE LATHE (FIG. 1)

The lathe should be mounted on a strong, heavy work-bench. Take the necessary precautions when moving the lathe. Assistance may be required. Bolt the machine firmly to the workbench using the tapped holes. To do this remove the 6mm screws securing the rubber feet in place. Drill four 6mm (0.25-inch) clearance holes in the worktop and find washers and 6mm screws long enough to securely hold the unit in place.

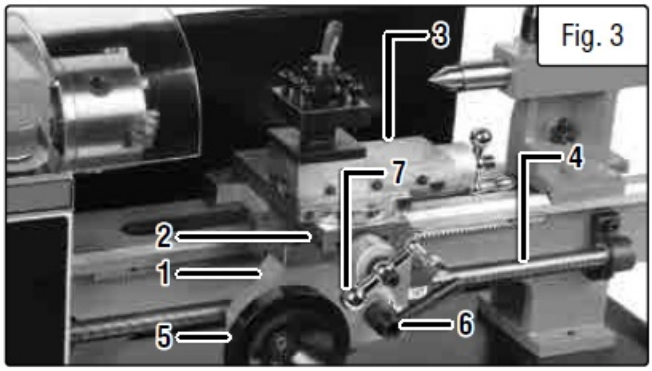
HEADSTOCK

The headstock (Fig. 2 – 1) contains the motor, pulleys and the drive belt that turn the spindle used to create your workpiece. The spindle (Fig. 2 – 2) has a MT3 taper for use in conjunction with a face plate or chuck. The spindle has a flange attached with 6 holes arranged to mount different fixtures, such as chuck jaws and face plates. The speed of the spindle is adjusted using the speed control knob (Fig. 2 – 3) on the control panel. The speed ranges can be swapped between two ranges with the lever (Fig. 2 – 4) on the back of the headstock.





WARNING! Do not change the speed range during operation.



CARRIAGE
The carriage (Fig. 3 – 1) is the portion of the lathe that moves the cross slide (Fig. 3 – 2) and compound slide (Fig. 3 – 3) across the bed. It can be manually fed with the handwheel (Fig. 3 – 5), or driven with the lead screw (Fig. 3 – 4) by engaging the half nuts with the automatic feed lever (Fig. 3 – 6).

CROSS SLIDE
The cross slide (Fig. 3 – 2) is used to move the tool post and cutting tool across the bed, perpendicular to the lead screw (Fig. 3 – 4) and the center axis of the spindle. The cross slide is adjusted via a handle (Fig. 3 – 7) with precision tick marks, each indicating 0.001". This scale will rotate with the handle when it is turned to feed the cross slide back and forth. Before beginning turning, perform the following steps to adjust and zero your cross slide:

1. Turn the handle counterclockwise to back the cross slide about 0.015" away from your starting point, then slowly turn the handle clockwise until the cross slide returns to the starting position. This removes any play in the slide and helps make the scale more accurate.
2. Hold the handle steady. With your other hand, rotate the scale so the "0" lines up with the "0.000" mark on the cross slide. From this point, the slide will remain accurate as long as you only move it forward (toward the splash guard on the back of the lathe).
3. Any time you back the slide away from your work-piece, you will have to repeat steps 1 and 2 before moving the cross slide forward again for the next cut.

COMPOUND SLIDE
The compound slide (Fig. 4 – 1) works similarly to the cross slide, with a small handle (Fig. 4 – 2) and a scale with tick marks every 0.001". The compound slide can be fed back and forth with this handle, similar to the cross slide. It can also be rotated to an angle of your choice and fed back and forth along this angle.

ADJUSTING THE COMPOUND SLIDE

1. Rotate the handle to move the compound slide back and expose the two screws (Fig. 5 – 1). Loosen these two screws with one of the included hex wrenches.
2. Rotate the compound slide to the desired angle and retighten the bolts to lock it in place.
3. Turn the handle until your slide is at its starting point. Then back the slide 0.015" from the starting point.
4. Slowly turn the handle to feed the slide forward until it returns to the starting point.
5. Hold the handle in place and rotate the scale so the "0" and "0.000" lines match and the scale is properly zeroed.
6. Repeat steps 3-5 for each cut and each time you adjust the slide in order to get the most accurate cuts.

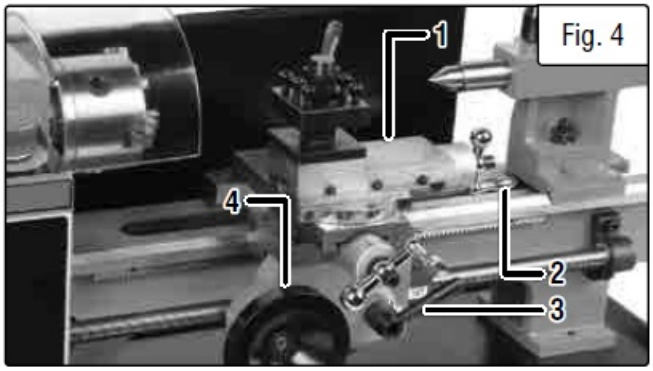


Fig. 4

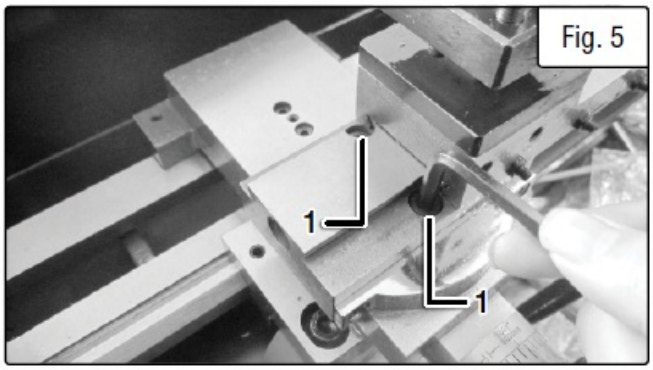


Fig. 5

CARRIAGE FEED
The feed of the carriage along the axis of the spindle can be done manually, or automatically by the lead screw and gear train.

TO MANUALLY FEED THE CARRIAGE
Disengage the half nuts from the lead screw by pulling UP on the feed lever (Fig. 4 – 3). Use the handle wheel on the carriage (Fig. 4 – 4) to move it along the bed. Turning it clockwise will move it away from the spindle and turning it counter-clockwise will move it towards the spindle.

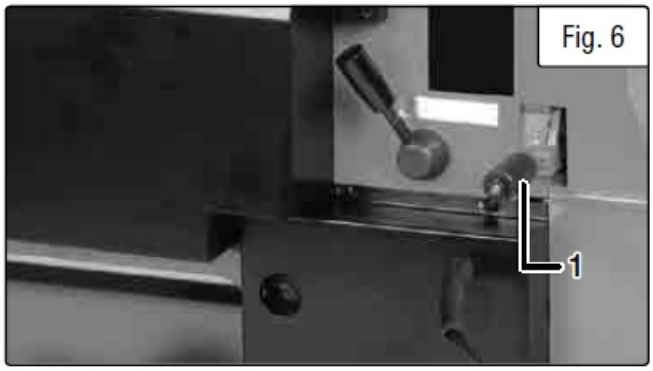


Fig. 6

TO AUTOMATICALLY FEED THE CARRIAGE

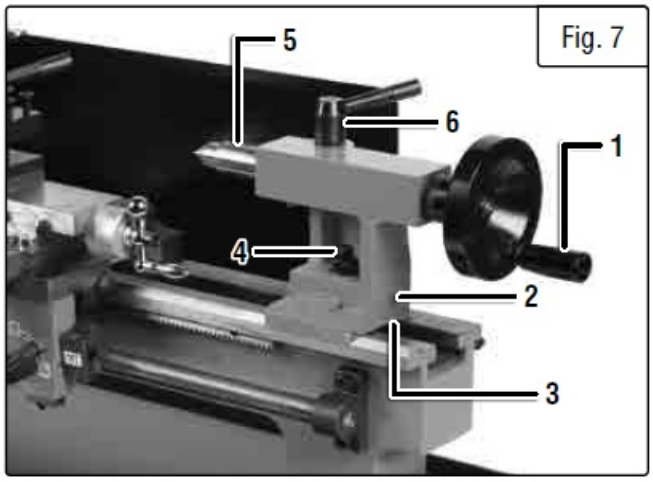
1. Set the carriage to your starting point.
2. While the unit is still turned off, set the lead screw direction lever (Fig. 6 – 1) to either left feed or right feed, using the label next to the lever. Choose your preferred direction based on the sticker next to the Lever.
3. Turn the lathe on and set it to the necessary RPM using the speed control knob.
4. Push the feed lever down to engage the lead screw and the automatic feed function.
5. Once the tool's pass is finished, pull up on the lever to disengage the lead screw and the automatic feed. Move the carriage back to the desired starting point, then push the feed lever down again and repeat.

NOTE: Increasing the spindle speed using the speed control knob will also increase the lead screw feed rate proportionally.

TAILSTOCK

The tailstock (Fig. 7) is located on the bed opposite of the headstock. It can be moved along the bed by loosening the 17mm nut (Fig. 7 – 4) and pushing the tailstock to the desired position. When it is in the desired spot, tighten the 17mm nut to lock it in place. The tailstock is equipped with an MT2 taper to use with appropriate tools, like the included dead center, or an MT2 drill chuck. The tailstock arrives properly aligned to the headstock from the factory. This allows the use of dead or live centers for turning between centers, as well as on-center drilling if using a drill chuck. The tailstock quill is self-ejecting.

TAILSTOCK COMPONENTS



1. **Tailstock Handwheel:** Feeds the quill in and out of the tailstock into the workpiece. Use to push a center into the workpiece to hold it level horizontally, or to feed a drill into the workpiece to create a hole.
2. **Offset Set Screw:** Locks the tailstock position to allow for offset alignment (see next page).
3. **Offset Cap Screw:** Allows tailstock alignment to be adjusted to right or left of center (underside of tailstock).
4. **Tailstock Lock Nut:** Secures the tailstock in place on the bed.
5. **Quill:** Holds MT2 tapered tools in the tailstock.
6. **Quill Lock:** Secures the quill in place.

USING A CENTER WITH THE TAILSTOCK

If you are turning a workpiece with stock that hangs more than 2.5 times its diameter beyond the chuck jaws, it is necessary to support the other end with a center and the tailstock. For projects that allow low RPM turning, a dead center is okay. If higher RPMs are necessary, we recommend investing in a live center, which is equipped with a bearing. To install

1. Check the center and tailstock quill for any dirt, dust, debris or oil. Wipe both down, as excessive oil or dirt will not allow the tapers to interlock.
2. Turn the tailstock handwheel until the quill protrudes approximately 1/2” inch from the tailstock.
3. Slide the center into the quill until it is snug; the tapers will keep the center in place. Keep the quill extended between 0 and 1.5 on the quill scale to keep it secure.
4. To remove the center, use the tailstock handle to retract the quill into the tailstock completely. This forces the center out of the quill. Hold the head of the center with your hand to catch it as the center becomes loose.

OFFSETTING YOUR TAILSTOCK

WARNING! The tailstock comes from the factory properly aligned with the headstock.

The tailstock can also be used in an offset position to help turn tapers on a work piece. Adjusting the tailstock into an offset position requires removing the tailstock from the bed and adjusting the offset screw on the bottom of the tailstock. To properly offset the tailstock follow these steps (Fig. 8):

1. Use a 17mm wrench or socket to loosen the lock nut that holds the tailstock in place. Remove the stop screw on the rear of the end of the bed (p. 8, item 18) using a 4mm hex wrench. Then slide the tailstock off the bed.
2. Loosen the offset set screw (Fig. 7 – 2) on the back of the tailstock, below the handle.
3. Loosen the offset cap screw (Fig. 7 – 3) on the bottom of the tailstock. Only loosen it enough so the tailstock can slide.
4. Slide the tailstock back onto the bed and adjust it to the desired offset.
5. Tighten the offset setscrew to hold the tailstock at the proper offset position.
6. Slowly and carefully slide the tailstock off the bed and tighten the offset cap screw on the bottom.
7. Slide the tailstock back onto the bed, lock it in to the desired position and check your tolerances to makes sure it is in the desired offset.
8. Repeat the previous steps in order to adjust the offset to the exact position necessary for your workpiece. Reinstall the stop screw on the end of the bed when finished.

TOOL POST

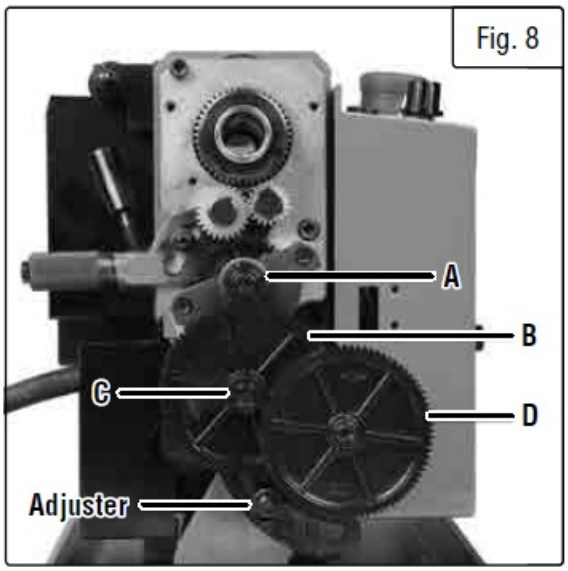
The tool post is used to hold your cutting tools and run the cutting edge along the workpiece you are turning. The tool post can hold four tools at a time and has 4 preset stops at 90 degree intervals. It can also be set at any angle in between these four presets. To install a cutting tool into the tool post follow these steps

1. Determine which cutting tool will create the desired cut profile.
2. Loosen the screws in the top of the tool post on the edge you will place the cutting tool. Make sure the tool will be secured by a minimum of two of these screws.
3. Place the tool under the screws and loosely tighten them, making sure it is perpendicular (or at the proper angle) to the axis of the workpiece.
4. Align the tip of the tool with the centerline of the workpiece. If the workpiece centerline is higher, place shims under the tool to raise its height. This machine uses 5/16” (8mm) tools. To determine if the tool tip is even with the centerline, check the tool tip against the tip of the center in the tailstock. If the two tips are even or the tool tip is below the center tip, the tool is the proper height. If the two tips are even or the tool tip is below the center team, the tool is the proper size for the lathe. If the tool tip is below the center tip, it will need to be shimmed up to the height of the center tip, otherwise you will see a small “button” on the workpiece when parting off. If the tool tip is higher than the center tip, the tool is the wrong size for this lathe.

NOTE: You may also install an aftermarket quick-change tool post, size 0XA, if desired. The mounting bolt size is M10x65mm.

GEAR TRAIN

WARNING! Before making any of these adjustments, turn off and unplug the lathe from its power source.



NOTE: This lathe is designed for use with plastic gears. This is intentional, so that if you make a mistake and a gear or the lead screw binds up, a gear will break, rather than the mo-tor. The gears are much easier and less expensive to replace.

METRIC THREAD PITCH CHART				
Pitch	**Gear Size (mm)**			
	A	**B**	**C**	**D**
0.4	20	50	40	60
0.5	20	50	/	60
0.6	40	50	30	60
0.7	40	50	35	60
0.8	40	50	40	60
1.0	20	60	/	30
1.25	50	40	/	60
1.5	40	60	/	40
1.75	35	60	/	30
2.0	40	60	/	30

The gear train is located on the headstock opposite the spin- BBB dle. The drive gears are located Cinder a cover secured by two DDD socket head cap screws. The gear train is used to drive the lead screw's speed, allowing Adjuster the auto-feed function to operate. As the gear train turns, it turns the lead screw which moves the carriage across the bed of the lathe. The direction is set using the lead screw direction lever. Adjusting it to forward will send the carriage towards the headstock. Reverse sends it away, and neutral disengages the lead screw so the carriage can be manually fed.

The feed rate of the lead screw can be set by changing the gears in the gear train (Fig. 8). Switching the diameter of the gears and the order of the gears will change the lead screw's speed, allowing for different threads to be turned with the lathe. The Threading Chart to the right shows the gear arrangements to use to achieve different threads per inch (TPI) or metric pitches when using the lead screw.

THREADS PER INCH (TPI)				
TPI	**Gear Size (mm)**			
	A	**B**	**C**	**D**
12	40	65	/	30
13	40	65	60	30
14	40	65	/	35
16	40	65	/	40
18	40	65	/	45
19	40	50	60	57
20	40	65	/	50
22	40	65	/	55
24	40	65	/	60
26	40	60	/	65
28	20	65	/	35
32	20	65	/	40
36	20	65	/	45
38	20	50	60	57
40	20	65	/	50
44	20	65	/	55
48	20	65	/	60
52	20	60	/	65

To change the gears

1. Using the 4mm hex wrench, remove the 2 mounting screws on the gear cover. Then remove the gear cover.
2. Loosen the adjustment nut at the bottom of the gear train to disengage the gears from one another. Loosen the socket head cap screws that hold each gear (or gear pair) on its shaft. Remove the necessary gears and replace them with the appropriate gears. That is, the gears that have the proper number of teeth in the positions called for (30, 40, 60, and 65 teeth). Note that some configurations do not require gears in every position, and some require you to move the bushings from one shaft to another for gears to properly fit in place.
3. Position the gears so their teeth will mesh together properly once the adjuster is tightened.

FACTORY SETTINGS	
A	20
B	80
C	20
D	80

NORMAL OPERATION
Before starting a turning, always plan your work ahead of time. Create a drawing or plan with all of the dimensions you desire for the workpiece. Make sure to have all the measuring tools you will need to double and triple check your cuts. Ensure that the feed rate, depth of cut (DOC), and spindle speed (RPM; depends on material, cutting tool material and profile, DOC, desired surface finish, workpiece geometry, etc.) are all proper for your operation. To avoid stalling the motor, we recommend that the DOC never exceed 0.5mm (0.0196 in), and should be kept below 0.25mm (about 0.01 in) whenever possible. Reduce spindle speed when taking a deeper cut.

Place the work into the chuck or attach to the faceplate. If necessary, use the tailstock center to support the opposite end. If the tailstock is not needed, it can be removed completely by removing the stop screw and sliding the tailstock off the bed.
After you have the work planned out, select the necessary cutting tools for the feature you wish to create and mount them to the tool post. Make sure the tool tips are aligned with the center line of the workpiece, or slightly below them.

Mark the end point for the cut on the work piece using a scriber. Line up the cutting tool with the end point and feed in the cross slide until it just touches the surface of the workpiece. Then turn the spindle by hand to make sure there is no interference between the carriage, cross slide, tool post, cutting tool, or chuck. It may be necessary to adjust the compound slide or the workpiece in the chuck to get the proper amount of clearance.

When you have assured there is adequate clearance, back the cross slide away from the work piece and move the carriage away from the head stock. Next zero out the cross-slide

1. Feed the cross slide and the cutting tool to the starting position of the cut.
2. Back the cross slide 0.015” away from the work piece.
3. Slowly feed the cross slide back to the starting point.
4. Hold the handle to move the cross slide in place with one hand, and turn the dial of the gauge to make the 0 and the 0.000 marks line up. The cross slide and cutting tool are now zeroed out.
5. If you have to back feed the cross slide at all, repeat steps 1 through 4.

NOTE: Before each pass of the cutting tool, it is recommended to add cutting oil to the work piece to reduce heat and friction. Make sure to periodically add oil to the work piece as needed while turning.

MANUAL FEED
Double check the following before you begin turning

1. The auto-feed lever is in the UP position, so the carriage half nuts are disengaged from the lead screw.
2. The Auto Feed Direction Lever is in NEUTRAL.
3. You are in the appropriate speed selection of HIGH/LOW for the material you are turning.

To know the proper RPM will take some experience. Harder metals should use a slower RPM while softer can use a little faster RPM. If you are unsure, it is better to go slower than risk damage to the work, the cutting tool or the

lathe by using too high of an RPM. Feed rate and DOC are also very important. A deeper DOC needs a slower feed rate and slower RPM, and vice versa.

Once you are ready to begin, switch the machine ON and set the RPM to your desired level. Slowly feed the cutting tool into the work piece using the carriage handle. Slowly feed the cutting tool across the work piece until you reach the marked end point. Retract the cross slide and cutting tool at this point one or two full revolutions. Return the carriage to the starting point, and then feed the tool back in the same number of revolutions plus a small additional feed rate in. Repeat this process until you have the desired amount of material cut away.

AUTOMATIC FEED
Once you have the cross slide set in position double check the following

1. The auto feed direction lever is set to FORWARD.
2. The auto feed lever is disengaged from the lead screw.
3. You are in the appropriate speed selection range of HIGH/LOW.
4. The gear train is in the proper configuration, as this determines the feed rate of the lead screw. The factory setting is okay for normal turning, but if you have been cutting screw threads you will need to reset the gear train to the proper configuration.

CUTTING WITH THE AUTOMATIC FEED
NOTE: Ensure the DOC is appropriate for the cutting tool material, workpiece material, etc.

1. Position the cutting tool past the end of the workpiece, away from the tailstock. Make sure the tool is set to the proper cutting depth. Always do shallow cuts, as cutting too deep too fast will damage the work piece, your cutting tool, and your lathe. It is recommended to keep the cuts to 0.010” (0.25mm) or less at a time.
2. Double check that all the feed levers are set properly.
3. Turn the unit ON and set the spindle speed to the desired rate. Push the autofeed lever down to engage the half nut with the lead screw.
4. Watch your cutting tool. When it reaches the end, quickly press UP on the auto feed lever and make sure it stays disengaged from the lead screw.
5. Retract the cutting tool one or two turns using the cross slide handle. Feed the carriage back to the starting point, and feed the tool back in one or two turns plus the additional cutting depth.
6. When ready for the next pass, engage the auto feed lever and repeat the previous steps until you have removed the desired amount of material.

BEVEL CUTTING
In order to perform a bevel cut, it is necessary to use the compound slide as well as the cross slide. To align the compound slide for a bevel cut, align it to the proper angle following the procedure in the “Compound Slide” section on page 12.
Once the compound slide is aligned to the proper angle, follow these steps to create the bevel

1. Mark your end point of the bevel if necessary, using the methods for a normal turning.
2. Set and zero out the cross slide to the proper starting point.
3. Turn the lathe on and set the spindle to the appropriate RPM.
4. Use the handle on the compound slide to feed the cutting tool along the end of the workpiece. This will create the bevel cut at the angle you set it to.
5. Back off the cutting tool 2 turns and reset the compound slide to the starting point. Feed the cutting tool back in

to the cutting depth.

6. Repeat until your bevel is the desired length and position.

THREAD DIAL	
TPI	**SCALE**
12	1, 3, 5, 7
13	1
14	1 or 5
16	1 – 8
18	1 or 5
19	1
20	1, 3, 5, 7
22	1 or 5
24	1 – 8
26	1 or 5
28	1, 3, 5, 7
32	1 – 8
36	1, 3, 5, 7
38	1 or 5
40	1 – 8
44	1, 3, 5, 7
48	1 – 8
52	1, 3, 5, 7

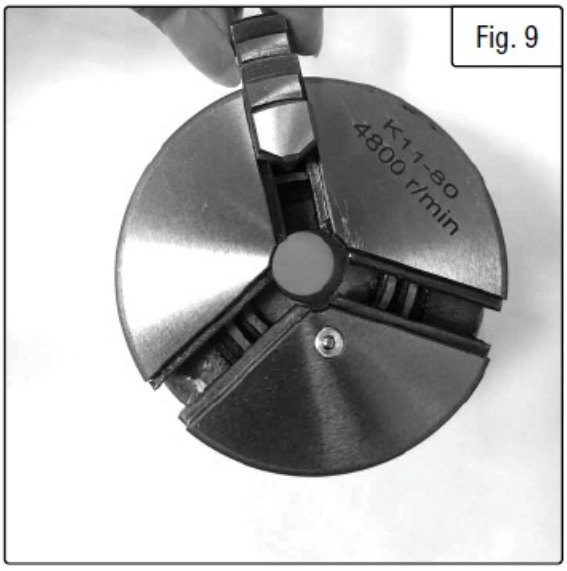
TO CUT THREADS

1. Adjust the compound slide so the tool is at the appropriate angle for the desired thread.
2. Place the tool tip so that it is vertically centered and perpendicular to the work-piece.
3. Engage the thread dial with the lead screw. The thread dial is located next to the auto-feed lever on the carriage. There is a socket-head cap screw on the side; loosen the screw using one of the included hex wrenches and adjust the body of the thread dial so that its gear meshes with the threads on the lead screw. Tighten the socket head cap screw, ensuring that the gear stays engaged with the lead screw threads.
4. Use the gear ratio charts to determine the proper gear ratio and install the proper gears (See “Gear Train” on page 15).
5. Turn the lathe on and set the RPM using the speed control knob. Make sure the lead screw is feeding in the proper direction by engaging the feed lever. When you are sure it is going in the right direction disengage the feed lever and turn off the lathe. Ensure that the carriage is beyond the end of the workpiece.
6. Read the settings off the thread dial chart (left) to get the proper setting for the thread dial. Make sure the

thread dial always engages the half nut on the same mark for every pass of the cutting tool. If you don't do this, you may cut off threads created in your previous cut. That is, the lever needs to be pushed down at the same point in order to cut threads correctly. If you engage the lever when the dial is not pointing to an indicator mark, you may stall the lead screw, which will cause it to drop into Neutral and stop.

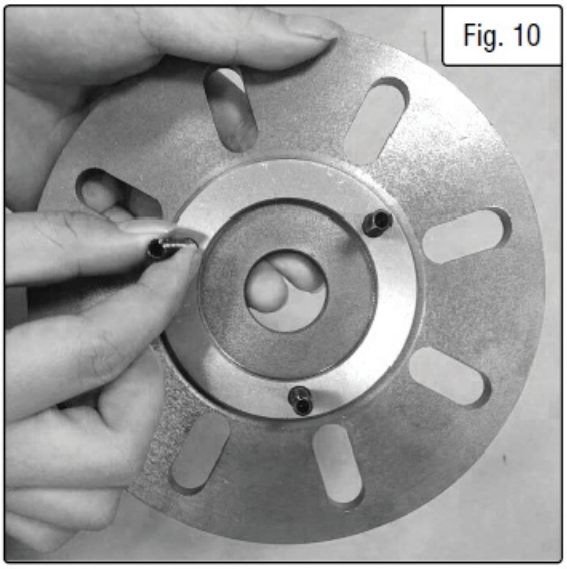
CHANGING THE JAWS IN YOUR CHUCK (FIG. 9)

1. Make sure your lathe is turned off and unplugged.
2. Insert the chuck key into the square hole of the chuck. Turn the chuck key counterclockwise until all of the jaws come out of the chuck.
3. Clean out each slot in the chuck making sure all dirt and debris are removed.
4. Each jaw has a number or letter (1, 2, 3 or A, B, C) that corresponds to a number in the slot.
5. Take Jaw #1 and insert the chuck key into the chuck. Turn the key clockwise while looking directly at the chuck so you can see inside the slot. You will see the beginning of a lead thread on the scroll of the chuck pass the opening, heading counter-clockwise.
6. Insert Jaw #1 into this slot and turn the chuck key until the thread engages the jaw.
7. Repeat these steps for jaws 2 and 3. Make sure to always insert the jaws in order.



REMOVING A CHUCK OR FACEPLATE (FIG. 10)

1. Turn off and unplug your lathe! It is recommended to place a piece of plywood over the bed underneath the spindle in order to protect the bed if you drop the chuck/faceplate.
2. Hold the chuck or faceplate with your hand while using a 10mm wrench with your other hand to loosen and remove the three hex nuts on the back of the spindle plate.
3. Pull the chuck/faceplate slowly off the spindle. It may be necessary to tap the back surface of the faceplate/chuck with a rubber mallet to get it off the spindle.
4. Make sure to keep track of the studs used for positioning the chuck/faceplate, and set the piece aside.



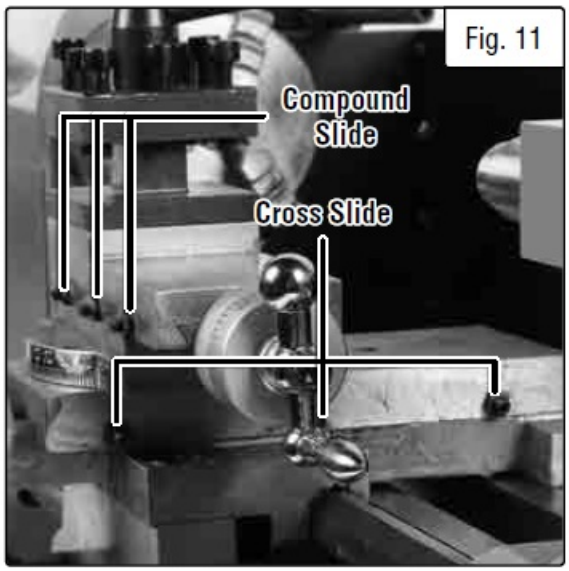
INSTALLING THE CHUCK OR FACEPLATE

1. Insert the guide studs into the chuck/faceplate you wish to install. To do this, make sure the studs extend at least ½" from the surface of the chuck/faceplate.
2. Align the studs with the holes on the spindle and secure the chuck/faceplate in place with the nuts using a 10mm wrench.

ADJUSTING THE GIBS

Although the factory setting should be fine, if you are having trouble feeding the compound or cross slide, you may want to adjust the gib screws. To adjust the gib you will need a 2mm hex wrench and a 7mm combination wrench. Follow these steps to adjust the gibs

1. Turn off and unplug the lathe.
2. Loosen the three locknuts.
3. Test the sliding movement. Tighten and loosen the set screws as necessary. The slides should move smoothly without play. Readjust the set screws as needed.
4. Tighten the locknuts to keep the gibs set



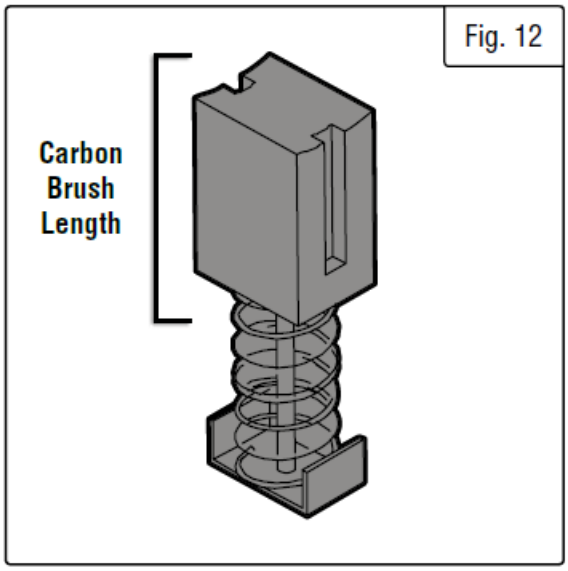
CHECKING AND REPLACING MOTOR BRUSHES
The wear on the carbon brushes depends on how frequently and how heavily the tool is used. To maintain maximum motor efficiency, we recommend inspecting the two carbon brushes every 50 hours of operation.

NOTE: Replacement carbon brushes (part no. 3455-137.1) can be ordered at **wenproducts.com** . Only genuine WEN replacement brushes designed specifically for your tool should be used. Carbon brushes are not covered under the two-year warranty.

To replace the brushes for the lathe's motor

1. Turn off and unplug the lathe.
2. Use a flat-head screwdriver to remove the front and rear brush caps from the motor. One can be accessed through the hole in the front of the bed. The other can be accessed from the back of the headstock, where the motor is exposed.
3. Remove the motor brushes and measure them. If they are worn down to 3/16" or less, replace them with new ones. If not, reinstall them in the motor.
4. Insert the new motor brushes. Ensure there is good contact between the new brushes and the motor commutator.
5. Reattach the brush caps.

NOTE: Both brushes should be replaced simultaneously.



MAINTENANCE

- Before each use make sure to check all of the parts of the lathe for any loose bolts or connections. Leave the gear cover on to prevent chips from interfering with the geartrain. Make any adjustments to connections as necessary to ensure all the parts are connected and will stay together during operation. Check all of the cutting tools to make sure they are sharp. If the edge is dull, or has any nicks or cuts, either sharpen it or replace it. Dull or damaged cutting tools are a hazard and should never be used.
- Every time you use your lathe, make sure to check that all work surfaces are clean and undamaged. If there are any chips or dents in the surface, work them out with an oil stone. Check that all of the moving parts pass over each smoothly and can be moved without any interference.
- Use your oil can to squirt a few drops of oil into the oilways of both bearings on the ends of the leadscrew. Do the same for the oil way on the compound slide. The opening for this oilway is located between the two hex

screws to adjust the slide.

- After use, make sure to clean away all metal shavings. Use a rag or brush to wipe away. It is recommended to wear gloves while doing this to prevent getting any small metal shavings stuck in your hand. Make sure to wipe all of the debris and dirt off the machine. Do not use an air compressor, as this can force shavings into the moving parts of the lathe and cause damage. Make sure to remove all cutting tools and store in a safe place. Once the lathe is clean it is recommended to lightly oil all of the surfaces to prevent any corrosion and keep the parts moving smoothly.

AFTER EACH USE

1. Clean all machine surfaces, including the chuck, and apply a thin layer of oil.
2. Put oil in each bearing on the lead screw.
3. Clean and oil the sliding surfaces of the bed, cross slide and compound slide.

EVERY 4 TO 6 MONTHS

1. Apply white lithium grease to the cross slide and compound slide lead screws.
2. Apply white lithium grease to all the drive gears.
3. Apply white lithium grease to the tailstock quill and screw.
4. Grease all of the transmission gears with a spray on grease.

TROUBLESHOOTING GUIDE

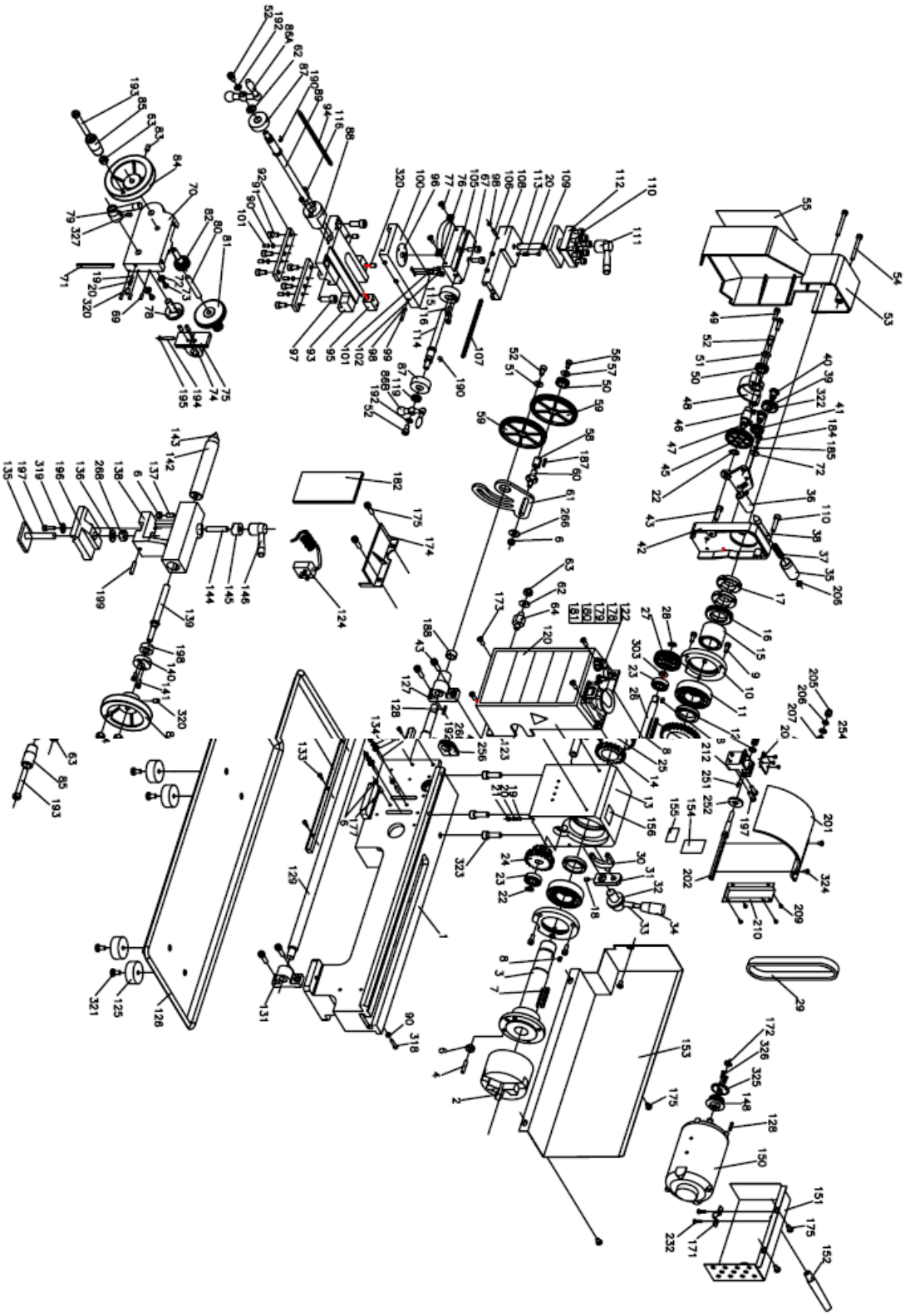
PROBLEM	CAUSE	SOLUTION
Machine won't start	1. Emergency button is stuck down.	1. Try and release the button or replace it.
	2. Fuse blown.	2. Replace fuse.
	3. Damaged wiring.	3. Check for any visible damage, and check with a multimeter for correct wiring.
	4. PCB board damaged.	4. Check PCB board for damage, replace if necess ary.
	5. Motor ON/OFF switch faulty.	5. Replace switch.
	6. Spindle directional switch is bad.	6. Replace switch.
	7. Motor is bad.	7. Test motor, repair or replace as needed.
	8. Brushes are bad.	8. Replace the brushes.
Machine stalls out during use	1. Material of workpiece is too hard.	1. Make sure the metal isn't too hard for the unit.
	2. PCB board is faulty.	2. Inspect and replace if necessary.
	3. Variable speed knob is bad.	3. Test and replace.
	4. Motor brushes are bad.	4. Replace brushes.
	5. Belt slipping on the pulley.	5. Tighten pulleys, replace if needed.
	6. Motor bearings went bad.	6. Test by rotating the shaft manually, grinding noise or loose shaft indicates need to replace.
	7. Machine is too small for the job.	7. Make sure cutting tools are sharp, use lower feed rate and lubricant. Decrease the spindle speed and DOC. If problem persists the tool may be too small.
	8. Spindle rotation switch is bad.	8. Test switch, replace if needed.
Grinding or clic king noise fro m headstock	1. Set screws in the pulley aren't tight.	1. Tighten set screws.
	2. Motor fan contacting cover.	2. Check fan connection, tighten if necessary, or re place fan/cover.
Motor overheat s	1. Motor is overloaded by work being d one.	1. Reduce load on the motor, lower the RPM, cuttin g depth and feed rates.
	2.Air circulation through motor is cut of f.	2. Clean all motor vents.
Motor bogs do wn during turn ing operation	1. Cut or feed rate too high.	1. Reduce cut and feed rate.
	2. RPM too high for the turning being d one.	2. Reduce RPM.
	3. Cutting tool is dull or damaged.	3. Sharpen or replace.
	4. Gears in the gear train are too tight.	4. Adjust the gears to have a very small amount of play. Test the chuck's rotation by hand.

PROBLEM	CAUSE	SOLUTION

Machine vibrates when started and when allowed to run	1. Workpiece unbalanced.	1. Center the workpiece and reinstall
	2. Loose or broken belts.	2. Tighten or replace.
	3. Pulleys misaligned.	3. Align pulleys.
	4. Broken gear.	4. Inspect the gears and replace if needed.
	5. Chuck or faceplate unbalanced.	5. Rebalance or replace if needed.
	6. Spindle bearings worn out.	6. Replace bearings.
Poor surface finish	1. Feed rate or RPM wrong.	1. Set the proper feed rate and RPM.
	2. Dull cutting tool.	2. Sharpen cutting tool.
	3. Too much play in gibs.	3. Tighten gibs (page 20).
	4. Cutting tool set too high.	4. Remove tool or use a smaller tool.
Can’t remove center or chuck from tailstock	1. Quill isn’t retracted completely into tailstock.	1. Turn the quill handle until the tool is forced out.
	2. Debris in the quill.	2. Always clean taper surfaces. Try and force out with WD40 and handle.
Cross slide, compound slide, or carriage have poor feed	1. Gibs are out of alignment.	1. Adjust gib screws (page 20).
	2. Handles are loose.	2. Tighten handles.
	3. Lead screw worn out or needs greasing.	3. Tighten fasteners on lead screw.
	4. Bedways are worn and need greasing.	4. Grease bedways.
	5. Dirt, shavings or grime in bedways.	5. Clean bedways.
Surface finish uneven from end to end	1. Headstock and tailstock are misaligned.	1. Realign the tailstock and headstock.
Chuck jaws getting stuck and hard to move	1. Debris in the chuck jaws.	1. Remove jaws and clean out the chuck threads, lubricate.
Carriage difficult to feed or won’t move	1. Gibs are too tight.	1. Loosen gibs.
	2. Chips or debris in the bedway.	2. Clean bedways.
	3. Carriage lock tightened down.	3. Release carriage lock.
	4. Bedways dry.	4. Lubricate bedway.
	5. Half nuts not engaged with lead screw.	5. Engage half nuts with lead screw.
	6. Gears broken.	6. Replace broken gears.
	7. Loose feed handles.	7. Tighten handle.
Gear change lever won’t shift	1. Gears misaligned.	1. Rotate spindle until the gears rotate into place.

EXPLODED VIEW & PARTS LIST

MODEL ML712



NO.	PART NO.	DESCRIPTION	QTY.
1	3455-001	Bed Way	1
2	3455-002	3 Jaws Chuck	1
3	3455-003	Spindle	1
4	3455-004	Set Screw M6x25	5

6	3455-005	Nut M6	10
7	3455-006	Key M5x40	1
8	3455-007	Key M4x8	2
9	3455-008	Screw M5x12	6
10	3455-009	Spindle Bearing Cover	2
11	3455-010	Ball Bearing 6206ZZ	2
12	3455-011	Spacer	2
13	3455-012	Headstock Casting	1
14	3455-013	High/Low Transmission Gear 21/29T	1
15	3455-014	Spacer	1
16	3455-015	Spur Gear 45T	1
17	3455-016	Nut M27-1.5	2
18	3455-017	Set Screw M5x8	1
19	3455-018	Steel Ball	2
20	3455-019	Compression Spring	3
21	3455-020	Set Screw M6x6	1
22	3455-021	Retaining Ring 12mm	2
23	3455-022	Ball Bearing 6001	2
24	3455-023	Transmission Gear 12T/20T	1
25	3455-024	Key M4x45	1
26	3455-025	H/L Gear Shaft	1
27	3455-026	Pulley	1
28	3455-027	Retaining Ring 10mm	1
29	3455-028	Timing Belt 136 (1.5×70)	1
30	3455-029	High/Low Shifting Fork	1
31	3455-030	High/Low Shifting Arm	1
32	3455-031	High/Low Shifting Knob	1
33	3455-032	High/Low Shifting Lever	1
34	3455-033	High/Low Shifting Grip	1
35	3455-034	Handle	1
36	3455-035	Handle Mount	1
37	3455-036	Compressive Spring	1
38	3455-037	Indicator	1

39	3455-038	Pinion 25T	1
40	3455-039	Support Screw	2
41	3455-040	Pinion 20T	1

NO.	PART NO.	DESCRIPTION	QTY.
42	3455-041	Headstock Cover	1
43	3455-042	Screw M6x20	5
45	3455-043	Gear 45T	1
46	3455-044	Shaft	1
47	3455-045	Key 4×8	1
48	3455-046	Mount	1
49	3455-047	Screw M5x18	2
50	3455-048	Pinion 20T	2
51	3455-049	Washer 6mm	2
52	3455-050	Screw M6x8	4
53	3455-051	Transmission Cover	1
54	3455-052	Screw M5x45	2
55	3455-053	TPI Cutting Chart	1
56	3455-054	Screw M5x8	1
57	3455-055	Washer 5mm	1
58	3455-056	Bushing With Key	1
59	3455-057	Gear 80T	2
60	3455-058	Shaft	1
61	3455-059	Support Plate	1
62	3455-060	Washer 8mm	2
63	3455-061	Nut M8	4
64	3455-062	Shaft	1
67	3455-063	Screw M5x16	2
69	3455-064	Screw M4x10	3
70	3455-065	Apron	1
71	3455-066	Gib Strip	1
72	3455-067	Washer 5mm	3
73	3455-068	Screw M4x8	2

74	3455-069	Shaft	2
75	3455-070	Half Nut Base	2
76	3455-071	Angle Block	1
77	3455-072	Screw M4x10	2
78	3455-073	Groove Cam	1
79	3455-074	Handle	1
80	3455-075	Shaft	1
81	3455-076	Feeding Gear (A) 11T/54T	1
82	3455-077	Feeding Gear (B) 24T	1
83	3455-078	Screw M6x10	1
84	3455-079	Handwheel	2
85	3455-080	Knob & Screw, M8x55 + Nut M8	2

NO.	**PART NO.**	**DESCRIPTION**	**QTY.**
86A	3455-081	Three-Ball Handle (Large)	1
86B	3455-082	Three-Ball Handle (Small)	1
87	ML712-087	Dial (Imperial)	2
88	ML712-088	Bracket (Imperial)	1
89	ML712-089	Feed Screw (Imperial)	1
90	3455-086	Nut M5	5
91	3455-087	Screw M6x12	6
92	3455-088	Slide Plate	2
93	3455-089	Saddle	1
94	3455-090	Gib Strip	1
95	ML712-095	Feed Nut (Imperial)	1
96	3455-092	Swivel Disk	1
97	3455-093	Screw M8x20	2
98	3455-094	Nut M4	8
99	3455-095	Screw M4x16	3
100	3455-096	Cross Slide	1
101	3455-097	Screw M5x10	5
102	3455-098	Screw M4x8	2
105	ML712-105	Compound Rest (Lower)	1

106	3455-100	Screw M4x14	3
107	3455-101	Gib Strip	1
108	3455-102	Compound Rest (Upper)	1
109	3455-103	Positioning Pin	1
110	3455-104	Screw M6x25	9
111	3455-105	Clamping Lever	1
112	3455-106	Tool Rest	1
113	3455-107	Stud M10x65	1
114	ML712-114	Cross Feed Screw (Imperial)	1
115	ML712-115	Bracket	1
116	3455-110	Screw M4x12	4
119	3455-111	Nut M18	1
120	3455-112	Main Label	1
122	3455-113	Information Label	1
123	3455-114	Electronics Cover	1
124	3455-115	Power Cord	1
125	3455-116	Rubber Foot	4
126	3455-117	Chip Tray	1
127	3455-118	Left Leadscrew Bracket	1
128	3455-119	Key 3×16	2
129	ML712-129	Leadscrew (Imperial)	1
131	3455-121	Right Leadscrew Bracket	1
133	3455-122	Screw M3x10	3
134	3455-123	Rack	1

NO.	PART NO.	DESCRIPTION	QTY.
135	3455-124	Clamp Plate	1
136	3455-125	Washer M10	1
137	3455-126	Screw M6x14	1
138	3455-127	Tailstock Casting	1
139	3455-128	Tailstock Screw	1
140	ML712-140	Bracket	1
141	3455-130	Screw M4x10	4

142	3455-131	Tailstock Quill	1
143	3455-132	Center	1
144	3455-133	Stud M8x40	1
145	3455-134	Clamp	1
146	3455-135	Handle	1
148	3455-136	Pulley	1
150	3455-137	Motor	1
N.P.	3455-137.1	Carbon Brushes, Set of 2	1
151	3455-138	Motor Cover	1
152	3455-139	Power Cord Strain Relief	1
153	3455-140	Rear Chip Guard	1
154	ML712-154	Feed Direction Label	1
155	3455-141	H/L Label	1
156	3455-143	Warning Label	1
N.P.	3455-144	Gear 30T	1
N.P.	3455-145	Gear 35T	1
N.P.	3455-146	Gear 40T	2
N.P.	3455-147	Gear 45T	1
N.P.	3455-148	Gear 50T	1
N.P.	3455-149	Gear 55T	1
N.P.	3455-150	Gear 57T	1
N.P.	3455-151	Gear 60T	1
N.P.	3455-152	Gear 65T	1
N.P.	3455-153	External Jaw Set	1
N.P.	ML712-119	Chuck Key	1
171	3455-155	Clamping Bracket	1
172	3455-156	Retaining Ring Ø8mm	1
173	3455-157	Screw M5x8	4
174	3455-158	Guard	1
175	3455-159	Screw M5x8	7
177	3455-160	Screw M6x20	2
178	ML712-178	Emergency Stop Switch	1
179	3455-162	Fuse Box	1

180	ML712-180	Variable Speed Control Knob	1
181	ML712-181	Toggle Switch	1
182	3455-165	PCB, 120V	1

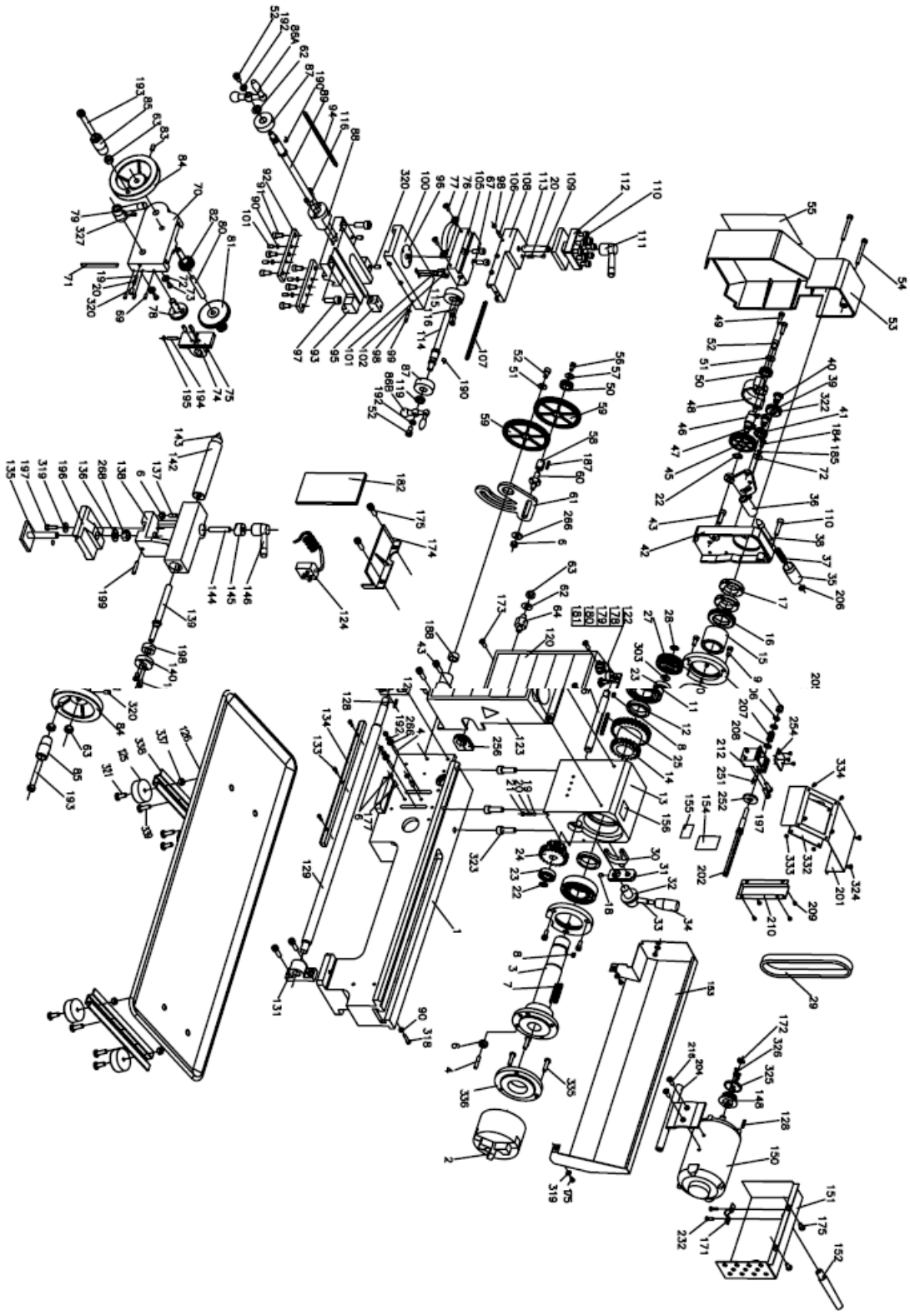
NO.	PART NO.	DESCRIPTION	QTY.
184	3455-166	Screw M5x10	1
185	3455-167	Spring Washer, 5mm	1
187	3455-168	Key 3×16	1
188	3455-169	Small Spacer	1
190	3455-170	Spring	2
192	3455-171	Washer 6mm	4
193	3455-172	Screw M8x55	2
194	3455-173	Screw M4x38	1
195	3455-174	Nut M4	1
196	3455-175	Tailstock Base Plate	1
197	3455-176	Screw M5x16	3
198	3455-177	Sleeve	1
199	3455-178	Screw M5x25	1
201	3455-179	Chuck Guard	1
202	3455-180	Shaft	1
205	3455-181	Cap Nut M6	1
206	3455-182	Hex Nut M6	2
207	3455-183	Compression Spring	1
208	3455-184	Washer 6mm	2
209	3455-185	Screw M3x4	4
210	3455-186	Switch Cover	1
212	3455-187	Block	1
232	3455-188	Screw, M4x6	2

NO.	PART NO.	DESCRIPTION	QTY.
251	3455-194	Cylinder Pin, 3x8mm	1
253	3455-195	Self-tapping Screw, ST2.9×4.5	3
254	3455-196	Cover	1
256	3455-198	Dust Cover	1
257	3455-199	Lead Screw Cover	1
258	3455-200	Washer 4mm	3
266	3455-201	Washer 6mm	3
268	3455-202	Hex Nut M10	1
270	3455-203	Support Pin	1
272	3455-204	Protective Cover	1
303	3455-205	Washer 10mm	1
318	3455-206	Screw M5x20	1
319	3455-207	Washer 5mm	1
320	3455-208	Screw M6x10	4
321	3455-209	Screw M6x16	4
322	3455-210	Key, 3x6mm	1
323	3455-211	Screw M8x25	3
324	3455-212	Screw M4x8	2
325	3455-213	Flange	1
326	3455-214	Self-tapping Screw, ST2.9×9.5	2
327	3455-215	Screw M6x8	1

NOTE: Parts that wear down over the course of normal use (like saw blades, carbon brushes, etc.) are not covered by the two-year warranty.

NOTE: Not all parts may be available for purchase.

MODEL ML716



NO.	PART NO.	DESCRIPTION	QTY.
1	ML716-001	Bed Way	1
2	ML716-002	3 Jaws Chuck	1
3	3455-003	Spindle	1
4	3455-004	Set Screw M6x25	5
6	3455-005	Nut M6	10
7	3455-006	Key M5x40	1

8	3455-007	Key M4x8	2
9	3455-008	Screw M5x12	6
10	3455-009	Spindle Bearing Cover	2
11	3455-010	Ball Bearing 6206ZZ	2
12	3455-011	Spacer	2
13	3455-012	Headstock Casting	1
14	3455-013	High/Low Transmission Gear 21/29T	1
15	3455-014	Spacer	1
16	3455-015	Spur Gear 45T	1
17	3455-016	Nut M27-1.5	2
18	3455-017	Set Screw M5x8	1
19	3455-018	Steel Ball	2
20	3455-019	Compression Spring	3
21	3455-020	Set Screw M6x6	1
22	3455-021	Retaining Ring 12mm	2
23	3455-022	Ball Bearing 6001	2
24	3455-023	Transmission Gear 12T/20T	1
25	3455-024	Key M4x45	1
26	3455-025	H/L Gear Shaft	1
27	3455-026	Pulley	1
28	3455-027	Retaining Ring 10mm	1
29	3455-028	Timing Belt 136 (1.5×70)	1
30	3455-029	High/Low Shifting Fork	1
31	3455-030	High/Low Shifting Arm	1
32	3455-031	High/Low Shifting Knob	1
33	3455-032	High/Low Shifting Lever	1
34	3455-033	High/Low Shifting Grip	1
35	3455-034	Handle	1
36	3455-035	Handle Mount	1
37	3455-036	Compressive Spring	1
38	3455-037	Indicator	1
39	3455-038	Pinion 25T	1
40	3455-039	Support Screw	2

41	3455-040	Pinion 20T	1

NO.	PART NO.	DESCRIPTION	QTY.
42	3455-041	Headstock Cover	1
43	3455-042	Screw M6x20	5
45	3455-043	Gear 45T	1
46	3455-044	Shaft	1
47	3455-045	Key 4×8	1
48	3455-046	Mount	1
49	3455-047	Screw M5x18	2
50	3455-048	Pinion 20T	2
51	3455-049	Washer 6mm	2
52	3455-050	Screw M6x8	4
53	3455-051	Transmission Cover	1
54	3455-052	Screw M5x45	2
55	3455-053	TPI Cutting Chart	1
56	3455-054	Screw M5x8	1
57	3455-055	Washer 5mm	1
58	3455-056	Bushing With Key	1
59	3455-057	Gear 80T	2
60	3455-058	Shaft	1
61	3455-059	Support Plate	1
62	3455-060	Washer 8mm	2
63	3455-061	Nut M8	4
64	3455-062	Shaft	1
67	3455-063	Screw M5x16	2
69	3455-064	Screw M4x10	3
70	3455-065	Apron	1
71	3455-066	Gib Strip	1
72	3455-067	Washer 5mm	3
73	3455-068	Screw M4x8	2
74	3455-069	Shaft	2
75	3455-070	Half Nut Base	2

76	3455-071	Angle Block	1
77	3455-072	Screw M4x10	2
78	3455-073	Groove Cam	1
79	3455-074	Handle	1
80	3455-075	Shaft	1
81	3455-076	Feeding Gear (A) 11T/54T	1
82	3455-077	Feeding Gear (B) 24T	1
83	3455-078	Screw M6x10	1
84	3455-079	Handwheel	2
85	3455-080	Knob & Screw, M8x55 + Nut M8	2

NO.	PART NO.	DESCRIPTION	QTY.
86A	3455-081	Three-Ball Handle (Large)	1
86B	3455-082	Three-Ball Handle (Small)	1
87	ML712-087	Dial (Imperial)	2
88	ML712-088	Bracket (Imperial)	1
89	ML712-089	Feed Screw (Imperial)	1
90	3455-086	Nut M5	5
91	3455-087	Screw M6x12	6
92	3455-088	Slide Plate	2
93	3455-089	Saddle	1
94	3455-090	Gib Strip	1
95	ML712-095	Feed Nut (Imperial)	1
96	3455-092	Swivel Disk	1
97	3455-093	Screw M8x20	2
98	3455-094	Nut M4	8
99	3455-095	Screw M4x16	3
100	3455-096	Cross Slide	1
101	3455-097	Screw M5x10	5
102	3455-098	Screw M4x8	2
105	ML712-105	Compound Rest (Lower)	1
106	3455-100	Screw M4x14	3
107	3455-101	Gib Strip	1

108	3455-102	Compound Rest (Upper)	1
109	3455-103	Positioning Pin	1
110	3455-104	Screw M6x25	9
111	3455-105	Clamping Lever	1
112	3455-106	Tool Rest	1
113	3455-107	Stud M10x65	1
114	ML712-114	Cross Feed Screw (Imperial)	1
115	ML712-115	Bracket	1
116	3455-110	Screw M4x12	4
119	3455-111	Nut M18	1
120	3455-112	Main Label	1
122	ML716-122	Information Label	1
123	ML716-123	Electronics Cover	1
124	3455-115	Power Cord	1
125	ML716-125	Rubber Foot	4
126	ML716-126	Chip Tray	1
127	3455-118	Left Leadscrew Bracket	1
128	3455-119	Key 3×16	2
129	ML716-129	Leadscrew (Imperial)	1
131	3455-121	Right Leadscrew Bracket	1
133	3455-122	Screw M3x10	3
134	ML716-134	Rack	

NO.	**PART NO.**	**DESCRIPTION**	**QTY.**
135	3455-124	Clamp Plate	1
136	3455-125	Washer M10	1
137	3455-126	Screw M6x14	1
138	3455-127	Tailstock Casting	1
139	3455-128	Tailstock Screw	1
140	ML712-140	Bracket	1
141	3455-130	Screw M4x10	4
142	3455-131	Tailstock Quill	1

143	3455-132	Center	1
144	3455-133	Stud M8x40	1
145	3455-134	Clamp	1
146	3455-135	Handle	1
148	3455-136	Pulley	1
150	3455-137	Motor	1
N.P.	3455-137.1	Carbon Brushes, Set of 2	1
151	3455-138	Motor Cover	1
152	3455-139	Power Cord Strain Relief	1
153	ML716-153	Rear Chip Guard	1
154	ML712-154	Feed Direction Label	1
155	3455-141	H/L Label	1
156	3455-143	Warning Label	1
N.P.	3455-144	Gear 30T	1
N.P.	3455-145	Gear 35T	1
N.P.	3455-146	Gear 40T	2
N.P.	3455-043	Gear 45T	1
N.P.	3455-148	Gear 50T	1
N.P.	3455-149	Gear 55T	1
N.P.	3455-150	Gear 57T	1
N.P.	3455-151	Gear 60T	1
N.P.	3455-152	Gear 65T	1
N.P.	3455-153	External Jaw Set	1
N.P.	ML712-119	Chuck Key	1
171	3455-155	Clamping Bracket	1
172	3455-156	Retaining Ring Ø8mm	1
173	3455-157	Screw M5x8	4
174	3455-158	Guard	1
175	3455-159	Screw M5x8	7
177	3455-160	Screw M6x20	2
178	ML712-178	Emergency Stop Switch	1
179	3455-162	Fuse Box	1
180	ML712-180	Variable Speed Control Knob	1

181	ML712-181	Toggle Switch	1
182	3455-165	PCB, 120V	1

NO.	PART NO.	DESCRIPTION	QTY.
184	3455-166	Screw M5x10	1
185	3455-167	Spring Washer, 5mm	1
187	3455-168	Key 3×16	1
188	3455-169	Small Spacer	1
190	3455-170	Spring	2
192	3455-171	Washer 6mm	4
193	3455-172	Screw M8x55	2
194	3455-173	Screw M4x38	1
195	3455-174	Nut M4	1
196	3455-175	Tailstock Base Plate	1
197	3455-176	Screw M5x16	3
198	3455-177	Sleeve	1
199	3455-178	Screw M5x25	1
201	ML716-201	Chuck Guard	1
202	3455-180	Shaft	1
204	ML716-204	Motor Base	1
205	3455-181	Cap Nut M6	1
206	3455-182	Hex Nut M6	2
207	3455-183	Compression Spring	1
208	3455-184	Washer 6mm	2
209	3455-185	Screw M3x4	4
210	3455-186	Switch Cover	1
212	3455-187	Block	1
232	3455-188	Screw, M4x6	7
251	3455-194	Cylinder Pin, 3x8mm	1
253	3455-195	Self-tapping Screw, ST2.9×4.5	3
254	3455-196	Cover	1

NO.	PART NO.	DESCRIPTION	QTY.
256	3455-198	Dust Cover	1
257	3455-199	Lead Screw Cover	1
258	3455-200	Washer 4mm	3
266	3455-201	Washer 6mm	3
268	3455-202	Hex Nut M10	1
270	3455-203	Support Pin	1
272	3455-204	Protective Cover	1
303	3455-205	Washer 10mm	1
318	3455-206	Screw M5x20	1
319	3455-207	Washer 5mm	1
320	3455-208	Screw M6x10	4
321	3455-209	Screw M6x16	4
322	3455-210	Key, 3x6mm	1
323	3455-211	Screw M8x25	3
324	3455-212	Screw M4x8	2
325	3455-213	Flange	1
326	3455-214	Self-tapping Screw, ST2.9×9.5	2
327	3455-215	Screw M6x8	1
331	ML716-331	Bolt, M8x30	3
332	ML716-332	Protective Plate	1
333	ML716-333	Nut, M3	4
334	ML716-334	Screw, M3x6	4
335	ML716-335	Bolt, M8x30	3
336	ML716-336	Chuck Plate	1
337	ML716-337	Hex Nut	4
338	ML716-338	Tray Bracket	2
339	ML716-339	Screw, M6x20	8

NOTE: Parts that wear down over the course of normal use (like saw blades, carbon brushes, etc.) are not covered by the two-year warranty.

NOTE: Not all parts may be available for purchase.

WARRANTY STATEMENT

WEN Products is committed to building tools that are dependable for years. Our warranties are consistent with this commitment and our dedication to quality.

LIMITED WARRANTY OF WEN PRODUCTS FOR HOME USE

GREAT LAKES TECHNOLOGIES, LLC (“Seller”) warrants to the original purchaser only, that all WEN consumer power tools will be free from defects in material or workmanship during personal use for a period of two (2) years used for professional or commercial use. Purchaser has 30 days from the date of purchase to report missing or damaged parts.

SELLER’S SOLE OBLIGATION AND YOUR EXCLUSIVE REMEDY under this Limited Warranty and, to the extent permitted by law, any warranty or condition implied by law, shall be the replacement of parts, without charge, which are defective in material or workmanship and which have not been subjected to misuse, alteration, careless handling, disrepair, abuse, neglect, normal wear and tear, improper maintenance, or other conditions adversely affecting the Product or the component of the Product, whether by accident or intentionally, by persons other than Seller. To make a claim under this Limited Warranty, you must make sure to keep a copy of your proof of purchase that clearly dor of Great Lakes Technologies, LLC. Purchasing through third party vendors, including but not limited to garage sales, pawn shops, resale shops, or any other secondhand merchant, voids the warranty included with this product. Contact **techsupport@wenproducts.com** or 1-**847-429-9263** with the following information to make arrangements: your shipping address, phone number, serial number, required part numbers, and proof of purchase. Damaged or defective parts and products may need to be sent to WEN before the replacements can be shipped out. turning a product for warranty service, the shipping charges must be prepaid by the purchaser. The product must be shipped in its original container (or an equivalent), properly packed to withstand the hazards of shipment. The product must be fully insured with a copy of the proof of purchase enclosed. There must also be a description of the
will be returned and shipped back to the purchaser at no charge for addresses within the contiguous United States.

THIS LIMITED WARRANTY DOES NOT APPLY TO ITEMS THAT WEAR OUT FROM REGULAR USAGE OVER TIME, INCLUDING BELTS, BRUSHES, BLADES, BATTERIES, ETC. ANY IMPLIED WARRANTIES SHALL BE LIMITED INDURATION TO TWO (2) YEARS FROM DATE OF PURCHASE. SOME STATES IN THE U.S. AND SOME CANADIAN PROVINCES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LIABILITY FOR LOSS OF PROFITS) ARISING FROM THE SALE OR USE OF THIS PRODUCT. SOME STATES IN THE U.S. AND SOME CANADIAN PROVINCES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION

OR EXCLUSION MAY NOT APPLY TO YOU.
THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE IN THE U.S., PROVINCE TO PROVINCE IN CANADA AND FROM COUNTRY TO COUNTRY.

THIS LIMITED WARRANTY APPLIES ONLY TO ITEMS SOLD WITHIN THE UNITED STATES OF AMERICA, CANA-DA AND THE COMMONWEALTH OF PUERTO RICO. FOR WARRANTY COVERAGE WITHIN OTHER COUNTRIES, CONTACT THE WEN CUSTOMER SUPPORT LINE. FOR WARRANTY PARTS OR PRODUCTS REPAIRED UNDER WARRANTY SHIPPING TO ADDRESSES OUTSIDE OF THE CONTIGUOUS UNITED STATES, ADDITIONAL SHIPPING CHARGES MAY APPLY.

Documents / Resources

	[WEN ML712 Variable Speed Benchtop Metal Lathe] [pdf] Instruction Manual ML712, ML716, ML712 Variable Speed Benchtop Metal Lathe, ML712, Variable Speed Benchtop Metal Lathe, Speed Benchtop Metal Lathe, Benchtop Metal Lathe, Metal Lathe, Lathe

References

- WEN - Shop Generators, Woodworking Tools, and Power Tools — WEN Products
- User Manual