

carbatec®



**WL-B1420P  
CARBATEC DELUXE  
ELECTRONIC VARIABLE SPEED  
MIDI LATHE  
INSTRUCTIONS MANUAL**

[carbatec.com.au](http://carbatec.com.au)

**2** YEAR  
WARRANTY

# THANK YOU FOR CHOOSING carbatec®

Carbatec has been a trusted brand for woodworking enthusiasts and professionals across Australia and New Zealand, since 1987.

Our quality woodworking products are designed and built to offer value and performance, making the latest features and technological advancements more accessible to Aussie woodworkers.

Backed by our no-fuss after-sales care and warranty support, you can trust Carbatec to keep you woodworking, as promised.

**We look forward to sharing in your woodworking journey!**

If you have any questions about our products or service, please call us on 1800 658 111 or email us at [info@carbatec.com.au](mailto:info@carbatec.com.au)

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# WHAT'S IN THE BOX

The following items are provided in one shipping carton:



## WL-B1420P CARBATEC DELUXE ELECTRONIC VARIABLE SPEED MIDI LATHE

- |   |  |
|---|--|
| <b>A.</b> Lathe with face plate and tailstock installed × 1 | <b>E.</b> Banjo × 1                                  |
| <b>B.</b> Tool Rest × 1                                     | <b>F.</b> Allen Keys suited to machine × 4           |
| <b>C.</b> Live Centre and Drive Centre × 1 each             | <b>G.</b> Rubber Feet × 4                            |
| <b>D.</b> Tool shelves × 2                                  | <b>H.</b> Knock-out bar and Spindle Spanner × 1 each |

This lathe will require a minimal amount of assembly.

1. Remove parts from carton and lay them on a clean work surface.
2. Remove any protective materials and coatings from the machine and from all of the parts. The protective coatings can be removed by spraying WD-40 on them and wiping it off with a soft cloth. This may need to be redone several times before all of the protective coatings are removed completely.
3. Compare the items above to verify that all items are accounted for before discarding the shipping box.

### CAUTION

**DO NOT** use acetone, gasoline or lacquer thinner to remove any protective coatings.

### WARNING


If any parts are missing, do not attempt to plug in the power cord and turn "ON" the machine. The machine can only be turned "ON" after all the parts have been installed correctly.

# IMPORTANT

**DUST COLLECTION:** All woodworking machines require effective dust extraction to ensure quality work and longevity of the machine itself. Failure to connect your machine to a suitable dust collector may affect your warranty. The collector required for your machine will depend on several factors including the type of machine and its dust port connection, distance between collector and machine, type and frequency of use and the material being worked. We recommend a dust collector that will provide you a minimum airflow of 500-CFM when measured at the machine connection.

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Key information can be found on the inspection panel, found on the rear of the machine.



**QUALITY INSPECTED**

Model:
Voltage
Freq:
Phase:
Amp:
kW:
Speed:
Lot No.:
Serial No.:
Date:

Made in China for:  
**CARBATEC PTY LTD**  
Brisbane - Australia





Record the serial number and date of purchase in your manual for future reference.

SERIAL NUMBER:

.....

DATE OF PURCHASE:

.....

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**NOTE:** The specifications, photographs, drawings and information in this manual represent the current machine model when the manual was prepared. Changes and improvements may be made at any time, with no obligation on the part of Carbatec to modify previously delivered units. Reasonable care has been taken to ensure that the information in this manual is correct, to provide you with the guidelines for the proper safety, assembly and operation of this machine.

# SAFETY INSTRUCTIONS

**IMPORTANT!** Safety is the single most important consideration in the operation of this equipment. The following instructions must be followed at all times. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury. There are certain applications for which this tool was designed. We strongly recommend that this tool not be modified and/or used for any other application other than that for which it was designed. If you have any questions about its application, do not use the tool until you have contacted us and we have advised you.

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols and the explanations with them deserve your careful attention and understanding. The symbol warnings do not, by themselves, eliminate any danger. The instructions and warnings they give are no substitutes for proper accident prevention measures.



**WARNING**

Be sure to read and understand all safety instructions in this manual, including all safety alert symbols such as "DANGER," "WARNING," and "CAUTION" before using this tool. Failure to following all instructions listed below may result in electric shock, fire, and/or serious personal injury.

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## SYMBOL MEANING



A safety alert symbol Indicates **DANGER, WARNING, or CAUTION.** May be used in conjunction with other symbols or pictographs.



**DANGER**

Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.



**WARNING**

Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.



**CAUTION**

Indicates a potentially hazardous situation, which, if not avoided, could result in minor or moderate injury.

**NOTICE**

(Without Safety Alert Symbol) Indicates a situation that may result in property damage.



Carbatec products bearing the Regulatory Compliance Mark (RCM) have been tested in accordance with applicable Australian/New Zealand Standards to ensure their compliance with all mandatory standards and regulations (applicable at time of original sale). Carbatec Pty Ltd are registered as a responsible supplier with relevant Australian government departments and our products are registered on the EESS & ACMA database.

# GENERAL SAFETY

Operating a power tool can be dangerous if safety and common sense are ignored. The operator must be familiar with the operation of this machine. Read this manual to understand this machine. **DO NOT OPERATE** this machine **IF YOU DO NOT FULLY UNDERSTAND** the limitations of this tool. **DO NOT MODIFY** this machine in any way.

## BEFORE USING THIS MACHINE



### WARNING

To avoid serious injury and damage to the tool, read and follow all of the Safety and Operating Instructions before operating the machine.



### WARNING

- SOME DUST CREATED BY USING POWER TOOLS CONTAINS CHEMICALS** known to cause cancer, birth defects, or other reproductive harm. 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 and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.
- READ** this entire manual. **LEARN** how to use the tool for its intended applications.

- GROUND ALL TOOLS.** If the tool is supplied with a 3-prong plug, it must be plugged into a 3-contact electrical receptacle. The third prong is used to ground the tool and provide protection against accidental electric shock.
- AVOID A DANGEROUS WORKING ENVIRONMENT.** Do not use electrical tools in a damp environment or expose them to rain.
- DO NOT USE** electrical tools in the presence of **FLAMMABLE** liquids or gases.
- ALWAYS KEEP THE AREA CLEAN,** well lit, and organized. Do not work in an environment with floor surfaces that are slippery from debris, grease, and wax.
- KEEP VISITORS AND CHILDREN AWAY.** Do not permit people to be in the immediate work area, especially when the electrical tool is operating.
- DO NOT FORCE THE TOOL** to perform an operation for which it was not designed. It will do a safer and higher quality job by only performing operations for which the tool was intended.
- WEAR PROPER CLOTHING.** Do not wear loose clothing, gloves, neckties, or jewellery. These items can get caught in the machine during operations and pull the operator into the moving parts. The user must wear a protective cover on their hair, if hair is long, to prevent it from contacting any moving parts.
- CHILDPROOF THE WORKSHOP AREA** by removing switch keys, unplugging tools from the electrical receptacles, and using padlocks.

## GENERAL SAFETY

- 11. ALWAYS UNPLUG THE TOOL FROM THE ELECTRICAL RECEPTACLE**  
when making adjustments, changing parts or performing any maintenance.
- 12. KEEP PROTECTIVE GUARDS IN PLACE AND IN WORKING ORDER.**
- 13. AVOID ACCIDENTAL STARTING.** Make sure that the power switch is in the "OFF" position before plugging in the power cord to the electrical receptacle.
- 14. REMOVE ALL MAINTENANCE TOOLS** from the immediate area prior to turning "ON" the machine.
- 15. USE ONLY RECOMMENDED ACCESSORIES.** Use of incorrect or improper accessories could cause serious injury to the operator and cause damage to the tool. If in doubt, check the instruction manual that comes with that particular accessory.
- 16. NEVER LEAVE A RUNNING TOOL UNATTENDED.** Turn the power switch to the "OFF" position. Do not leave the tool until it has come to a complete stop.
- 17. DO NOT STAND ON A TOOL.** Serious injury could result if the tool tips over, or you accidentally contact the tool.
- 18. DO NOT STORE ANYTHING ABOVE OR NEAR** the tool where anyone might try to stand on the tool to reach it.
- 19. MAINTAIN YOUR BALANCE.** Do not extend yourself over the tool. Wear oil resistant rubber soled shoes. Keep floor clear of debris, grease, and wax.
- 20. MAINTAIN TOOLS WITH CARE.** Always keep tools clean and in good working order. Keep all blades and tool bits sharp, dress grinding wheels and change other abrasive accessories when worn.
- 21. EACH AND EVERY TIME, CHECK FOR DAMAGED PARTS PRIOR TO USING THE TOOL.** Carefully check all guards to see that they operate properly, are not damaged, and perform their intended functions. Check for alignment, binding or breaking of moving parts. A guard or other part that is damaged should be immediately repaired or replaced.
- 22. DO NOT OPERATE TOOL WHILE TIRED, OR UNDER THE INFLUENCE OF DRUGS, MEDICATION OR ALCOHOL.**
- 23. SECURE ALL WORK.** Use clamps or jigs to secure the work piece. This is safer than attempting to hold the work piece with your hands.
- 24. STAY ALERT, WATCH WHAT YOU ARE DOING, AND USE COMMON SENSE WHEN OPERATING A POWER TOOL.** A moment of inattention while operating power tools may result in serious personal injury.
- 25. USE A PROPER EXTENSION CORD IN GOOD CONDITION.** Use of extension cords should be avoided where possible. When using an extension cord, be sure to have a cord heavy enough to carry the current your product will draw, and with compatible pin configuration and connections (NEVER use an extension cord rated at less than your machine). Longer run extensions will need heavier duty extension cords. Only connect your extension cord or machine to a receptacle that accepts your plug and never modify your plug to suit a receptacle.



**26. ALWAYS WEAR A DUST MASK TO PREVENT INHALING DANGEROUS DUST OR AIRBORNE PARTICLES**, including wood dust, crystalline silica dust and asbestos dust. Direct particles away from face and body. Always operate tool in well ventilated area and provide for proper dust removal. Use dust collection system wherever possible. Exposure to dust may cause serious and permanent respiratory or other injury,

including silicosis (a serious lung disease), cancer, and death. Avoid breathing dust, and avoid prolonged contact with dust. Allowing dust to get into your mouth or eyes, or lay on your skin may promote absorption of harmful material. Always use properly fitting AS/NZS approved respiratory protection appropriate for the dust exposure, and wash exposed areas with soap and water.

**NOTE:** According to the applicable product liability law, the manufacturer of this device is not liable for damages which arise on or in connection with this device in case of:

- Improper handling
- Non-compliance with the instructions for use
- Repairs by third party, non authorised skilled workers
- Installation and replacement of non-genuine spare parts
- Improper use



**WARNING**

The device and packaging materials are not toys!  
 Children must not be allowed to play with plastic bags, film and small parts!  
 There is a risk of swallowing and suffocation!

**RECOMMENDATIONS:**

- Read the entire text of the operating instructions prior to the assembly and operation of the device. These operating instructions are intended to make it easier for you to get familiar with your device and utilise its intended possibilities of use.
- The operating instructions contain important notes on how to work safely with your machine and how to avoid dangers, and increase the reliability and working life of the machine.
- Retain and store these instructions near the machine. The instructions must be read and carefully observed by each operator prior to starting the work.
- In addition to the safety notes contained in the present operating instructions and the special regulations of your country, the generally recognised technical rules for the operation of woodworking machines must be observed.

## INTENDED USE

- The machine must only be used in technically perfect condition in accordance with its designated use and the instructions set out in the operating manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately. The safety, work and maintenance instructions of the manufacturer as well as the technical data given in the calibrations and dimensions must be adhered to.
- Relevant accident prevention regulations and other, generally recognised safety-technical rules must also be adhered to.
- The machine may only be used, maintained, and operated by persons familiar with it and instructed in its operation and procedures. Arbitrary alterations to the machine release the manufacturer from all responsibility for any resulting damages.
- The machine may only be used with original accessories and tools made by or recommended by the manufacturer.
- Any other use exceeds authorisation. The manufacturer is not responsible for any damages resulting from unauthorized use; risk is the sole responsibility of the operator.

## SAFETY FOR LATHES

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 injury or death, anyone operating this machine must completely heed the hazards and warnings below.

**Workpiece must be free of knots, splits, nails, or foreign material** to ensure it can safely rotate on spindle without breaking apart or causing tool kickback.

**Rough cut the workpiece** as close as possible to the finished shape before mounting it.

**Secure locks.** Verify tool rest, headstock, and tailstock are secure before turning lathe ON.

**Securely fasten the workpiece** to the face plate prior to turning. Use the appropriate size face plate and high-quality fasteners with non-tapered heads for face plate attachment.

**Adjust tool rest.** An improperly supported tool may be grabbed or ejected. Adjust tool rest approximately 1/4" away from workpiece and 1/8" above workpiece centre line. 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.

**Never drive the workpiece into the drive centre while the drive centre is in the headstock.** Set the drive centre into the workpiece with a soft mallet prior to installing it on the headstock.

**Never perform layout, assembly, or set-up work on the table/work area when the machine is running.**

**Snug the tailstock centre** against the workpiece and lock it. Lubricate the tailstock centre if it is not a ball bearing centre.

**Examine the set-up** carefully before turning the machine ON.

**Stand clear** and keep all observers and passerby clear of rotating path of workpiece to avoid injury from flying debris.

**Never adjust the tool rest** while the workpiece is turning.

**Never loosen the tailstock** spindle or the tailstock while the workpiece is turning.

**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.

**Always wear a face shield and safety glasses** when operating lathe. Do not wear gloves, necktie or loose clothing. Retain hair with a hair band or similar if required.

**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.

**Safely perform roughing.** Use correct tool. Take light cuts, use low speeds, and firmly support tool with both hands.

**Use sharp tools** that cut with less resistance than dull tools. Using dull tools increases the risk of tool kickback or grabbing.

**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.

**Turn the lathe OFF and disconnect it from the power source** before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.

**WARNING**

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.

# ELECTRICAL SAFETY

## WARNING

**This tool must be grounded while in use to protect the operator from electric shock. IN THE EVENT OF A MALFUNCTION OR BREAKDOWN,** grounding provides the path of least resistance for electric current and reduces the risk of electric shock. This tool may be equipped with an electric cord that has an equipment grounding conductor and a grounding plug. **The plug MUST Be plugged** into a matching electrical receptacle that is properly installed and grounded in accordance with **ALL** local codes and ordinances.

### **DO NOT MODIFY THE PLUG PROVIDED.**

If it will not fit the electrical receptacle, have the proper electrical receptacle installed by a qualified electrician.

**IMPROPER ELECTRICAL CONNECTION** of the equipment grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. **DO NOT** connect the equipment grounding conductor to a live terminal if repair or replacement of the electric cord or plug is necessary.

### **CHECK WITH A QUALIFIED ELECTRICIAN**

or service personnel if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

**Use only a 3-wire extension cord that has a 3-prong grounding plug and a 3-pole receptacle that accepts the tool's plug. Replace a damaged or worn cord immediately.**

Power tools and machinery are intended for use on a circuit that has an electrical receptacle as shown in **FIGURE A** that shows a 10 Amp 3-wire electrical plug and corresponding electrical receptacle that has a grounding conductor.

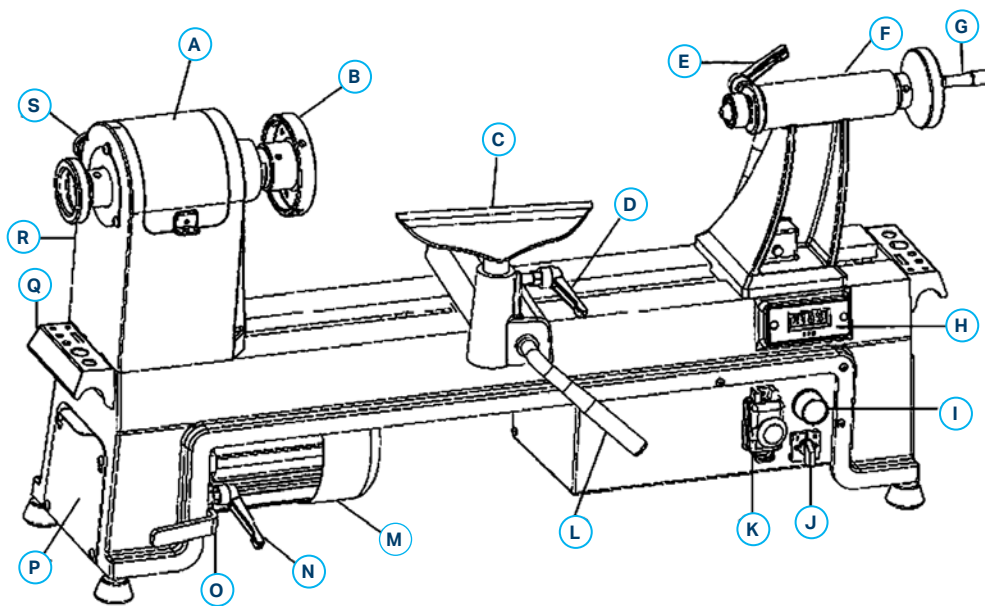
If this particular tool has been designed and fitted with a two prong electrical plug, ensure it displays the 'Double Insulated' logo shown in **FIGURE B**, before connecting to a 3-wire receptacle.

## WARNING

**Never modify the standard fitted electrical plugs to fit your receptacle.**



# OVERVIEW



## WL-B1420P CARBATEC DELUXE ELECTRONIC VARIABLE SPEED MIDI LATHE

- |                                    |   |
|------------------------------------|---|
| <b>A.</b> Belt drive access panel  | <b>K.</b> ON/OFF switch                 |
| <b>B.</b> Face plate               | <b>L.</b> Toolrest base locking handle  |
| <b>C.</b> Tool rest                | <b>M.</b> Motor                         |
| <b>D.</b> Tool rest locking handle | <b>N.</b> Belt tension locking handle   |
| <b>E.</b> Quill Locking handle     | <b>O.</b> Motor plate tensioning handle |
| <b>F.</b> Tailstock                | <b>P.</b> Lower belt drive access plate |
| <b>G.</b> Tailstock handle         | <b>Q.</b> Accessory holder/Tool Shelf   |
| <b>H.</b> Digital RPM readout      | <b>R.</b> Headstock                     |
| <b>I.</b> Speed adjustment knob    | <b>S.</b> Spindle lock (backside)       |
| <b>J.</b> Forward/Reverse switch   |   |

## SPECIFICATIONS

<b>CODE</b>	WL-B1420P
<b>BRAND</b>	Carbatec
<b>MODEL</b>	Electronic Variable Speed with Digital Readout Deluxe Midi Lathe
<b>MOTOR</b>	1 HP (750 W) induction motor with Delta VFD
<b>SPEED</b>	50-3200 RPM with exceptional torque
<b>SPINDLE THREAD</b>	1" × 8 TPI
<b>SWING OVER BED CAPACITY</b>	355 mm (14")
<b>BETWEEN Centre CAPACITY</b>	510 mm (20")
<b>INDEXING CAPACITY</b>	24 positions
<b>MORSE TAPER</b>	MT2 capacity with live and drive centre included
<b>FACE PLATE</b>	102 mm (4")
<b>TOOL REST</b>	200 mm (8")
<b>SPINDLE DIRECTION</b>	Forward and Reverse
<b>OVERALL SIZE (LxWxH)</b>	1055 × 560 × 483 mm
<b>WEIGHT</b>	54 kg nett / 58 kg gross
<b>MATERIAL</b>	Primarily cast iron

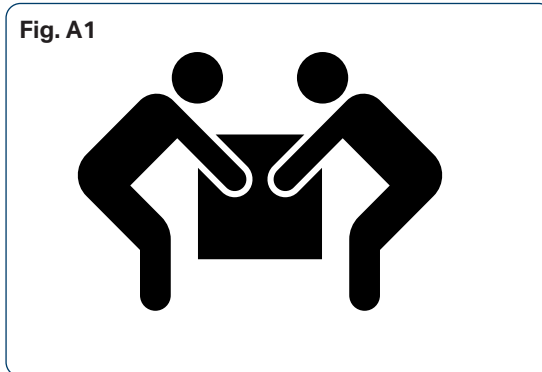
# ASSEMBLY

## A. INSTALLATION

This lathe is delivered mostly pre-assembled.

1. Transport the wood turning lathe in its packing crate to a place near its final installation site before unpacking it. This machine is heavy. Do not over-exert yourself while unpacking or moving the machine. Get assistance!

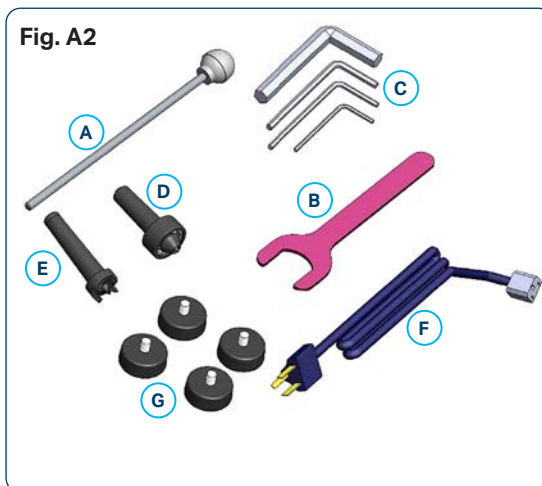
**Fig. A1**



2. 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/shipper and supplier must be notified of this fact immediately to establish any claim which might arise.

3. Inspect the machine carefully, making sure that all shipping documents, instructions and accessories supplied with the machine have been received. Before beginning setup, inventory the following items:

**Fig. A2**



<b>A.</b>	Knockout Rod	x 1
<b>B.</b>	Open-End Wrench 32 mm	x 1
<b>C.</b>	Hex Wrenches 3, 4, 5, 12 mm	x 1
<b>D.</b>	Live Centre MT#2	x 1
<b>E.</b>	Spur Centre MT#2	x 1
<b>F.</b>	Power Cord	x 1
<b>G.</b>	Rubber Feet M8-1.25 x 15	x 4

# ASSEMBLY

## B. 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.

1. Put on safety glasses.
2. Coat the rust preventative with a cleaner/degreaser such as WD-40, 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 and 3 as necessary until clean, then coat all unpainted surfaces with a quality metal protectant such as G15, to prevent rust.

### NOTICE

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



## C. PLACEMENT LOCATION

1. Refer to page 14 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.
2. 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, ensuring adequate working space.

**Fig. C1**





## D. ASSEMBLY

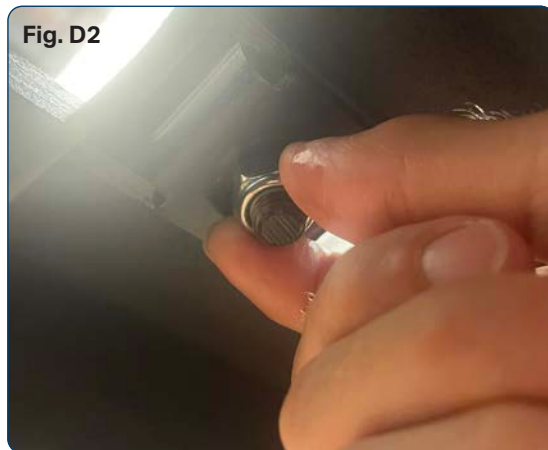
1. Install the four rubber feet and adjust them so that the lathe sits level without rocking.

**Fig. D1**



2. Install the banjo by laying the body of the banjo on top of the lathe bed so it is well balanced, with the locating slider neatly fitting in the gap in the lathe bed and the bolt hanging through. Next, install the nut onto the bolt from under the lathe and adjust (tighten) until rotating the banjo locking lever gives a sturdy lock in the lock position, yet allows for free movement of the banjo when unlocked.

**Fig. D2**



3. Your lathe comes with the face plate installed. This can be left in place while using a drive centre, but should you need to install a chuck or other accessory on your spindle, the face plate will need to be removed. **NOTE:** The face plate is locked onto your spindle with two grub screws. Failure to remove these prior to attempting to remove your face plate will cause damage to your spindle! Such damage would not be covered under warranty. Once these grub screws are completely removed or adequately loosened, you can use your spindle wrench to "lock" your spindle, with your knock out bar in the hole of the face plate to initiate removal anti-clockwise. Once loose, the face plate can be turned by hand to remove. Installation of the face plate is the reverse, ensuring it is screwed on until the should is fully seated against the spindle and the grub screws are locked once more.

**Fig. D3**



4. Install your live centre in the tailstock and your drive centre in the headstock, if required for your project.
5. The included tools shelves can now be screwed into place on each end of the lathe, for convenient access to tools.

**Fig. D4**

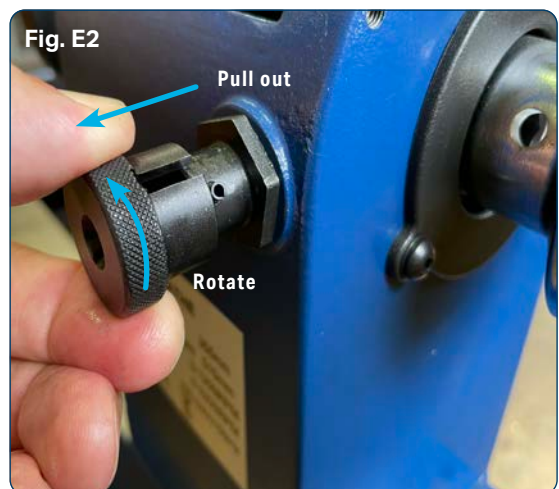


## RUN TEST

### E. RUN TEST

1. Clear all the setup tools away from the machine.
2. Pull out the indexing pin knob and rotate it so the slotted detent is seated on the roll pin. Test by hand-rotating the spindle with the handwheel - it should turn freely. If it does not and is locked in a fixed position, you have not disengaged the spindle lock.

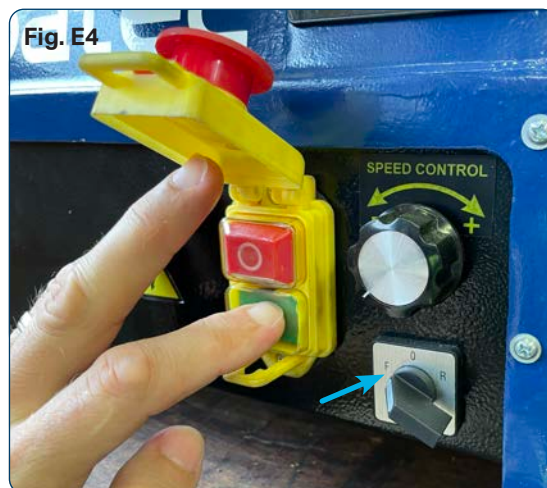
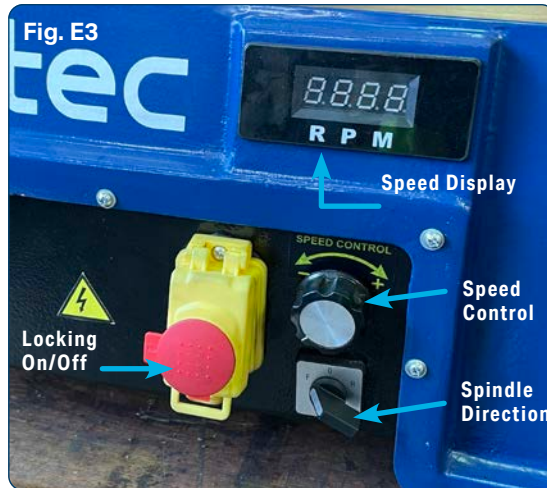
**Fig. E1 and E2**



3. Set direction to neutral (0) position and turn the spindle speed knob all the way counterclockwise.  
**Fig. E3**
4. Connect the machine to power supply.
5. Set the spindle direction switch in **forward position 'F'**. Press the ON button.  
**Fig. E4**
6. Slowly turn the spindle speed dial clockwise to increase speed. The digital readout should illuminate, and the spindle should rotate down toward the front of the lathe.
7. If the machine operates as it should, turn the spindle speed dial all the way counterclockwise, then press the OFF button.
8. Set the spindle direction switch to **reverse (R) position**.
9. Press the ON button
10. Slowly turn the spindle speed dial clockwise.  
**Fig. E5**

When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises. The spindle should rotate up toward the rear of the lathe when in reverse.

11. Press the OFF button.



# ADJUSTMENTS

## F. ADJUSTING THE TOOL REST

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

**The tool rest locking lever locks the tool rest body (banjo) in position:**

1. Loosen the lever to slide the tool rest body along the lathe bed.
2. Tighten the lever firmly when the tool rest body is properly positioned.

**Fig. F1**



**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.

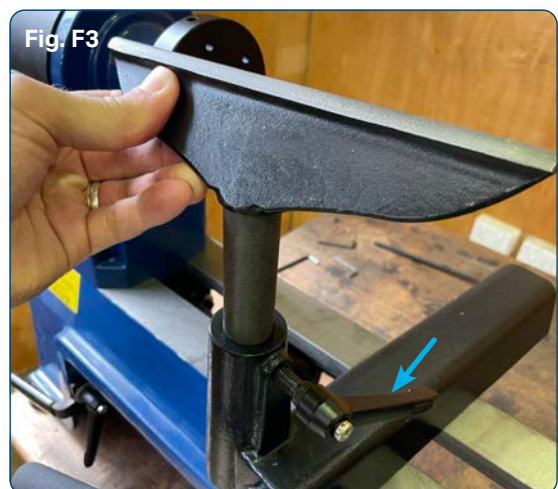
**Fig. F2**



**The small tool rest locking handle locks the tool rest in place:position:**

1. Loosen the handle to position the tool rest at the specific angle or height.
2. Tighten the handle firmly when the tool rest is properly positioned.

**Fig. F3**



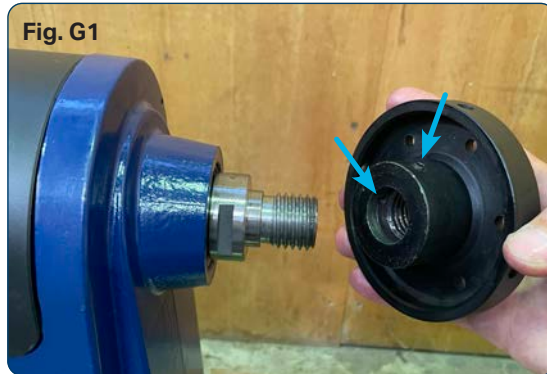
## G. SETTING UP THE FACE PLATE

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.

### Installing the face plate:

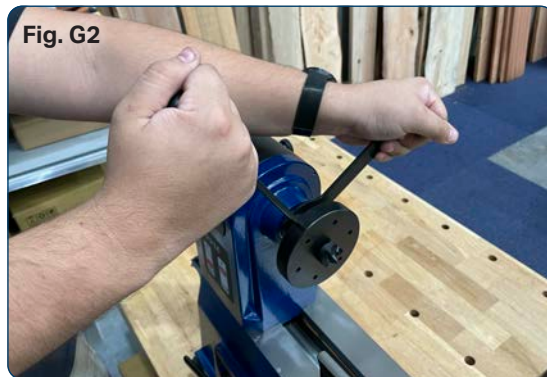
1. Ensure the two locking grub screws are backed out until they do not protrude past the inner thread of the face plate. Thread the face plate onto the headstock spindle by turning it clockwise as far as it will go.

**Fig. G1**



2. Insert the knockout rod into a hole on the side of the face plate and use the wrench to fully tighten the face plate.

**Fig. G2**



3. Lock the spindle lock by engaging the knob in the deep groove.



**WARNING**

Do not start your lathe with the spindle lock engaged!

**Fig. G3**



4. Tighten the two set screws with a hex wrench.

**Fig. G4**

5. **Removing the face plate is the reverse of these steps. Always remember the grub screws!**



# ADJUSTMENTS

## H. SETTING UP THE HEADSTOCK SPUR CENTRE

### Installing the spur centre:

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

**Fig. H1**



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

3. Push the spur centre through the face plate into the headstock spindle.

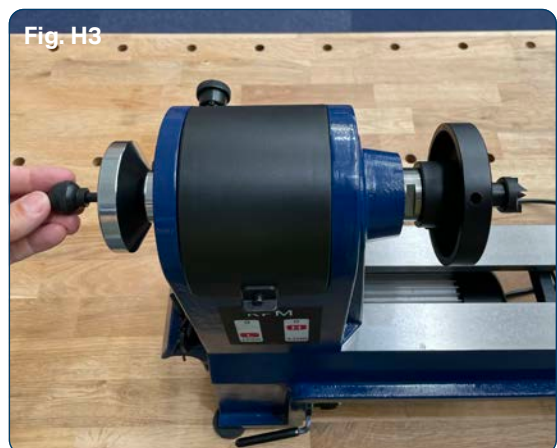
**Fig. H2**



### Removing the spur centre:

1. Hold the spur centre 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 centre.

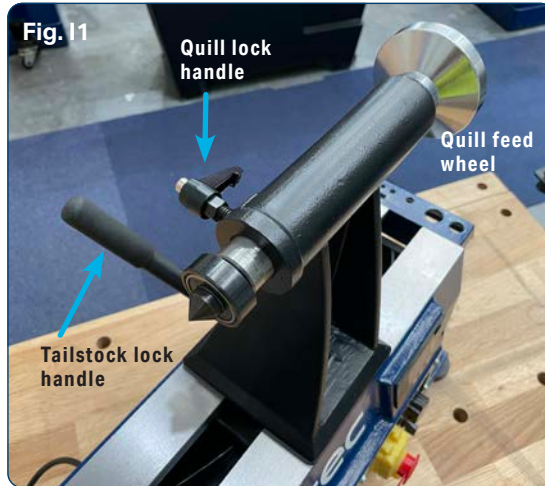
**Fig. H3**



# ADJUSTMENTS

## I. ADJUSTING THE TAILSTOCK

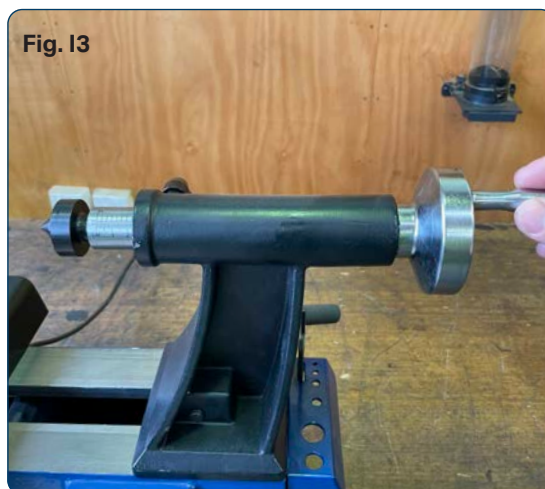
1. Loosen the tailstock locking lever and slide the tailstock along the lathe bed into the desired position. Retighten the locking lever.  
**Fig. I1**



2. Loosen the quill locking handle just enough to unlock the tailstock quill.  
**Fig. I2**

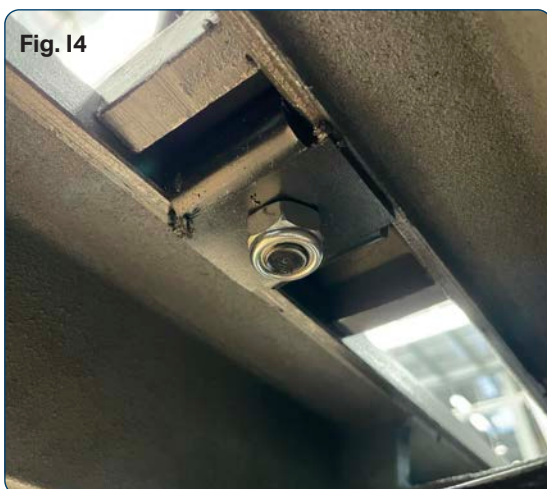


3. Turn the handwheel clockwise to advance the quill and counterclockwise to retract the quill.  
**Fig. I3**



4. Retighten the quill locking handle.

5. The tailstock locking mechanism features a nut below the bed, like the banjo. This will periodically require adjustment to ensure your tailstock adequately locks into position.  
**Fig. I4**



# ADJUSTMENTS

## J. INDEXING

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. **Fig. J1&J2**

1. Place the spindle lock in the locked position to help maintain the certain index point.  
**Fig. J3**
2. Pull the knob out and hand rotate the spindle to select and engage your next lock position, then release the knob to lock. Repeat as required.



**WARNING**

3. **Make sure to disengage the spindle lock before starting the lathe again.**

## K. ADJUSTING THE SPEED

This lathe features two speed ranges; accessed via changing the belt between pulleys :

- Low 0-1200 RPM EVS
- High 0-3200 RPM EVS

**Fig. K1**

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



**WARNING**

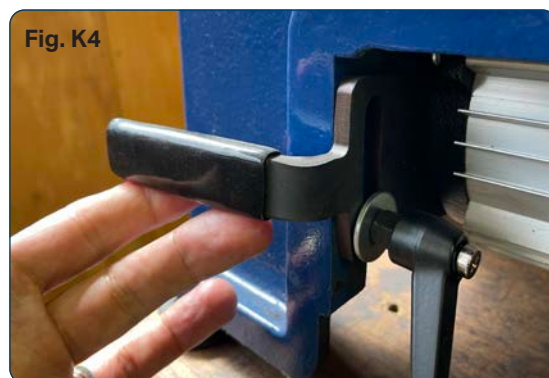
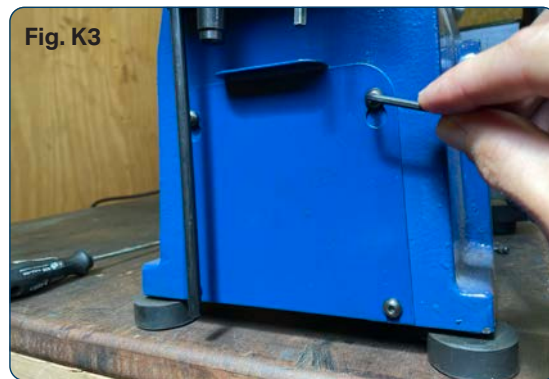
2. **Make sure to disengage the spindle lock before starting the lathe again.**





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.

1. When changing belt speed, make sure to turn off and disconnect the lathe.
2. Loosen the screw on the top front of the headstock and open the belt drive access panel. **Fig. K2**
3. Loosen (but do not remove) the four screws holding the lower belt drive plate onto the left side of the headstock. Lift and remove the lower belt drive plate. **Fig. K3**
4. Loosen the motor tensioning locking handle. The screw at the centre of the locking handle can be loosened to rotate the locking handle to an optimal position. Pull upwards on the tensioning handle to relieve tension on the belt. It may help to wedge a piece of wood or other support under the tensioning handle to keep it in place while you adjust the belt position. **Fig. K4**
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. **Fig. K5**
6. Lower the tensioning handle back to its original position, allowing the weight of the motor to place the belt under tension. Tighten the locking handle. Replace the lower belt drive plate and tighten the screws. Lower the upper belt drive access panel and tighten the belt drive access panel screw.



# ADJUSTMENTS

## L. 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.

Here is a general guide to speeds:

DIAMETER OF WORKPIECE		ROUGHING RPM	GENERAL CUTTING RPM	FINISHING RPM
under 2"	under 50 mm	1520	3000	3000
2" - 4"	50 - 100 mm	760	1600	2480
4" - 6"	100 - 150 mm	510	1080	1650
6" - 8"	150 - 200 mm	380	810	1240
8" - 10"	200 - 250 mm	300	650	1000
10" - 12"	250 - 300 mm	255	540	830
12" - 14"	300 - 350 mm	220	460	710

## 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. Due to the generic nature of this overview, it is not intended to be an instructional guide. To learn more about specific operations, 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 project.**

To complete a typical operation, you should do the following:

1. Make sure the workpiece is suitable for turning. No extreme bows, knots, or cracks should exist.
2. Prepare and trim the workpiece with a bandsaw or table saw to make it roughly concentric.
3. Install the workpiece between the centres, or attach it to the face plate or chuck.

4. Adjust the tool rest according to the type of operation, and set a minimum clearance between the workpiece and the lip of tool rest to 6 mm gap.
5. Rotate the workpiece by hand to verify the spindle and workpiece rotate freely throughout full range of motion.
6. Verify the pulley speed range is set for the type of wood and size of the workpiece installed.
7. Verify the spindle speed dial is turned all the way counterclockwise, so the spindle won't start in high speed.
8. Verify the spindle direction switch is set in neutral position.
9. Put on safety glasses, face shield, and respirator.
10. Set the spindle direction switch to forward or reverse,
11. Start the spindle, adjust the spindle speed, and carefully begin the turning operation, keeping the chisel against the tool rest the entire time it is cutting.
12. Turn the spindle OFF when the cutting operation is complete.

**TURN MACHINE OFF BEFORE CHANGING ROTATIONAL DIRECTION.**

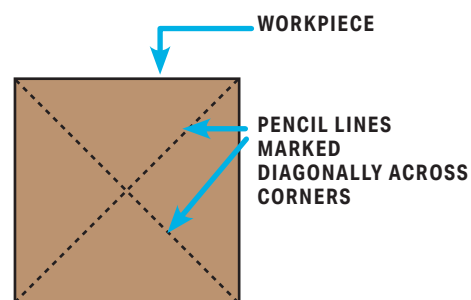
## M. SPINDLE TURNING

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

### To set up a spindle turning operation:

1. Find the centre point of both ends of your workpiece by drawing diagonal lines from corner to corner of the workpiece. **Fig. M1**
2. Make a centre mark by using a wood mallet and tapping the point of the spur centre into the centre of the workpiece on both ends.
3. Using a drill bit, drill a 6 mm deep hole at the centre mark on the end of the workpiece to be mounted on the headstock spur centre.

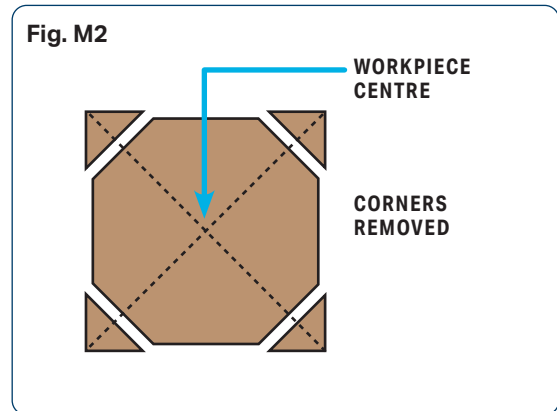
**Fig. M1**



## OPERATION

4. To help embed the spur centre into the workpiece, cut 3 mm deep saw kerfs in the headstock end of the workpiece along the diagonal lines marked in step 1.
5. If your workpiece is over 50 x 50 mm, cut the corners off the workpiece lengthwise to make the turning safer and easier.

**Fig. M2**



6. Drive the spur centre into the end centre mark of the workpiece with a wood mallet to embed it at least 6 mm into the workpiece.
7. With the workpiece still attached, insert the spur centre into the headstock spindle. Use a tool rest to support the opposite end of the workpiece so that the workpiece and the spur centre do not separate during the installation.
8. Install the live centre into the tailstock quill and tighten the quill-lock handle to lock the quill in position.
9. Slide the tailstock toward the workpiece until the point of the live centre touches the workpiece centre mark, then lock the tailstock in this position.
10. Loosen the quill-lock handle and rotate the tailstock handwheel to push the live centre into the workpiece at least 60 mm.
11. Properly adjust the tool rest to the workpiece.
12. Before beginning the lathe operation, rotate the workpiece by hand to ensure there is a safe clearance on all sides.

## N. 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.

## O. 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 50 mm 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 50 mm from the tailstock end of the workpiece. Slowly and gently raise the tool handle until the cutting edge comes into contact with the workpiece.

**Make sure that the tool is being held well on the work, with the bevel or grind tangent to the revolving surface of 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 60 mm 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 centre end of the workpiece, roll the gouge in the opposite direction to carry the final cut off the live centre 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 3 mm 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 centre 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.

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

# OPERATION

## P. 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.
2. Repeat for the other side of the bead.
3. Using a small skew or spindle gouge, start in the centre between the two cuts and cut down each side to form the bead. Roll the tool in the direction of the cut.

## Q. CREATING COVES

Using a spindle gouge to create a cove.

1. With the flute of the tool at 90° to the workpiece, touche 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.

## R. CREATING V-GROVES

Using the point of the skew to create a V-groove in the workpiece.

1. Lightly mark the centre 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. 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.

## S. 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.

## T. BOWL TURNING

### 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 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.
4. 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.

**CORRECT**



**INCORRECT**



# OPERATION

## Shaping the inside of a bowl or plate

1. Turn off the lathe and move the tailstock out of the way.
2. Mount the workpiece onto the face plate and install the face plate on to the headstock.
3. Adjust the tool rest in front of the workpiece to be just below the centreline and at the right angle to the lathe's turning axis.
4. Rotate the workpiece by hand to check for proper seating and clearance.
5. Begin shaping by lightly shearing across the top of the bowl from rim to centre. Place a bowl gouge tool on the tool rest at the centre 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.
6. 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.
7. 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.
8. 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.
9. 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).
10. 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.



## U. TURNING TOOLS

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

- Roughing gouges
- Spindle gouges
- Bowl gouges
- Skew chisels
- Round nose scrapers
- Parting tools

**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!**



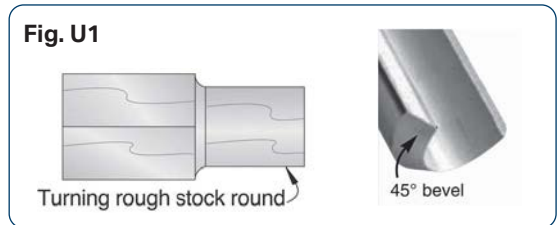
**CARBATEC proudly offer a wide range of Woodturning Tools and accessories. Whether you are a novice or professional, come in and have a chat with our team!**

# OPERATION

## The Roughing Gouge

For rough cutting, detail cutting, and cove profiles. The rough gouge is a hollow, double-ground tool with a round nose. The detail gouge is a hollow, double-ground tool with either a round or pointed nose.

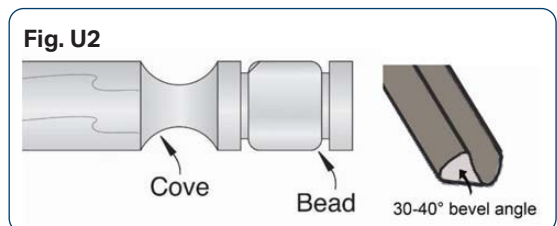
**Fig. U1**



## The Spindle Gouge

For cutting coves, beads and freeform contours. It can also be used for producing shallow hollows on face plate turnings.

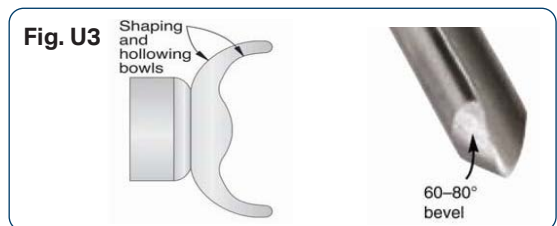
**Fig. U2**



## The Bowl Gouge

For cutting external and internal profiles on face plate-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.

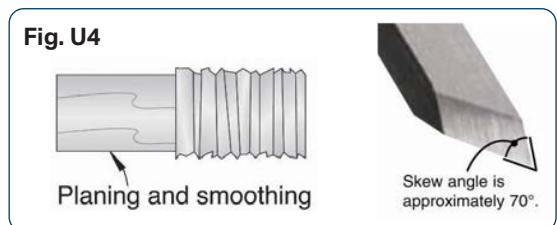
**Fig. U3**



## The 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°).

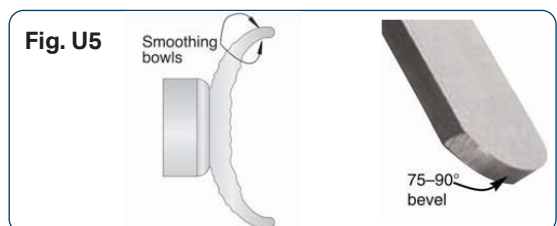
**Fig. U4**



## The 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.

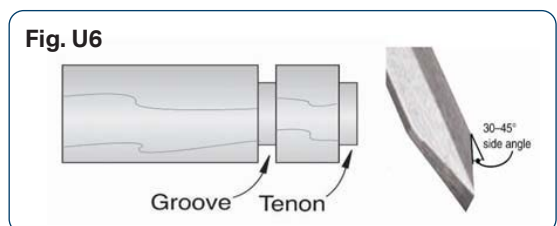
**Fig. U5**



## The Parting Tool

For forming grooves and tenons and removing stock. It can also be used for rolling small beads.

**Fig. U6**



# MAINTENANCE

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. Installation of third party accessories must also be maintained and in good condition.

## V. MAINTENANCE SCHEDULE

### Ongoing usage checks:

If you ever observe any of the items below, shut down the machine immediately and fix the problem before continuing work:

- Loose face plate or mounting bolts.
- Damaged centre or tooling.
- Worn or damaged wires.
- Loose machine components.
- Any other unsafe condition.

### Daily check

- Clean off dust build-up.
- Clean and lubricate lathe bed, spindle, and quill.

### Monthly check

- Belt tension, damage, or wear.

## W. CLEANING

- Vacuum excess wood chips and sawdust, wiping 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. Use a suitable rust preventative.

## X. LUBRICATION

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

**Spindle:** 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.

**Quill:** 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.

# MAINTENANCE

## Y. REPLACING THE BELT

The motor belt is considered a wear and tear item that will need replacing over the life of the machine. How long the belt lasts is determined by the use of the machine. Replacing the belt is a simple process that can be done at home and does not require any specialised knowledge or tools.

1. Disconnect the machine from power!
2. Remove the lower side access cover and open the front top access cover.
3. Loosen the belt-tension lock handle, release the belt tension by lifting and re-tighten the lock handle to 'lock' in a loose position.

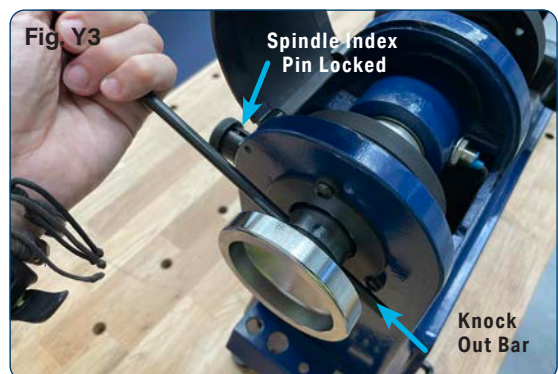
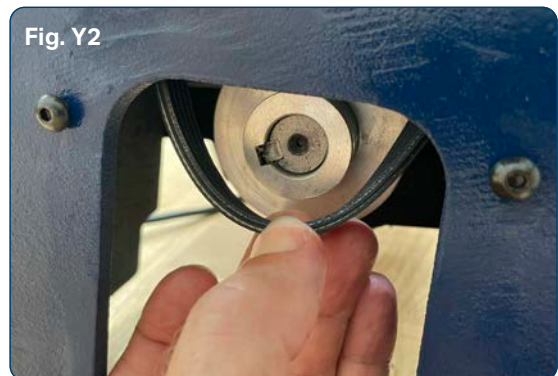
**Fig. Y1**

4. Remove the belt from the lower pulley.

**Fig. Y2**

5. Unthread and remove the spindle handwheel by locking the spindle and using the knock-out bar through the holes on the handwheel. Turn anti-clockwise to remove.

**Fig. Y3 and Y4**



6. Remove the three screws from the spindle end cover and remove the cover.

**Fig. Y5**



7. Move the belt off the pulley and around the spindle, then remove it through the upper opening.

**Fig. Y6**



8. Alternatively, it can be manipulated around the pulley and removed through the top belt cover hatch. You may need to unlock and pull back the spindle index lock to move the belt past the index pin.

9. Installing a new belt is the reverse of this procedure. Ensure your belt is aligned on the pulleys, the belt is correctly tensioned and all cover plates and handwheels are correctly reinstalled prior to use. Turn by hand first and always start the machine on slow speed.

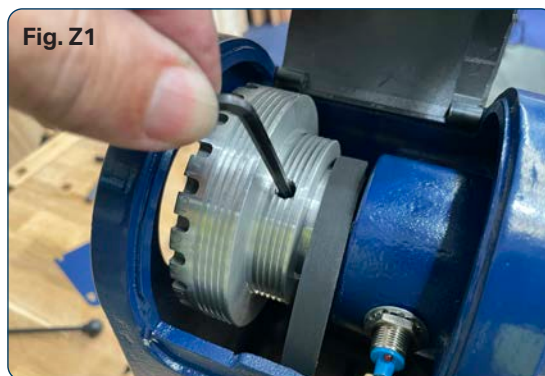
## Z. ALIGNING THE PULLEYS

The motor and spindle pulleys are aligned at the factory and should not require any adjustment. However, if they become misaligned over time it is important that they be re-aligned in order to extend the belt life and maximize the transfer of power from the motor to the spindle.

1. Disconnect the machine from power and open the front top access cover.

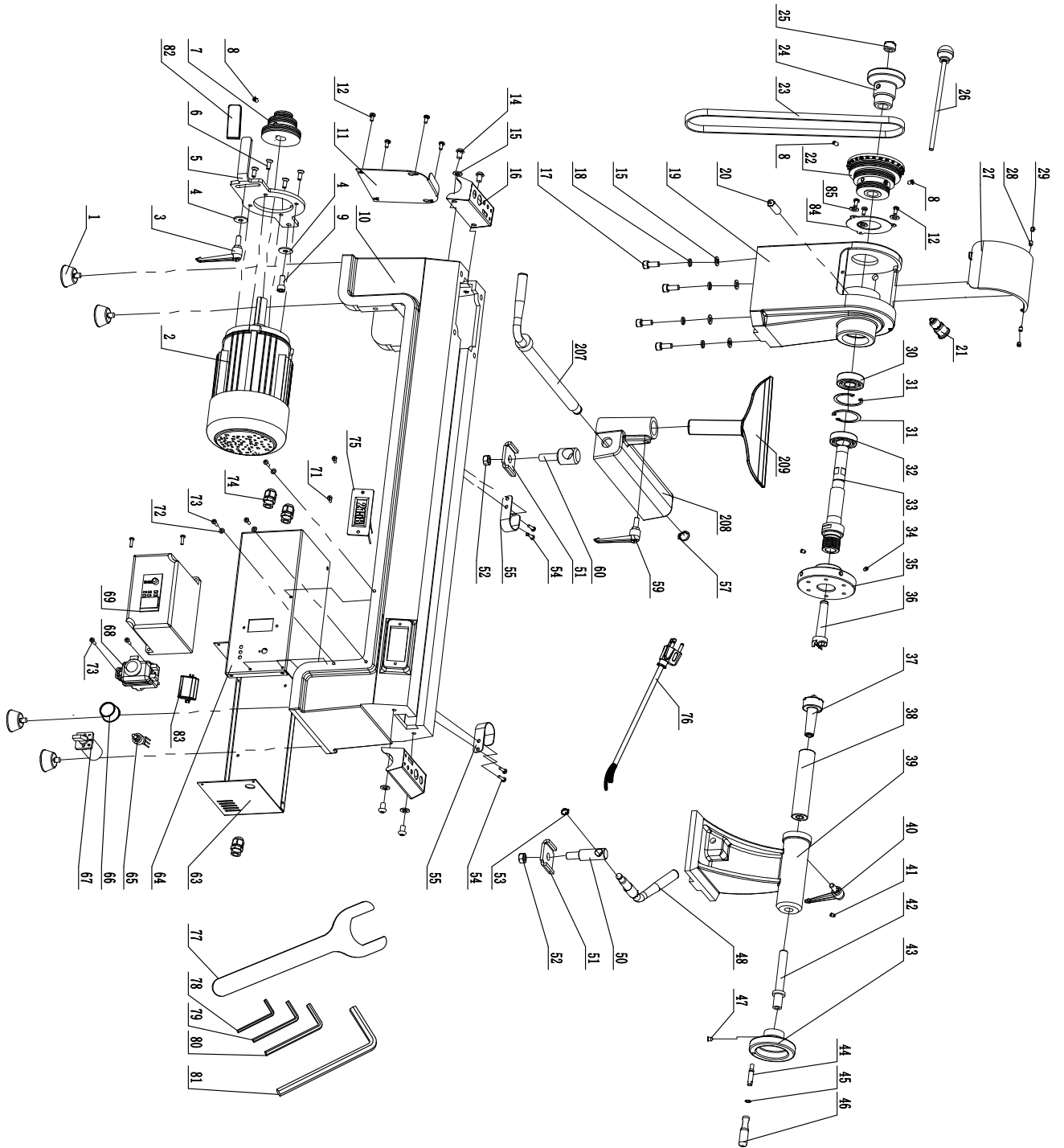
2. Loosen the set screws on the spindle pulley.

**Fig. Z1**



3. Slide the spindle pulley into alignment with the motor pulley using the tensioned belt as a guide. There should be no unusual sounds or wobbles from the belt. Tighten the set screws.

# PARTS DIAGRAM



PART #	DESCRIPTION	QTY	PART #	DESCRIPTION	QTY
01	Foot	4	43	Tailstock wheel	1
02	Motor	1	44	Handwhell axle	1
03	Belt tension lock level	1	45	C-ring	1
04	Flat washer	2	46	Handwheel	1
05	Motor connect plate	1	47	Set screw – M8×10	1
06	HD cap screw – M6×16	4	48	Tailstock lock level	1
07	Motor pulley	1	50	Tailstock clamp bolt	1
08	Set screw	3	51	Tailstock clamp	2
09	Cap screw – M8×16	1	52	Nut – M12	2
10	Bed	1	53	C-ring	1
11	Lower belt door	1	54	Screw – M4×10	4
12	Hex head screw – M5×10	7	55	Pothead	2
14	HD screw – M8×12	4	57	C-ring	2
15	Flat washer	8	59	Adjusting handle	1
16	Handle	2	60	Tool rest clamp bolt	1
17	Cap screw – M8×20	4	63	Inverter mounting bracket	1
18	Spring washer	4	64	Inverter cover	1
19	Headstock	1	65	Potentiometer	1
20	Digital readout sensor	1	66	Variable speed dial	1
21	Location pin assembly	1	67	Rotary switch	1
22	Spindle pulley	1	68	Switch	1
23	Belt	1	69	Inverter	1
24	Headstock wheel	1	71	Screw – M4×10	12
25	Locking nut	1	72	Flat washer	19
26	Knockout rod assembly	1	73	Screw – M4×14	5
27	Cover for motor pulley	1	74	Stain relief	3
28	Cap screw – M5×10	2	75	RPM digital readout	1
29	Set screw – M5×6	2	76	Plug	1
30	Bearing – 6204	1	77	Wrench	1
31	Ring	2	78	Hex wrench – Ø 3	1
32	Bearing – 6005	1	79	Hex wrench – Ø 4	1
33	Spindle	1	80	Hex wrench – Ø 5	1
34	Cap screw – M6×8	2	81	Hex wrench – Ø 12	1
35	Face plate	1	82	Knob	1
36	Spur centre	1	83	Transformer	1
37	Live centre	1	84	Headstock rear plate	1
38	Quill	1	85	Flat washer – Ø 5	3
39	Tailstock	1	207	Locking bar for toll rest	1
40	Quill locking handle	1	208	Tool rest base	1
41	Hex head bolt – M8×10	1	209	8" tool rest	1
42	Leadscrew	1	86	Electric reactor	1
			87	Filter	1

# TROUBLESHOOTING

**TO PREVENT INJURY TO YOURSELF** or damage to the machine, turn the switch to the **“OFF”** position and unplug the power cord from the electrical receptacle before making any adjustments. **NEVER** attempt any electrical servicing yourself. These aspects of the machine are **NOT** user serviceable. If you suspect a fault in the motor, VFD or control box, take the machine to a licensed electrician/ service technician for inspection and servicing.

## MOTOR AND ELECTRICAL

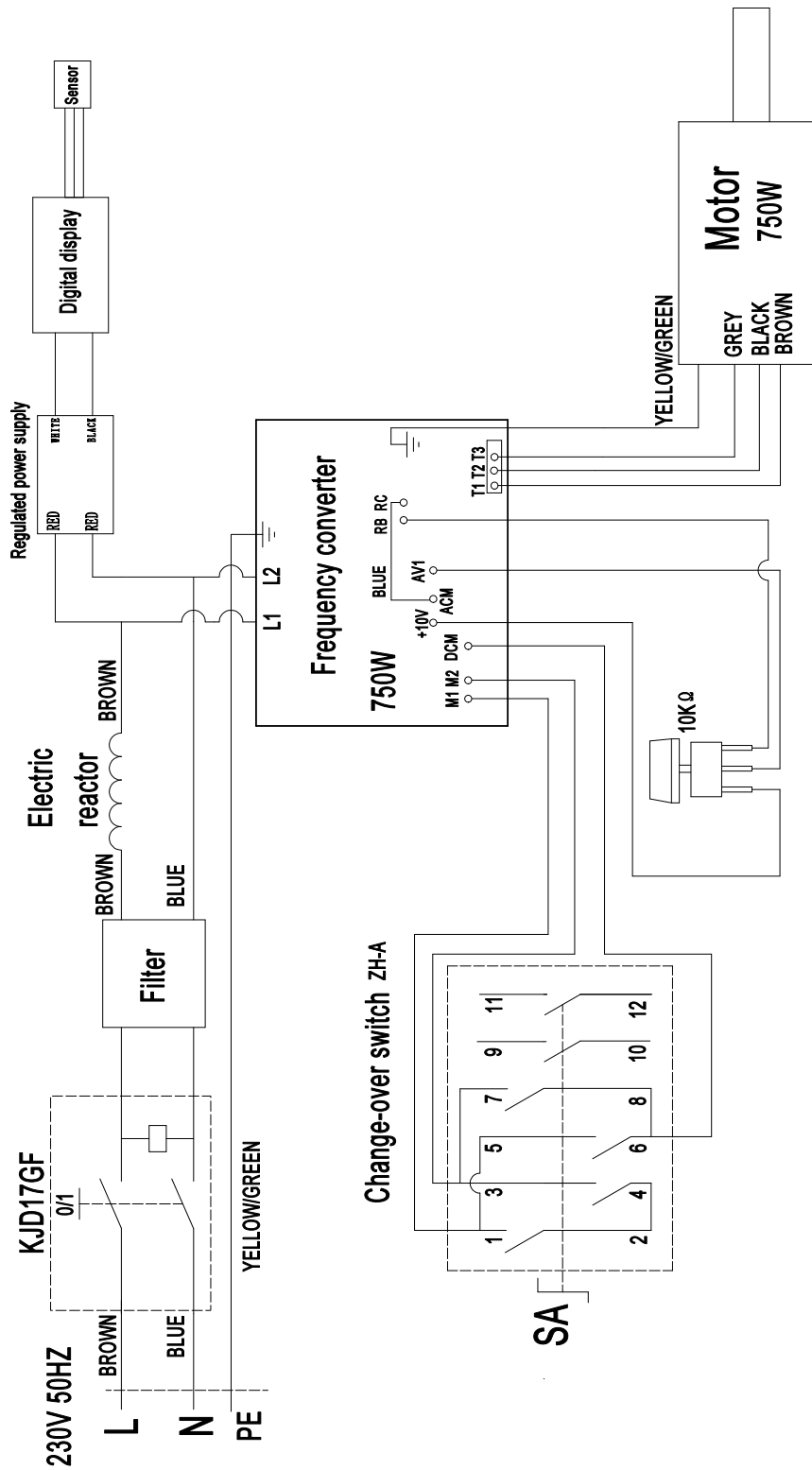
SYMPTOM	LIKELY CAUSE(S)	SOLUTION(S)
<b>Machine does not start, or power supply fuse or breaker trips immediately after startup.</b>	<ol style="list-style-type: none"> <li>Spindle direction switch in neutral position.</li> <li>OFF button not pressed before toggling spindle direction switch.</li> <li>Blown fuse.</li> <li>Power supply circuit breaker tripped or fuse blown.</li> <li>Potential faults in motor or VFD etc</li> </ol>	<ol style="list-style-type: none"> <li>Toggle switch to forward/reverse.</li> <li>Press OFF button before toggling spindle direction switch.</li> <li>Replace fuse/ensure no shorts.</li> <li>Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse.</li> <li>Take machine to technician for servicing.</li> </ol>
<b>Machine stalls or is underpowered.</b>	<ol style="list-style-type: none"> <li>Machine potentially undersized for task.</li> <li>Feed rate/cutting speed too fast.</li> <li>Variable-speed potentiometer faulty.</li> <li>Belt slipping.</li> <li>Circuit board faulty.</li> <li>Pulley slipping on shaft.</li> <li>Motor potentially faulty.</li> </ol>	<ol style="list-style-type: none"> <li>Use sharp chisels; reduce feed rate/depth of cut.</li> <li>Decrease feed rate/cutting speed.</li> <li>Take machine to technician for servicing.</li> <li>Tension/replace belt; ensure pulleys are aligned, belts are clean and not damaged.</li> <li>Take machine to technician for servicing.</li> <li>Tighten/replace loose pulley/shaft.</li> <li>Take machine to technician for servicing.</li> </ol>
<b>Machine has vibration or noisy operation seemingly from the headstock end of the lathe.</b>	<ol style="list-style-type: none"> <li>Motor or component loose.</li> <li>Machine sits unevenly on workbench.</li> <li>Belt worn, loose, or misaligned.</li> <li>Pulley loose.</li> <li>Motor fan rubbing on fan cover.</li> <li>Workpiece/face plate at fault.</li> <li>Motor mount loose/broken.</li> </ol>	<ol style="list-style-type: none"> <li>Inspect/replace damaged bolts/nuts, and retighten with thread-locking fluid.</li> <li>Adjust rubber feet.</li> <li>Inspect/replace belt. Re-align pulleys if necessary.</li> <li>Re-align/replace shaft, pulley, set screw, and key.</li> <li>Take machine to technician for servicing.</li> <li>Centre workpiece in chuck/face plate; reduce RPM; replace defective chuck.</li> <li>Test by rotating shaft; rotational grinding/ loose shaft requires bearing replacement.</li> </ol>



MACHINE OPERATION

SYMPTOM	LIKELY CAUSE(S)	SOLUTION(S)
<b>Poor surface finish.</b>	<ol style="list-style-type: none"> <li>1. Dull tooling or wrong tool used for task.</li> <li>2. Tool height is correctly positioned.</li> <li>3. Spindle speed is wrong for the task at hand.</li> <li>4. Excessive vibration.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen tooling, select correct tool for operation and use correct technique.</li> <li>2. Adjust tool rest so tool is 3 mm above spindle centre line.</li> <li>3. Adjust for appropriate spindle speed</li> <li>4. Troubleshoot possible causes/solutions in this table.</li> </ol>
<b>Excessive vibration upon startup (when workpiece is installed).</b>	<ol style="list-style-type: none"> <li>1. Workpiece is mounted incorrectly.</li> <li>2. Workpiece warped, out of round, or flawed.</li> <li>3. Lathe is resting on an uneven surface.</li> <li>4. Spindle speed too fast for workpiece.</li> <li>5. Workpiece hitting stationary object.</li> <li>6. Tailstock or tool rest not securely clamped to lathe bed.</li> <li>7. Belt pulleys are not properly aligned.</li> <li>8. Motor mount bolts are loose.</li> <li>9. Belt is worn or damaged.</li> <li>10. Spindle bearings are worn or damaged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remount workpiece, making sure that centres are embedded in true centre of workpiece.</li> <li>2. Cut workpiece to be concentric, or use a different workpiece.</li> <li>3. Adjust feet to eliminate wobble.</li> <li>4. Reduce spindle speed.</li> <li>5. Stop lathe and fix interference problem.</li> <li>6. Check lock levers and tighten if necessary.</li> <li>7. Align belt pulleys.</li> <li>8. Tighten motor mount bolts.</li> <li>9. Replace belt.</li> <li>10. Test by rotating shaft; rotational grinding noise or loose shaft requires bearing replacement.</li> </ol>
<b>Chisel grabs or digs into workpiece.</b>	<ol style="list-style-type: none"> <li>1. Wrong tool or technique used.</li> <li>2. Chisel/tool too dull.</li> <li>3. Tool rest height not set correctly.</li> <li>4. Tool rest is set too far from workpiece</li> </ol>	<ol style="list-style-type: none"> <li>1. Use correct tool and technique.</li> <li>2. Sharpen or replace chisel/tool.</li> <li>3. Correct tool rest height.</li> <li>4. Move tool rest closer to workpiece.</li> </ol>
<b>Tailstock moves under load.</b>	<ol style="list-style-type: none"> <li>1. Tailstock mounting bolt/hex nut is loose.</li> <li>2. Bed or clamping surface is excessively oily or greasy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten mounting bolt/hex nut.</li> <li>2. Clean bed or clamping surface to remove excess oil/grease.</li> </ol>
<b>Spindle lacks turning power or starts up slowly.</b>	<ol style="list-style-type: none"> <li>1. Belt is slipping.</li> <li>2. Pulleys loose.</li> <li>3. Workpiece too heavy for spindle.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten/adjust belt.</li> <li>2. Tighten pulley set screw; re-align/replace shaft, pulley set screw, and key.</li> <li>3. Remove excess material before remounting; use lighter workpiece.</li> </ol>
<b>Quill will not move forward when hand-wheel is turned.</b>	<ol style="list-style-type: none"> <li>1. Keyway is not aligned with quill lock lever</li> </ol>	<ol style="list-style-type: none"> <li>1. Align quill keyway and quill lock lever and slightly tighten lever to engage keyway.</li> </ol>
<b>DRO doesn't give reading; reading incorrect.</b>	<ol style="list-style-type: none"> <li>1. Shorted/disconnected wiring/plugs.</li> <li>2. Variable-speed potentiometer faulty.</li> <li>3. DRO speed sensor at fault.</li> <li>4. Circuit board at fault</li> </ol>	<ol style="list-style-type: none"> <li>1. Take machine to technician for servicing.</li> <li>2. Take machine to technician for servicing.</li> <li>3. Take machine to technician for servicing.</li> <li>4. Take machine to technician for servicing.</li> </ol>

# WIRING DIAGRAM



## 2 YEAR WARRANTY

### WARRANTY

- A. We warrant that this Carbatec product will be free from defects caused by faulty workmanship or faulty materials for a period of 2 years from date of sale.
- B. This warranty is in addition to other rights and remedies you may have under a law in relation to the goods.
- C. This warranty does not apply in any of the following cases:
- i. Defects arising from:
    1. fair wear and tear;
    2. corrosive atmosphere;
    3. damage or injury caused by deliberate act, lack of care or failure to comply with the recommended care and maintenance for the goods;
    4. improper use of the goods;
    5. alterations or repairs (not made by us) to the goods;
  - ii. defects arising from an event outside of our control such as fire, flood, earthquake or other natural calamity, motor vehicle or other accident, strike, civil unrest, terrorism or war;
  - iii. to accessory items such as after-market jigs, accessories or other items which are not sold or serviced by us and which are not sold with or were not included with the main unit purchased; or
  - iv. to wearable parts such as drive belts/shafts, bearings, bandsaw tyres, motor brushes, blades or abrasive belts/discs or other cutting or machining implements.
  - v. damage caused to any electrical component, where connected to a power supply outside the country for which it was designed (namely Australia or New Zealand).
- D. If this warranty applies and you have complied with the procedure below for making a claim, we will, at our election, either repair the goods (or those parts of the goods recognised as defective) or will provide a replacement within a reasonable time at our expense.
- E. If this warranty applies, the procedure for making a claim is:
- i. you must contact us by email;
  - ii. you must include in the email the following information:
    1. a copy of the order or receipt for the goods;
    2. the serial or batch number printed on the machinery manufacturing plate; and
    3. a detailed description of the fault and how and when it arose; and
    4. If the fault is a type covered by this warranty, we will then make arrangements with you for the return of the goods to us (for repair or replacement) at our cost using our transport providers or we may decide to attend at your premises to repair or replace the goods.
- F. Our liability (and that of our resellers) under this warranty is wholly limited to repair or replacement of the goods (or those parts of the goods recognised as defective) in accordance with the procedure above and you have no right to other compensation, costs or damages under this warranty. But this does not mean that you may not have other rights under a law in relation to the goods.
- G. If following our inspection of goods returned by you under this warranty it is found that this warranty does not apply and you are not otherwise entitled to repair or replacement by us, you must, if requested by us, reimburse our costs including parts, labour and freight.
- H. This warranty is not transferable and only the person who purchased the goods may make a claim.
- Where the goods have been exported outside Australia or New Zealand, the Company may not require the Purchaser to return any allegedly faulty or defective Product for evaluation. However, the Company has the right to request the return for evaluation at purchasers cost.

### STATUTORY NOTICE

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

# carbatec®



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**2** YEAR  
WARRANTY