

# WOODFAST

## Midi Variable

## Speed Lathe

### WL1216B

# Instruction Manual

## IMPORTANT

For your safety, read instructions carefully before assembling or using this product.

Save this manual for future reference.



Original Instruction  
V.1-202005

### HEALTH AND SAFETY GUIDELINES

Always follow the instructions provided with the manual. Always wear safety glasses when using woodworking equipment. Always disconnect the power before adjusting any equipment. Failure to observe proper safety procedures and guidelines can result in serious injury.

**WARNING:** Do not allow familiarity (gained from frequent use of your machine and accessories) to become commonplace. Always remember that a careless fraction of a second is sufficient to inflict severe injury.



Always wear safety glasses when using woodworking equipment.



Always read the instructions provided before using woodworking equipment.

# INDEX

- 1 GENERAL INFORMATION
  - 1.1 FOREWORD
  - 1.2 MACHINE IDENTIFICATION
  - 1.3 CUSTOMER SERVICE RECOMMENDATIONS
- 2 SAFETY PRECAUTIONS
  - 2.1 SAFETY REGULATIONS
  - 2.2 RESIDUAL RISKS
  - 2.3 SAFETY AND INFORMATION SIGNALS
- 3 SPECIFICATIONS
  - 3.1 MAIN COMPONENTS
  - 3.2 TECHNICAL SPECIFICATION
  - 3.3 ELECTRICAL CONNECTION
  - 3.4 NOISE LEVEL
- 4 INSTALLATION
  - 4.1 MOVING & INSTALLING THE LATHE
  - 4.2 CONTENTS OF PACKAGE
  - 4.3 ASSEMBLY
- 5 OPERATION
  - 5.1 HEADSTOCK CONTROLS
  - 5.2 TOOL REST CONTROLS
  - 5.3 TAILSTOCK CONTROLS
  - 5.4 ELECTRONIC CONTROLS
  - 5.5 LATHE BED EXTENSIONS - (OPTIONAL)
  - 5.6 OUTBOARD BOWL & PLATTER TURNING
- 6 ADJUSTMENTS
  - 6.1 CHANGING BELT SPEEDS
  - 6.2 ADJUSTING THE LOCKING HANDLES
  - 6.3 CHANGING THE BELT
  - 6.4 CHANGING THE BEARINGS
  - 6.5 PINDLE INDEXING ADJUSTMENTS
- 7 MAINTENANCE
- 8. TROUBLESHOOTING - Electronic Speed Control ACTION CODES
- 9. TROUBLESHOOTING
- 10. PARTS DIAGRAM & PARTS LIST
- 11. ACCESSORIES

# 1. GENERAL INFORMATION

## 1.1 FOREWORD

Some information and illustrations in this manual may differ from the machine in your possession, since all the configurations inherent in the machine complete with all the optionals are described and illustrated. Therefore, refer only to that information strictly connected with the machine configuration you have purchased.

With this manual we would like to provide the necessary information for maintenance and proper use of the machine. The distribution network is at your service for any technical problem, spare parts or any new requirement you may have for the development of your activity.

This manual must be read and understood before operating the machine. This will provide a better working knowledge of the machine, for increased safety and to obtain the best results.

To facilitate its reading, the manual has been divided into sections pointing out the most important operations. For a quick research of the topics, it is recommended to consult the index. To better stress the importance of some basic passages, they have been marked by some preceding symbols:



**WARNING** Indicates imminent risks which may cause serious injury to the operator or other persons. Be careful and scrupulously follow the instructions.



**CAUTION** A statement advising of the need to take care lest serious consequences result in harm to material items such as the asset or the product.

## 1.2 MACHINE IDENTIFICATION

There is an identification plate fixed to the machine, containing the manufacturer's data, year of construction, serial number and technical specifications.

## 1.3 CUSTOMER SERVICE RECOMMENDATIONS

Apply the machine to skilled and authorized technical staff to carry out any operation dealing with parts disassembly. Keep to the instructions contained in this manual for the correct use of the machine.



**CAUTION** Only skilled and authorized staff shall use and service the machine after reading this manual. Respect the accident prevention regulations and the general safety and industrial medicine rules.

# 2. SAFETY PRECAUTIONS

## 2.1 SAFETY REGULATIONS



### **WARNING**

Read carefully the operation and maintenance manual before starting, using, servicing and carrying out any other operation on the machine.

The manufacturer disclaims all responsibilities for damages to persons or things, which might be caused by any failure to comply with the safety regulations.

- The machine operator shall have all necessary prerequisites in order to operate a complex machinery.
- It is prohibited to use the machine when under the influence of alcohol, drugs or medication.
- All the operators must be suitably trained for use, adjustment and operation of the machine.
- The operators must carefully read the manual paying particular attention to the warning and safety notes. Furthermore, they must be informed on the dangers associated with use of the machine and the precautions to be taken, and must be instructed to periodically inspect the guards and safety devices.
- Before carrying out adjustment, repair or cleaning work, disconnect the machine from the electric power by setting the main switch to stop.
- After an initial bedding-in period or many hours of operation, the driving belts may slacken; this causes an increase in the tool stopping time (the stopping time must be less than 10 seconds). Immediately tighten them.
- The working area around the machine must be kept always clean and clear, in order to have an immediate and easy access to the switchboard.
- Never insert materials which are different from those which are prescribed for the machine utilization. The material to be machined must not contain any metal parts.
- Never machine pieces which may be too small or too wide with respect to the machine capacity.
- Do not work wood which has evident defects (cracks, knots, metal parts, etc.)
- Never place hands among the moving parts and/or materials.
- Keep hands clear from the tool; feed the piece with the aid of a pusher.
- Keep the tools tidy and far away from those not authorized persons.
- Never employ cracked nor unbalanced, neither not correctly ground tools.
- Never use the tools beyond the speed limit recommended by the producers.
- Carefully clean the rest surfaces of tools and make sure that they find perfectly horizontally positioned, and with no dents at all.
- Always wear gauntlets when handling the tools.
- Mount the tools in the right machining direction.
- Never start the machine before having correctly installed all the protections.
- Connect the dust suction hoods to an adequate suction system; suction must always be activated when the machine is switched on.
- Never open doors or protections when the machine or the system is operating.
- Many unpleasant experiences have shown that anybody may wear objects which could cause serious accidents. Therefore, before starting working, take any bracelet, watch or ring off.
- Button the working garment sleeve well around the wrists.
- Take any garment off which, by hanging out, may get tangled in the MOVING UNITS.
- Always wear strong working footwear, as prescribed by the accident-prevention regulations of all countries.
- Use protection glasses. Use appropriate hearing protection systems (headsets, earplugs, etc.) and dust protection masks.
- Never let unauthorized people repair, service or operate the machine.
- The manufacturer is not responsible for any damage deriving from arbitrary modifications made to the machine.
- Any transport, assembly and dismantling is to be made only by trained staff, who shall have specific skill for the specified operation.
- The operator must never leave the machine unattended during operation.
- During any working cycle break, switch the machine off.
- In case of long working cycle breaks, disconnect the general power supply.

## 2.2 RESIDUAL RISKS

Despite observance of all the safety regulations, and use according to the rules described in this manual, residual risks may still be present, among which the most recurring are:

- contact with tool
- contact with moving parts (belts, pulleys, etc..)
- recoil of the piece or part of it
- accidents due to wood splinters or fragments
- tool insert ejection
- electrocution from contact with live parts
- danger due to incorrect tool installation
- inverse tool rotation due to incorrect electrical connection
- danger due to dust inhalation in case of working without vacuum cleaner.

Bear in mind that the use of any machine tool carries risks.

Use the appropriate care and concentration for any type of machining (also the most simple).

**The highest safety is in your hands.**

## 2.3 SAFETY AND INFORMATION SIGNALS

This signals may be applied on the machine; in some cases they indicate possible danger conditions, in others they serve as indication.

Always take the utmost care.

SAFETY SIGNALS:



Risk of eye injury. Wear eye protection.



Wear hearing protection systems.



Danger of electric shock. Do not access the area when the machine is powered.



Carefully read and understand the manual before using the machine.

INFORMATION SIGNALS:

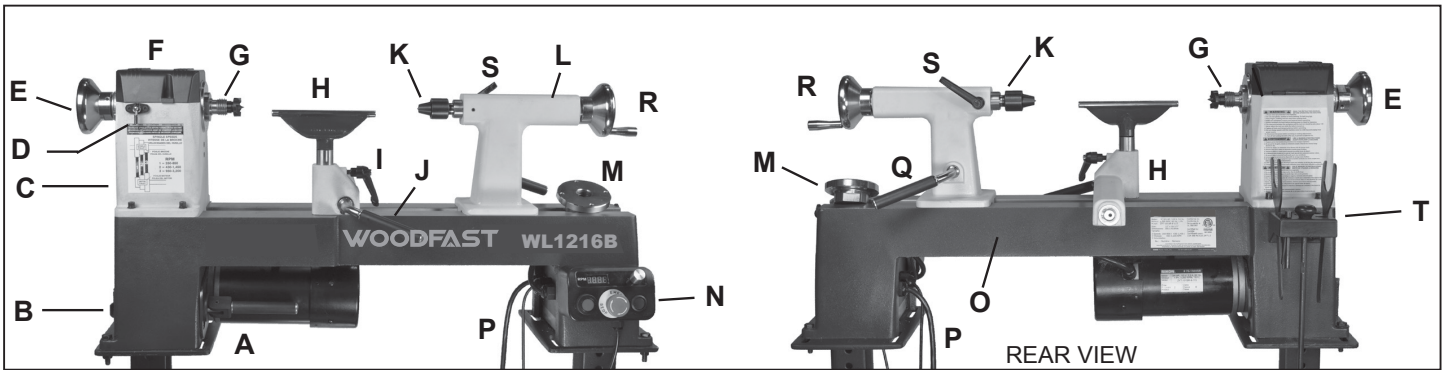
Indicate the technical characteristics, direction of rotation and inclination, block and release, etc.

Carefully following the directions to simplify the use and adjustment of the machine.

The signals are graphically described and do not require further explanation.

# 3. SPECIFICATIONS

## 3.1 MAIN COMPONENTS



- A. Motor, Mounting Plate & Locking Handle
- B. Outboard Bed Cover Plate Door
- C. Headstock
- D. Spindle Lock Knob / Index Pin
- E. Outboard Hand Wheel
- F. Headstock Cover
- G. Spindle with Spur Center
- H. Tool Rest & Base Assembly
- I. Tool Rest Locking Handle
- J. Tool Rest Base Locking Lever
- K. Live Center
- L. Tailstock Assembly

- M. Face Plate
- N. Electronic Controls
  - ON & OFF Switches
  - Forward / Reverse Switch
  - Speed Control Knob
  - Digital Speed Readout
- O. Lathe Bed
- P. Power & Controller Cords
- Q. Tailstock Locking Lever
- R. Tailstock Hand Wheel
- S. Tailstock Locking Handle
- T. Tool Holder & Tools

## 3.2 TECHNICAL SPECIFICATION

Motor input power	1 HP, TEFC
Motor Speed (no load)	3,200 RPM
Volts, Phase	220-240 V, 1 Ph
Amps, Hertz	4 A, 50 Hz
Swing Over Bed	305 mm
Swing Over Rest Base	235 mm
Distance Between Centers	419 mm
Electronic Variable Speeds	250 - 3,200 RPM
Speed Ranges (3)	250-850 / 430-1,450 / 950-3,200 RPM
Spindle Rotation (2)	Forward (C-Clockwise) & Reverse (Clockwise)
Spindle Nose Threading	M30X3.5
Headstock Taper	MT-2
Tailstock Taper	MT-2
Hole Through Drive Spindle	10 mm
Hole Through Tailstock	10 mm
Tailstock Ram Travel	90 mm
Number of Indexing Positions	24
Tool Rest Post Diameter	25.4 mm
Overall Size (LxWxH)	991 x 340 x 397 mm
Cast Base Size (LxW)	808 x 183.5 mm
Net Weight	43 kg

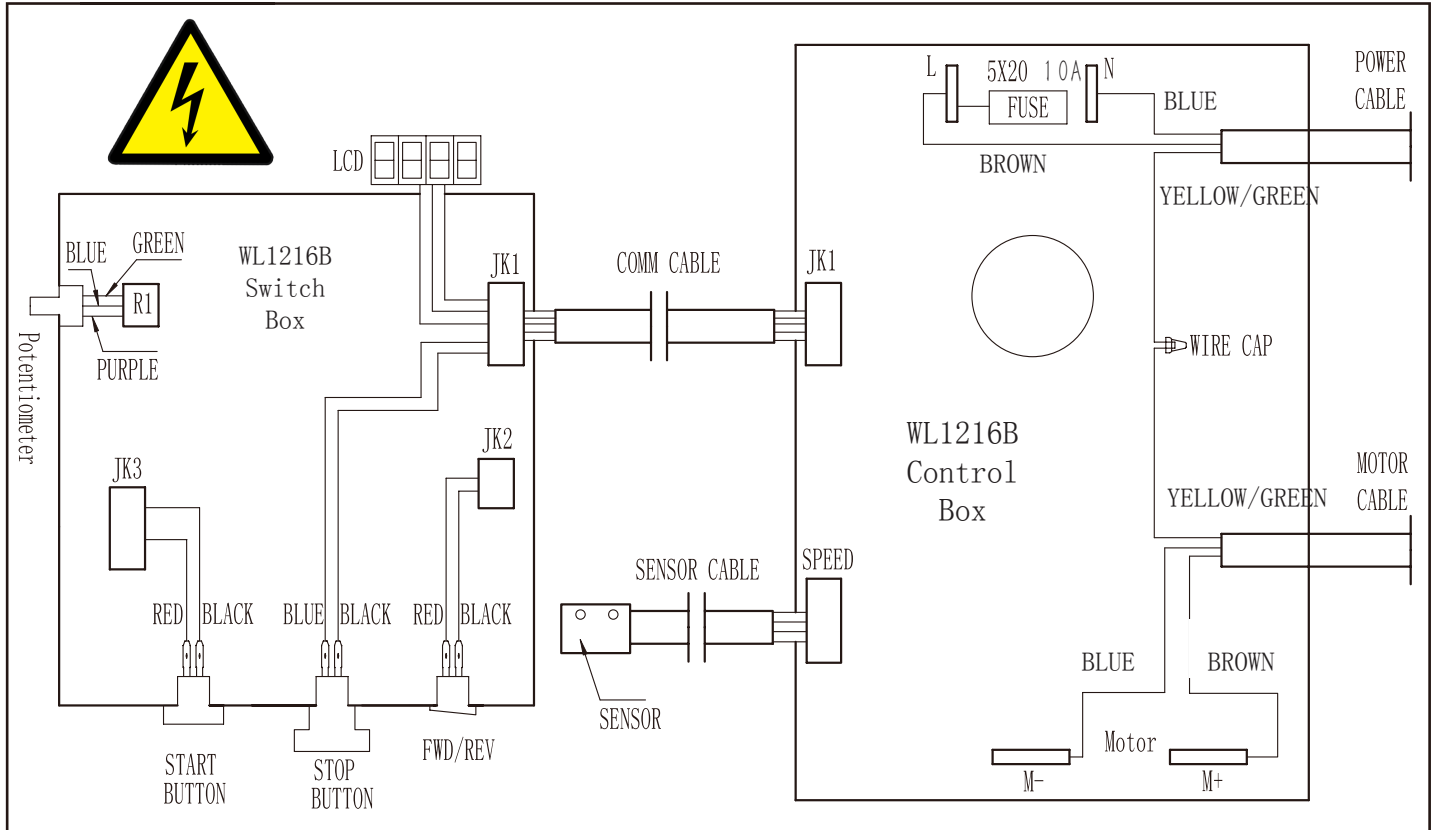
### 3.3 ELECTRICAL CONNECTION

- Electrical installation should be carried out by competent, qualified personnel.
- The mains connection should be made using the terminal box.
- Replacement of the power supply cable should only be done by a qualified electrician.



#### WARNING

To avoid electrocution or fire, any maintenance or repair to electrical system should be done only by qualified electricians using genuine replacement parts.



### 3.4 NOISE LEVEL

	No load	Load
Sound Pressure Level	< 80dB(A)	< 90dB(A)
Sound Power Level	< 90dB(A)	< 100dB(A)

The noise levels measured are emission levels and not necessarily the safe working level. Although there is a correlation between the emission levels and the exposure levels, this cannot be used reliably to determine whether or not further precautions are required. The factors which affect the actual level of operator exposure include the duration of exposure, the ambient characteristics and other sources of emission, for example, the number of machines and other adjacent machining. The permitted exposure values may also vary from country to country. Nevertheless, this information allows the user of the machine to better evaluate the dangers and risks.

Other factors which reduce exposure to noise are:

- correct tool choice
- tool and machine maintenance
- use of hearing protection systems (e.g. headsets, earplugs,...)



**WARNING** Please use the hearing protection systems if the above mentioned noise levels exceed 95dB(A).

# 4. INSTALLATION



**WARNING** The machine must not be plugged in and the power switch must be in the OFF position until installation is complete.

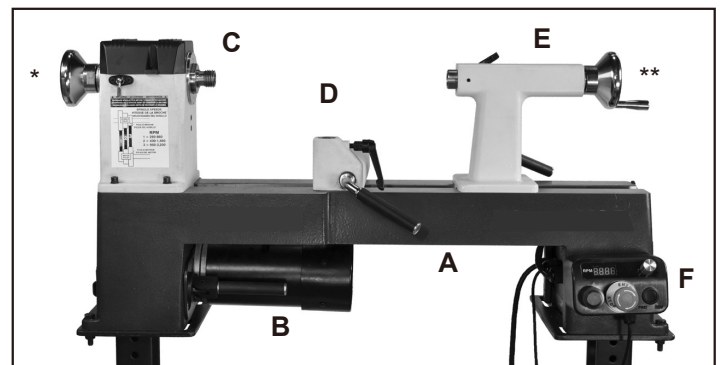
## 4.1 MOVING & INSTALLING THE LATHE

1. When moving the lathe, DO NOT use the headstock assembly, motor, tool rest or tailstock as this may damage the machine. Hold under the lathe's bed to lift and move the machine. Straps or battens placed under the lathe bed can also be used to move the machine.
2. Position the machine on a solid stand, or bench, that is located in an area that has ample space in front and in back of the lathe for working and moving around the lathe.
3. For best power and safety, the lathe should be plugged directly into a dedicated grounded electrical outlet that is within the supplied cord length of the machine. The use of an extension cord is not recommended.
4. Align the machine so that during use, any turning debris or kickback will not face aisles, doorways, or other work areas that bystanders may be in. Do not locate or use the machine in damp or wet conditions.
5. Once in place in your shop, make sure that the machine is level. If possible, secure the machine, or stand to the floor, or bench, with lag screws (not supplied). This will reduce any possible vibration during use.

## 4.2 CONTENTS OF PACKAGE

### CONTENTS OF PACKAGE

- A. Lathe Bed Assembly - including;
- B. Motor Assembly
- C. Headstock Assembly
- D. Tool Rest Base Assembly
- E. Tailstock Assembly
- F. Electronic Controls

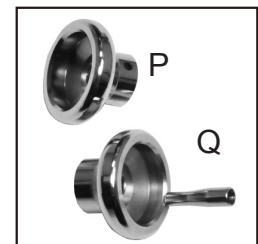
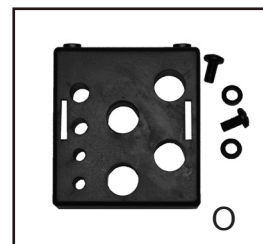


NOTE: Lathe shown with Outboard Hand Wheel \* on the Headstock and Tailstock Hand Wheel \*\* installed. Lathe is shown on the Stand (sold separately)



### LIST OF LOOSE PARTS

- G. 3" Faceplate
- H. 8" PRO Tool Rest
- I. Spur Center
- J. Live Center
- K. Long Knockout Bar
- L. Short Knockout Bar
- M. Hex Wrenches (2.5, 3, 4, 5 mm)
- N. Wrenches (38 & 46 mm)
- O. Tool Holder, Screws & Washers (2)
- P. Outboard Hand Wheel
- Q. Tailstock Hand Wheel



### ADDITIONAL TOOLS REQUIRED FOR ASSEMBLY & ADJUSTMENTS

#2 Phillips Screwdriver



Adjustable Wrench





## Model WL1216B Wood Lathe is shipped complete in one box. Unpacking and Clean-up

1. Carefully remove all contents from the shipping carton. Compare the contents with the list of contents to make sure that all of the items are accounted for, before discarding any packing material. Place parts on a protected surface for easy identification and assembly. If any parts are missing or broken, please call WOODFAST Customer Service as soon as possible for replacements. DO NOT turn your machine ON if any of these items are missing. You may cause injury to yourself or damage to the machine.

2. Report any shipping damage to your local distributor. Take photographs for any possible insurance claims.

3. Clean all rust protected surfaces with ordinary household type grease or spot remover. Do not use flammables; gas-oline, paint thinner, mineral spirits, etc. These may damage painted surfaces. Clean thoroughly under the headstock, tailstock and tool rest body. Then coat with a light film of dry lubricant spray, or wax, to enhance passage of the tool rest and tailstock on/over the bed. Refrain from using any water-based solvents as they will promote metal rusting.

4. Apply a coat of paste wax to any machined surfaces to prevent rust. Wipe all parts thoroughly with a clean dry cloth.

5. Set packing material and shipping carton aside. Do not discard the packing material until the machine has been set up and is running properly in case a return is necessary.

### 4.3 ASSEMBLY

The WL1216B Lathe requires only minor assembly to become operational. See the photos above for reference.

1. Install the Outboard Hand Wheel (E) on the Headstock. Tighten it in place on the spindle with the two set screws.

2. Install the Tailstock Hand Wheel (R) onto the tailstock spindle. Secure with the set screw on the flat spindle area.

3. Install the Tool Holder (T) onto the back of the headstock with the two Phillips head screws and washers provided.

4. Install the 8" Tool Rest (H) into the Tool Rest Base.

5. The Faceplate (M) may be shipped pre-installed on the headstock spindle. If plate or bowl turning is to be done, then the use of the faceplate is needed. To remove the faceplate, loosen the two set screws in the rear hub of the faceplate, then unscrew it from the spindle (counter-clock-wise rotation). Two wrenches are supplied for this.

6. For spindle turning, remove the faceplate. Install the Spur Center (G) into the headstock spindle and Live Center(K) into the tailstock spindle. Both have #2 Morse Taper shanks.

7. Secure the lathe to a solid work surface or stand.

## 5. OPERATION

### 5.1 HEADSTOCK CONTROLS

1. HEADSTOCK SPINDLE LOCK: The spring loaded Index Pin Assembly (#29B, FIG. 5.1.1, A) is used to position the spindle for making accurate, spaced pattern work on projects such as straight fluting, grooving, drilling, detail carving, wood burning patterns and laying out designs. See page 14 for more information on indexing.

NOTE: DO NOT use the Index Pin to remove accessories from the lathe, or damage to the pin, or spindle pulley may result. Use the wrenches provided with the lathe.

The Index Pin is spring loaded. Rotate the index Lever (A) from its downward position, 180 degrees into the upward position to engage the indexing pin. This will insert the index pin's shaft end into one of the spindle pulley's 24 numbered holes (B), locking the spindle in place. To unlock the spindle, rotate the index lever to its down position.

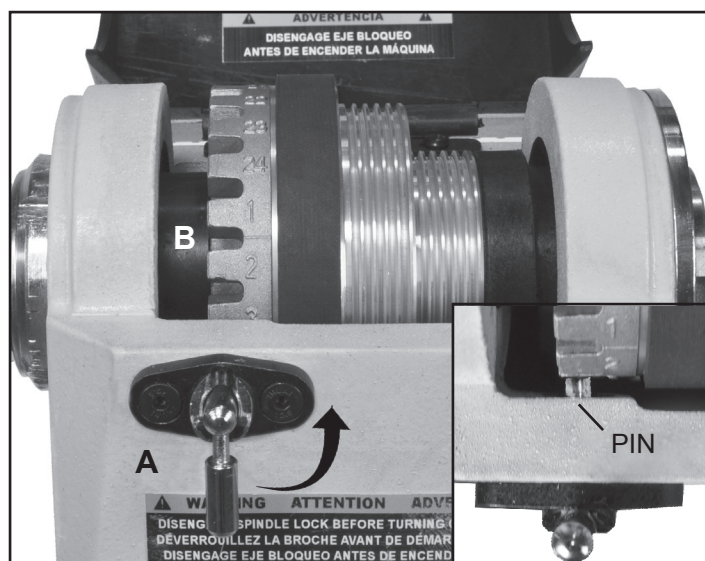


Fig.5.1.1

2. HEADSTOCK INDEXING HOLES: (FIG. 5.1.1, B) The largest Spindle Pulley (#7B) has 24 positioning ‘holes’ located around its left side. Each index hole is 15° apart, and marked for reference around the pulley perimeter. Insert the Indexing Pin (A) into one of these holes, and the spindle will be locked so that work can be done on the workpiece. See page 14 for additional information.

**WARNING**

Never start the lathe with the index pin engaged in the spindle, or damage to the lathe will result.  
 - Never engage the spindle lock while the spindle is turning, or damage to the lathe will result.

3. HEADSTOCK FACEPLATE: Faceplates (#22B, FIG. 5.1.2, C) are used for turning bowls and plates. The screw holes in the plate are for mounting the workpiece for turning.

- To install the faceplate, thread the faceplate onto the spindle in a clockwise direction, and secure it in place with the set screws that are located on the back hub of the faceplate.  
 - To remove the faceplate, loosen the set screws. Use the supplied 38mm Wrench on the flat portion of the spindle (FIG. 5.1.2, X) and the 46mm Wrench on flats of the face-plate’s rear hub, then loosen the faceplate from the spindle. Rotate the faceplate counter-clockwise to fully remove it from the spindle.

4. HEADSTOCK SPUR CENTER: The Spur Center (#23B, FIG. 5.1.2, D) is used for turning between centers. It fits into the spindle. Both the spindle and spur center have matching MT-2 tapers. The spur center can be removed from the spindle with the long Knockout Bar (K) inserted through the outboard left end of the spindle. NOTE: Be careful and hold the spur center during this process so it does not fly out onto the floor. A short Knockout Bar (L) is supplied to remove the Spur Center’s Center Point, if it needs replacing.

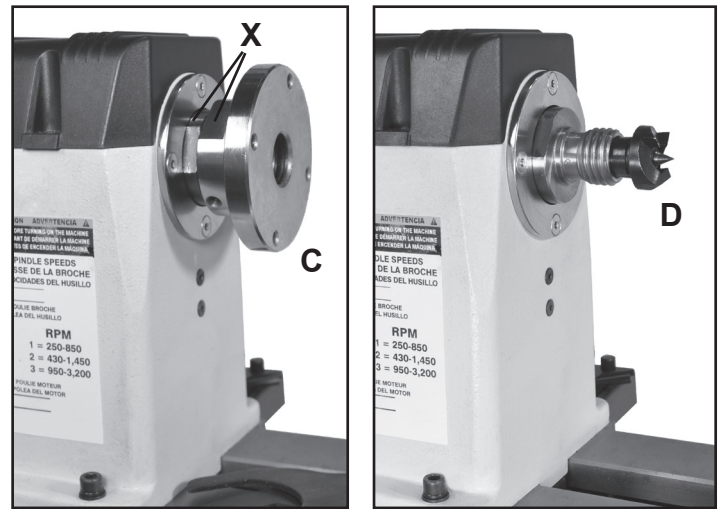


Fig.5.1.2

**GENERAL LATHE SPEEDS FOR WORKPIECE DIAMETERS**

DIAMETER OF WORK	ROUGHING RPM	GENERAL CUTTING RPM	FINISHING RPM
Under 2"	1520	3200	3200
2 to 4"	750	1600	2480
4 to 6"	510	1080	1650
6 to 8"	380	810	1240
8 to 10"	300	650	1000
10 to 12"	255	540	830
12 to 14"	220	460	710
14 to 16"	190	400	620

**5.2 TOOL REST CONTROLS**

1. TOOL REST BODY LOCK HANDLE: (FIG. 5.2, A) This cam action lever handle locks the tool rest base (B) down in position on the lathe bed. Unlock handle to position the tool rest in any location along the lathe bed. Tighten the handle when the tool rest is properly located for safe turning of the workpiece. See page 12 for adjusting clamping pressure.

2. TOOL REST LOCK HANDLE: (C) Locks the tool rest in position for supporting your tools during turning. Unlock the handle to adjust the tool rest at a specific angle, or height. Tighten handle when properly positioned.

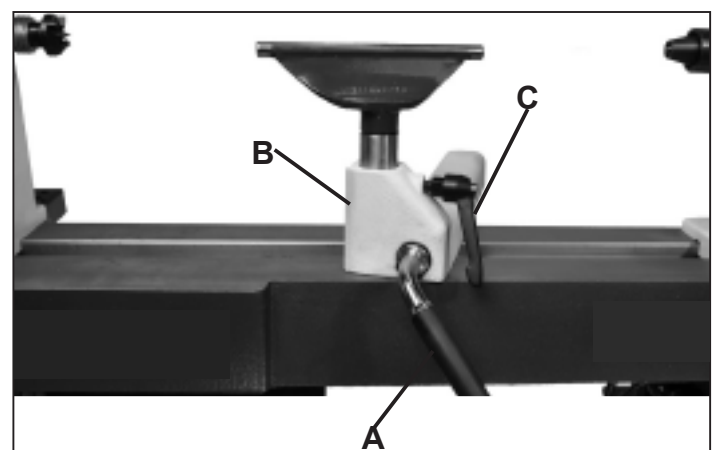


Fig.5.2

**WARNING**

NOTE: The handle is spring loaded on its internal bolt. To change the handle position, pull the handle out, rotate it to the position you desire, then release the handle and it will align itself back onto the bolt.

### 5.3 TAILSTOCK CONTROLS

1. TAILSTOCK LOCK HANDLE: (FIG. 5.3, D) Locks the tailstock in position along the length of the lathe bed. Unlock the cam lever handle to position the tool rest to move the tailstock. Tighten handle when properly positioned. See page 12 for adjusting clamping pressure.
2. TAILSTOCK QUILL LOCK HANDLE: (E) Secures the tailstock quill in position. Unlock the handle to move the quill, with live center, forward or backwards. Tighten the locking handle when the quill is finally positioned.
3. TAILSTOCK QUILL HANDWHEEL: (F) The handwheel advances or retracts the quill 0 to 3-1/2". The tailstock quill lock handle (E) must be loose to move the quill.
4. TAILSTOCK LIVE CENTER: (G) Used for turning between centers. The Live Center (#20C) and the Quill (#6C) have MT-2 tapers. Remove the live center by retracting the quill until the center loosens, or use the knockout bar.

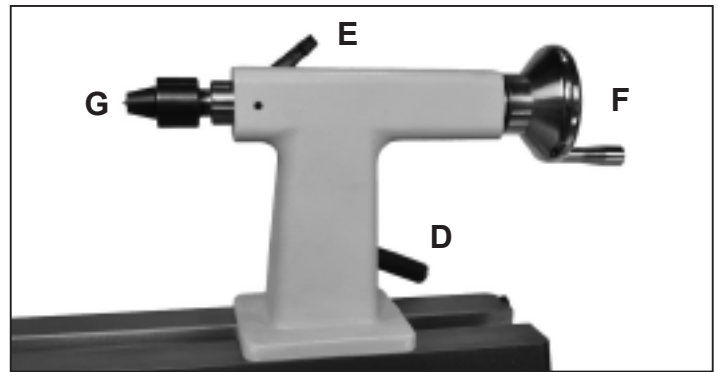


Fig.5.3

### 5.4 ELECTRONIC CONTROLS

The lathe features a corded Control Box (FIG. 5.4, #E1) with magnets on its back that allow it to be positioned on the face of the headstock or anywhere along the lathe's bed! Wherever it is most comfortable for the turner to quickly access the controls to regulate turning speeds, direction of spindle rotation or to stop the lathe.



Fig.5.4

1. 'ON' BUTTON: (FIG. 5.4, A) Push the green Button so that it turns the lathe ON. Push the red 'mushroom' Button (B) to turn the lathe OFF.
2. 'STOP' BUTTON: (B) Push in the extended red Button to stop the lathe. To restart the lathe, rotate the OFF button clockwise and it will pop out to reset itself. Then press the 'ON' button to restart the lathe.
3. FORWARD / REVERSE SWITCH: (FIG. 5.4, C) This selector switch will change the direction that the spindle turns - clockwise (forward) or counter-clockwise (reverse).
5. SPEED RPM DIGITAL READOUT: (E) Displays the spindle's RPM as set by the RPM Knob (D). NOTE: Speeds displayed may vary + - 5% due to difference in input voltage.

See the Speed Chart (GENERAL LATHE SPEEDS FOR WORKPIECE DIAMETERS, page 9) for recommended speeds based on the diameter of the workpieces.

#### **WARNING**

Only change rotation direction when the spindle has completely stopped. Should the switch be changed while the lathe is operating, the machine will automatically turn off in 'protection' mode. The Digital Readout will show an error code reading.

Turn off the lathe by pushing the large red OFF button (B) and the digital reading will go out, and the control box will reset. Rotate the Off button clockwise and it will pop out to reset itself. Then put the forward/reverse switch to the desired setting (FWD or REV) and the lathe can be turned back on to continue your work.

NOTE: See page 15 for a list of Electronic Digital Codes. 4. SPEED RPM KNOB: (FIG. 5.4, D) This knob controls the desired spindle revolutions per minute (RPM). The lathe has three speed ranges - 250-850, 430-1450, 950-3200 RPM. Spindle speeds are shown on the LCD Display (E).

## 5.5 LATHE BED EXTENSIONS - (OPTIONAL)

The WL1216B Lathe features a cast iron bed with both of its ends machined to add bed extensions which will expand the work capabilities for turning. Extensions easily bolt onto the lathe ends for solid support. Extensions and Stand accessories are sold separately.

**RIGHT BED END:** To extend the spindle turning length between centers, the addition of a lathe bed extension is needed. There are two extension options:

- (FIG. 5.5.1) This 13-1/2" Bed Extension extends the lathe's maximum spindle length from 16-1/2" to 30". If the lathe is mounted on a stand, a stand extension is not needed.
- (See Page 21) This 24" Bed Extension expands the working spindle length from 16-1/2" to 40-1/2". If the lathe is mounted on a stand, the lathe Stand Extension is needed to support the added bed length.

**LEFT BED END:** To extend the swing over the lathe bed for larger diameter turning of bowls and platters, the addition of a bed extension on the left end of the lathe is provided for outboard turning.

- (FIG.5.5.2) This 13-1/2" Bed Extension will expand the lathe's swing from 12" over the lathe bed, to 15" over the outboard extension bed.



Fig.5.5.1

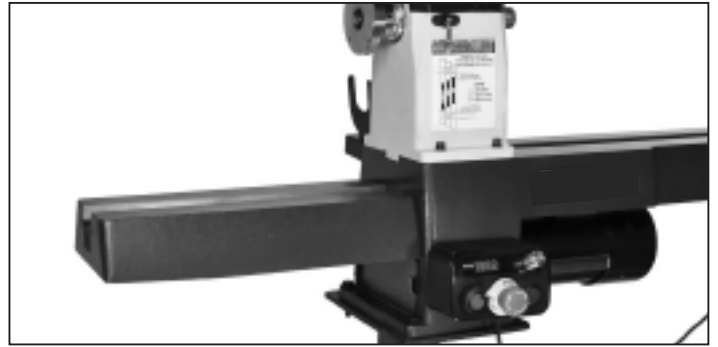


Fig.5.5.2

## 5.6 OUTBOARD BOWL & PLATTER TURNING

With the optional #70-903 13-1/2" Extension mounted on the left, outboard end of the lathe (FIG. 5.5.2 & 5.6), faceplates or chucks can be mounted on the outboard end of the spindle. This end has the same 1" x 8TPI RH threading as the inboard spindle end. For outboard turning, the spindle needs to rotate in the REVERSE direction. For turning:

1. To remove the Handwheel (#1B), loosen the 2 Set Screws (#2B). Use the 38mm Wrench on the flat portion of the spindle, then loosen the faceplate from the spindle by hand. Rotate the handwheel counter-clockwise to fully remove it from the spindle.

2. Faceplates or Chucks holding workpieces can now be mounted on the outboard spindle for turning.

3. Remove the tool rest assembly from the lathe bed, and mount it on the lathe bed extension for turning. For this:

- Loosen the lathe bed's end Screw (#10A) with the 5mm Hex Wrench then rotate the safety Washer (#11A) down-ward so the tailstock and tool rest can be removed.
- Release the tailstock's locking handle and slide the tail-stock off of the lathe bed.
- Release the tool rest base's locking handle and slide the tool rest base assembly off of the lathe bed.
- Remount the tool rest base assembly with tool rest onto the 13-1/2" outboard extension so it can be used for turning.
- Remount the tailstock onto the lathe bed and reset the safety end washer in place for security.



Fig.5.6

# 6. ADJUSTMENTS



THE MACHINE MUST NOT BE PLUGGED IN AND THE POWER SWITCH MUST BE IN THE OFF POSITION UNTIL ALL ADJUSTMENTS ARE COMPLETE.



## 6.1 CHANGING BELT SPEEDS

1. Unplug the lathe from the power source.

2. Open the top Headstock Cover (#14B, FIG. 6.1, A) and the left side, Bed Cover Plate Door (#4A, B) to gain access to the belt and pulleys that are inside of the headstock.

3. Loosen the motor mount locking cam-action Handle (#16A).

- Pull the handle forward to unlock. FIG. 6.1, C.
- Push the handle up to release the belt tension.
- Change the belt position on the two pulleys.

4. The Poly-V-Belt (#38B) can now be re-positioned on the upper Spindle Pulley (#7B) and lower Motor Pulley (#24A, FIG. 6.1, D) for the desired speed range setting. FIG. 6.1.2 shows the belt positions for the three speeds.

5. With the Poly-V-Belt positioned on the pulleys, lower the Motor Connecting Plate so that the weight of the motor provides the needed tension on the belt. Then re-tighten the locking cam Handle that was loosened in step 3, above.

- Push the handle down and then backward to set the belt tension and lock it in place.

6. Close the Headstock Cover and Bed Cover Plate Door to protect the belt, pulleys and internal working from dust.



### WARNING

NOTE: The 'High' speed range (950-3200 RPM) provides maximum speed. The 'Low' speed range (250-850 RPM) will provide maximum torque. See the Speed Chart on page 9, (GENERAL LATHE SPEEDS FOR WORKPIECE DIAMETERS), for recommended speeds based on the diameter of the workpieces being turned.

## 6.2 ADJUSTING THE LOCKING HANDLES

The locking handles on the Tailstock and Tool Rest Base are pre-set at the factory to give ample holding pressure against the lathe bed to keep these lathe assemblies positioned, so that they will not move during use.

If adjustments are needed, the clamping pressure can be changed by turning the large Hex Nuts (#16C & 11D) that are located under the lathe bed and below the assemblies. This is done with a 16mm (5/8") or adjustable wrench (not included). FIG. 6.2 shows the tool rest removed from the lathe bed to view the locking mechanism and Hex Nut (A).

1. Loosen the Locking Handle (B) so that there is no clamping pressure being exerted on the lathe assembly.

2. With a wrench, slightly turn the Hex Nut to loosen or tighten it on its Threaded Shaft (#19C & 9D).

3. Test the clamping pressure with the locking handle, and adjust the nut again, if needed, to set the right pressure.

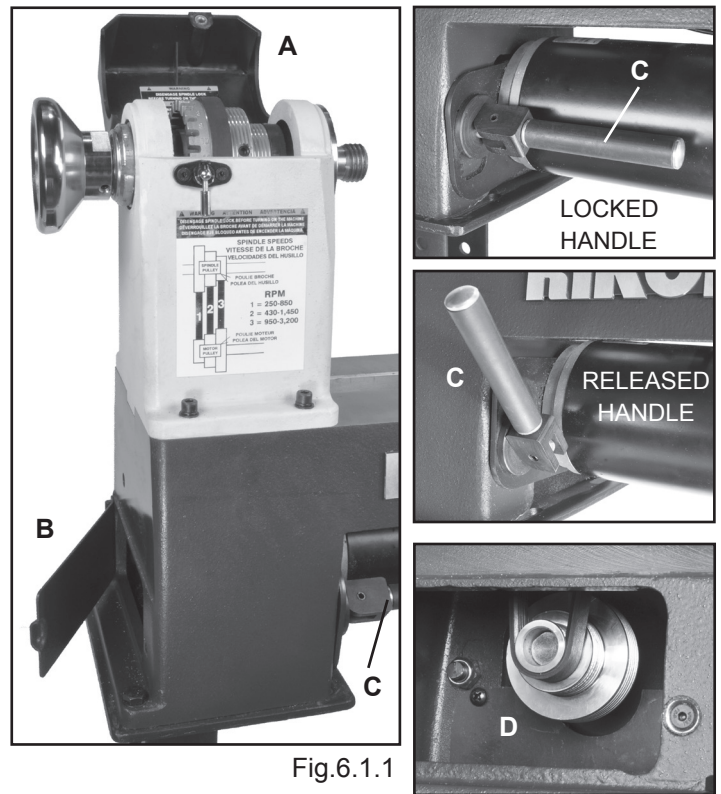


Fig.6.1.1

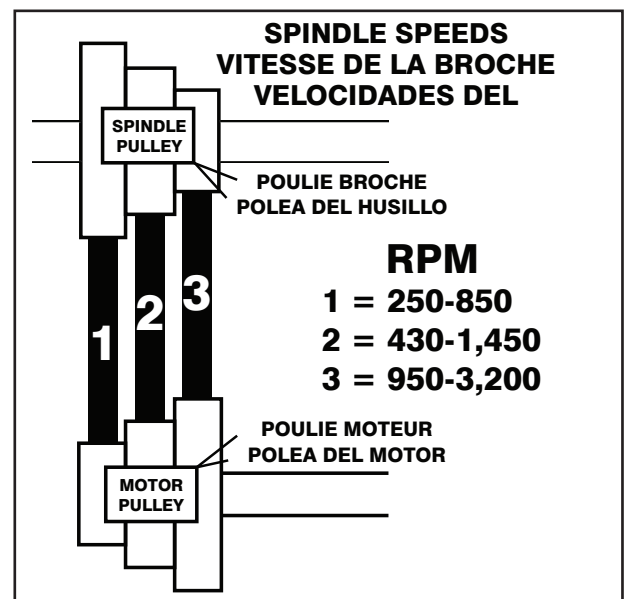


Fig.6.1.2

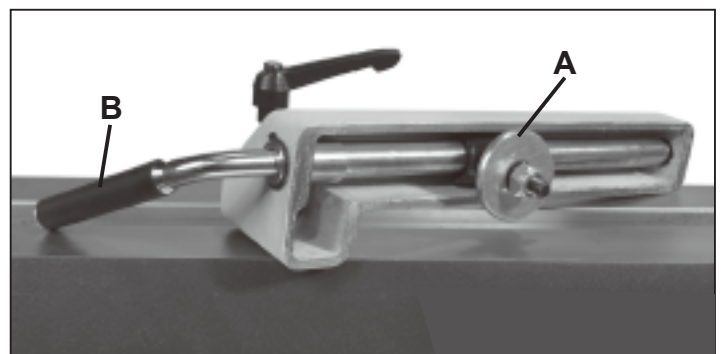


Fig.6.2

### 6.3 CHANGING THE BELT

Changing the belt requires that the headstock spindle be removed, or half removed, from the headstock casting. Then the new belt can be slipped over the spindle and down inside of the headstock to the motor pulley.

1. Unplug the lathe from the power source and remove any accessories from the spindle - spur center, face plate, etc..

2. Open the top Headstock Cover (#14B, FIG. 6.3.1, A) and the left side, Bed Cover Plate Door (#44A, B) to gain access to the belt and pulleys that are inside of the headstock.

3. Loosen the motor mount locking cam-action Handle (#16A).

- Pull the handle forward to unlock. FIG. 6.3.1, C.
- Push up the handle to release the belt tension.

4. Remove the Belt (#38B) from the lower Motor Pulley (#24A; FIG. 6.3.1, D). NOTE: If the belt is not to be saved, the old belt can be cut off at this time.

5. To remove the Handwheel (#1B, FIG. 6.3.1, E), loosen the two (2) Set Screws (#2B). Then use the 38mm Wrench on the flat portion of the spindle, and loosen the faceplate from the spindle by hand. Rotate the handwheel counter-clock-wise to fully remove it from the spindle.

6. Remove the large locking Nut (#3B) in a counterclockwise rotation with the supplied Spanner Wrench (page 8, O), and then remove the large Washer (#4B) behind the nut.

7. At the opposite inboard side of the headstock, remove the Bearing End Plate (#19B) by unscrewing the 3 hex head Screws (#20B) with a 3mm hex wrench. FIG. 6.3.2, P.

8. Remove and loosen the Set Screws (FIG. 6.3.2, H) that attach the Spindle Pulley (#7B) to the spindle. The pulley should now be loose on the spindle. NOTE: There are two(2) set screws, one on top of the other, in both of the two (2) threaded holes. This stacking keeps the set screws from loosening during use.

9. Carefully knock the spindle, towards the tailstock. Use a block of wood against the left spindle end to prevent any damage when it is hit with a mallet/hammer. The spindle pulley, spacers, sleeve and bearings will all slide along the spindle. See page 18 for the spindle diagram assembly. Once there is enough space, the old drive belt can be removed around the spindle end, and replaced with the new belt. FIG. 6.3.2.

10. Re-install the spindle and parts back into the head-stock casting. As in step 9, very carefully knock the spindle and bearings back into place with a block of wood and mallet.

11. Re-assemble the remaining headstock parts by reversing the procedure previously described.

12. Secure the spindle pulley in place on the spindle with the set screws. Make sure that the set screws engage back onto the flat sections on the spindle to eliminate slippage.

13. Position the new belt on the spindle and motor pulleys and set the tension as described on page 12 for 'Changing Belt Speeds'.

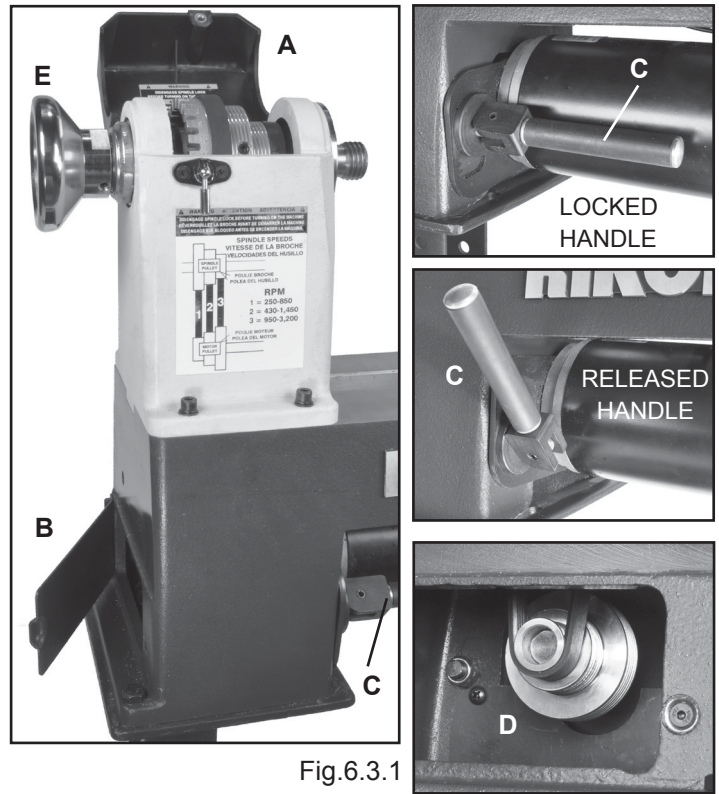


Fig.6.3.1

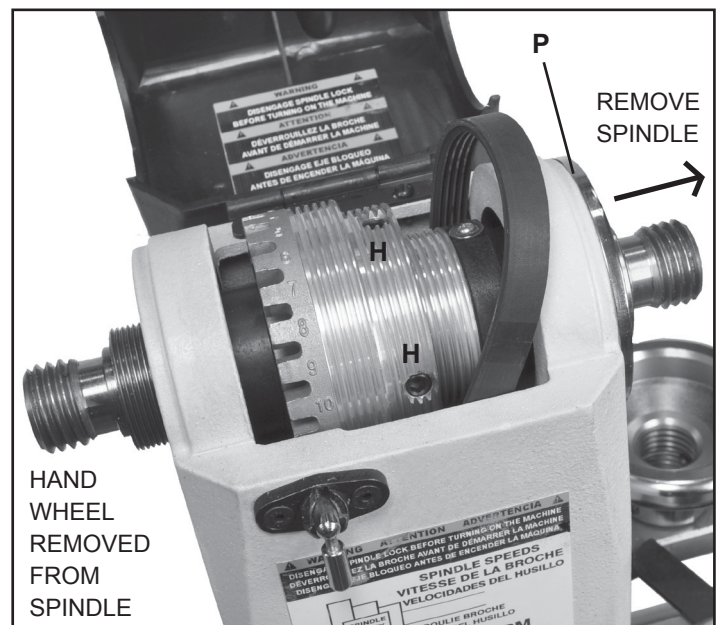


Fig.6.3.2

## 6.4 CHANGING THE BEARINGS

To change the bearings, the whole spindle shaft needs to be shifted right, out of the headstock, towards the tailstock. Then the bearings can be removed from the headstock casting. With the new bearings in place, the spindle shaft assembly can be re-installed, so turning can be resumed.

1. Follow the steps 1-9 described in CHANGING THE BELT on page 14 to remove the spindle assembly from the headstock.
2. Carefully knock out the old bearings. Use a block of wood against the bearings to prevent any damage to the machine if mistakenly hit with a mallet/hammer. Bearings on the spindle can be removed with a gear pulley, if available.
3. Install the new Bearings (#5B) on the spindle or in the headstock casting, by carefully knocking them into position.
4. Re-assemble the lathe parts by reversing the procedure described in steps 10 - 13 as described in the CHANGING THE BELT instructions on page 14.



### WARNING

THE MACHINE MUST NOT BE PLUGGED IN AND THE POWER SWITCH MUST BE IN THE OFF POSITION UNTIL ALL ADJUSTMENTS ARE COMPLETE.



### WARNING

NOTE: The lathe's ball bearings are lifetime lubricated, sealed, and do not need any further care. To prevent slip-ping, keep the drive belt free of oil and grease.

## 6.5 SPINDLE INDEXING ADJUSTMENTS

The Headstock Spindle has 24 indexing holes, each 15° apart, which allows accurate pattern work on projects such as straight fluting, grooving, drilling, detail carving, wood burning patterns, laying out designs and more. The Indexing Chart, FIG. 6.5.1, shows how to rotate the spindle to access any of the 24 indexing holes. The 8 primary settings are listed in FIG. 6.5.2, however, other indexing/design settings are possible. Vary the index combinations to make non-equal, spaced patterns. Also, by rotating/re-positioning your work while it is being held between centers, in a chuck or on a faceplate, new orientation points for the index holes will be set for your work.

To Use: Insert the Indexing Pin into one of the 24 spindle's positioning holes according to the chart, and the number of setting you need for your workpiece. Make sure that the pin locates and securely enters into one of the indexing holes so that there is no accidental slipping.

With the Indexing Pin in the first spindle hole setting, do your work (drilling /marking/etc.), then rotate the spindle to the next index setting noted on the chart. Work through all of the designated index setting numbered positions and complete the remaining markings, or work, on your workpiece.



### WARNING

NEVER START THE LATHE WITH THE INDEX PIN ENGAGED IN THE SPINDLE, OR DAMAGE TO THE MACHINE WILL RESULT.



### WARNING

See page 10 for additional information on the lathe's headstock and indexing.

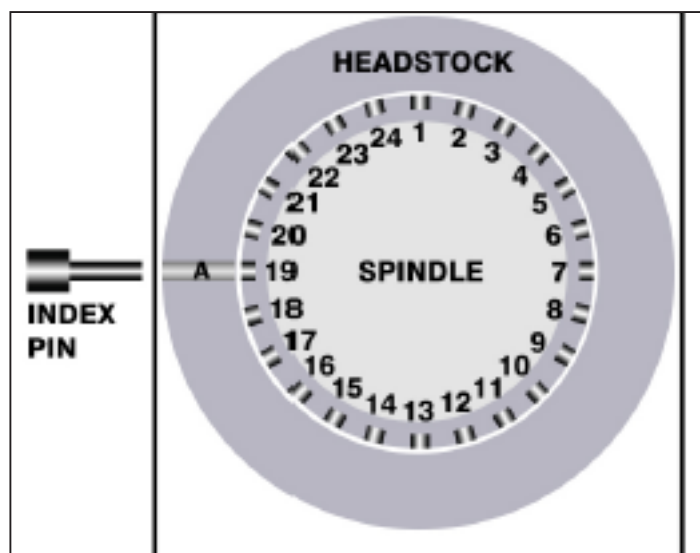


Fig.6.5.1

NUMBER OF INDEX POSITIONS	ANGLE BETWEEN POSITIONS	HEADSTOCK INDEX LETTER	SPINDLE INDEX NUMBER
1	360°	A	1
2	180°	A	1,13
3	120°	A	1,9,17
4	90°	A	1,7,13,19
6	60°	A	1,5,9,13,17,21
8	45°	A	1,4,7,10,13,16,19,22
12	30°	A	1,3,5,7,9,11,13,15,17,19,21,23
24	15°	A	1 to 24

Fig.6.5.2



# 7. MAINTENANCE



Turn the power switch “OFF” and disconnect the plug from the outlet prior to adjusting or maintaining the machine. DO NOT attempt to repair or maintain the electrical components of the motor. Contact a qualified service technician for this type of maintenance.

1. Before each use:
  - Review the Safety Instructions listed on pages 3 to 5.
  - Check the power cord and plug for any wear or damage.
  - Check for any loose screws, hardware, locking handles, jigs or various lathe accessories.
  - Check the area to make sure it is clear of any misplaced tools, lumber, cleaning supplies, etc. that could hamper the safe operation of the machine.
2. Avoid a build-up of wood shavings and dust. Regularly clean all parts of the machine using a soft cloth, brush or compressed air. A general cleaning should be done after every use to avoid future problems and ensure that the machine is in ready condition for its next use.



WARNING: If blowing sawdust, wear proper eye protection to prevent debris from blowing into eyes.

3. Keep the lathe bed free of resin and rust. Clean it regularly with a non-flammable solvent, then coat with a light film of dry lubricant spray, or wax, to enhance passage of the tool rest and tailstock on/over the bed.
4. Keep the lathe tools sharp, and make sure the steel is not loose in the handles so that no accidents might occur. Making sure that tools are in proper operating condition will ensure that the quality of your turning will be the best possible.
5. Check all lathe accessories (spur centers, live centers, chucks, tool rests, etc) to ensure that they are in perfect working condition.
6. The lathe’s ball bearings are lifetime lubricated, sealed, and do not need any further care. Keep the drive belt free of oil and grease to prevent slipping on the pulleys.

# 8. TROUBLESHOOTING - Electronic Speed Control ACTION CODES

DISPLAY CODE	CONDITION	ACTION
00	Digital RPM Display is not operating.	- Check wiring connections to the RPM reader. - Check drive belt. Adjust RPM reader or drive belt positions.
02	Software Protection Mode - Possible damage to the electronic controller. Short circuit protection.	- Check that the motor wiring is not loose and wired correctly. - Turn off the machine and re-start once the digital display has cleared. If the error code still appears, the controller hardware may be damaged and Technical Support should be contacted.
06	Spindle Direction Protection Mode - The spindle direction has been changed during operation.	- Turn off the machine and re-start it once the digital display has cleared.

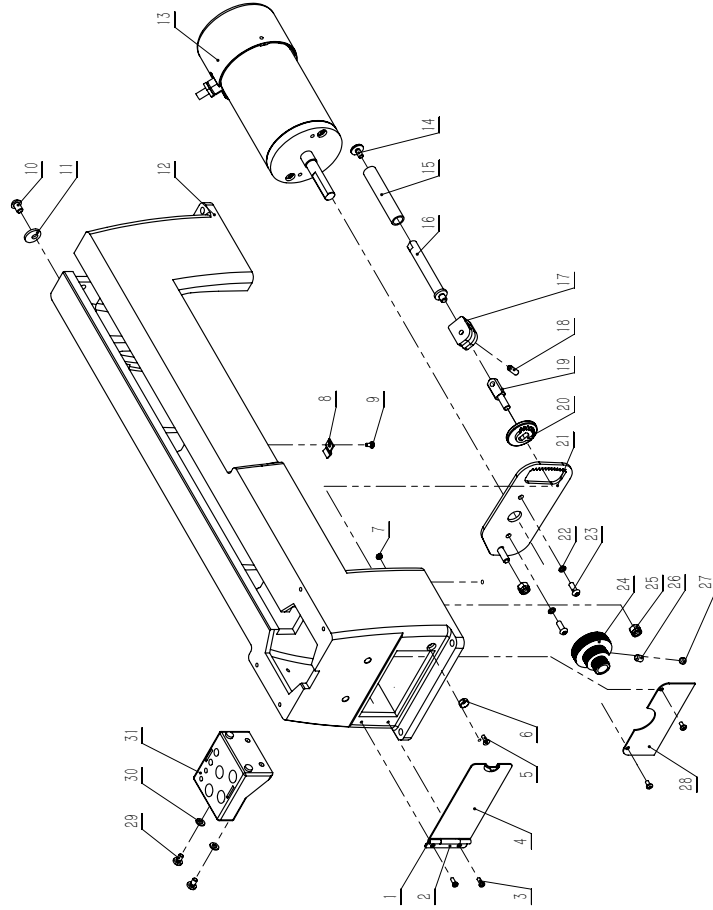


# 9. TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Motor will not start	<ol style="list-style-type: none"> <li>1. Machine is not plugged in</li> <li>2. Low voltage</li> <li>3. Loose connection</li> </ol>	<ol style="list-style-type: none"> <li>1. Plug in machine</li> <li>2. Check fuses</li> <li>3. Check plug and all connections</li> </ol>
Motor fails to develop full power.	<ol style="list-style-type: none"> <li>1. Power line is overloaded</li> <li>2. Undersize wires in supply system</li> <li>3. Drive belt tension is too high</li> <li>4. Low voltage</li> <li>5. Worn motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct the overload condition</li> <li>2. Increase supply wire size or eliminate extension cord if one is used</li> <li>3. Adjust belt tension</li> <li>4. Have voltage checked by an electrician and corrected, if necessary</li> <li>5. Replace the motor</li> </ol>
Motor or Spindle Stalls or will not start	<ol style="list-style-type: none"> <li>1. Excessive depth of cut</li> <li>2. Loose or broken belt</li> <li>3. Worn spindle bearings</li> <li>4. Improper cooling of motor</li> <li>5. Worn motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce cutting depth</li> <li>2. Check tension or replace drive belt</li> <li>3. Replace bearings</li> <li>4. Clean motor to increase air flow, or reduce motor running time</li> <li>5. Replace Motor</li> </ol>
Motor overheats	<ol style="list-style-type: none"> <li>1. Motor is overloaded</li> <li>2. Air flow restricted on the motor</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce load on the motor</li> <li>2. Clean motor to increase air flow</li> </ol>
Excessive Vibration.	<ol style="list-style-type: none"> <li>1. Workpiece is warped, out of round, has major flaw, or was improperly prepared or centered for turning</li> <li>2. Worn spindle bearings</li> <li>3. Worn belt</li> <li>4. Motor mount bolt or handles are loose</li> <li>5. Lathe is on an uneven surface</li> </ol>	<ol style="list-style-type: none"> <li>1. Correct problem by planing, band sawing, or discard the workpiece</li> <li>2. Replace the bearings</li> <li>3. Replace the belt</li> <li>4. Tighten all bolts or handles</li> <li>5. Shim the lathe stand, or adjust the feet on the stand for stability</li> </ol>
Tailstock Moves when applying pressure	<ol style="list-style-type: none"> <li>1. Excessive pressure being applied by the tailstock onto the workpiece</li> <li>2. Tailstock is not secured in place</li> <li>3. Lathe bed and tailstock mating surfaces are greasy or oily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Apply only sufficient force with the tailstock to hold the workpiece securely between centers.</li> <li>2. Tighten tailstock locking lever</li> <li>3. Remove tailstock and clean bed surfaces with a cleaner degreaser</li> </ol>
Tailstock or Tool Rest Base do not lock in place	<ol style="list-style-type: none"> <li>1. Incorrect adjustment on locking lever mechanism</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the nut under the clamping plate to increase (or decrease) the clamping pressure of the lock levers</li> </ol>
Machine bogs down during cutting	<ol style="list-style-type: none"> <li>1. Excessive depth of cut is taken</li> <li>2. Turning tools are dull</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease the depth of cut</li> <li>2. Sharpen the turning tools</li> </ol>
Tools tend to grab or dig in.	<ol style="list-style-type: none"> <li>1. Dull turning tools</li> <li>2. Tool rest is set too low</li> <li>3. Tool rest is set too far from the workpiece</li> <li>4. Improper turning tool is being used</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen the tools</li> <li>2. Reposition the tool rest height</li> <li>3. Set the tool rest closer to the workpiece</li> <li>4. Use the correct tool for operation</li> </ol>
Digital readout does not work	<ol style="list-style-type: none"> <li>1. Digital readout sensor out of position</li> </ol>	<ol style="list-style-type: none"> <li>1. Contact Technical Support</li> </ol>

# 10. PARTS DIAGRAM & PARTS LIST

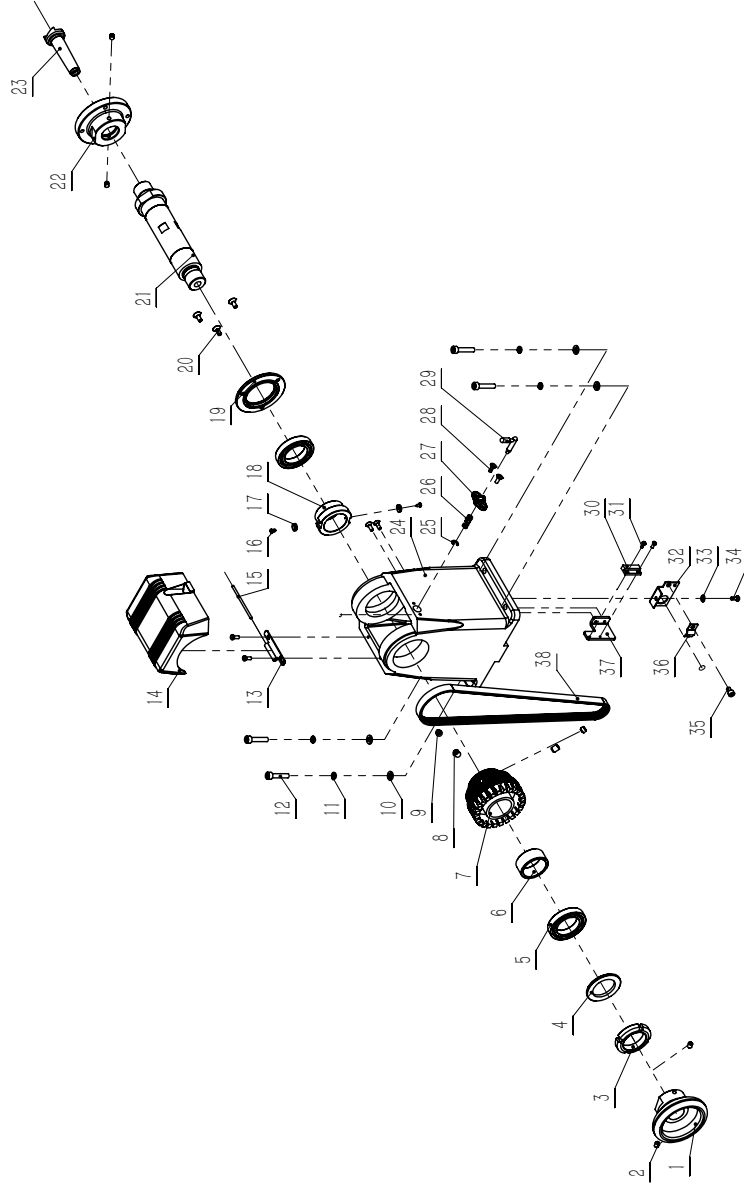
## 1. BED ASSEMBLY



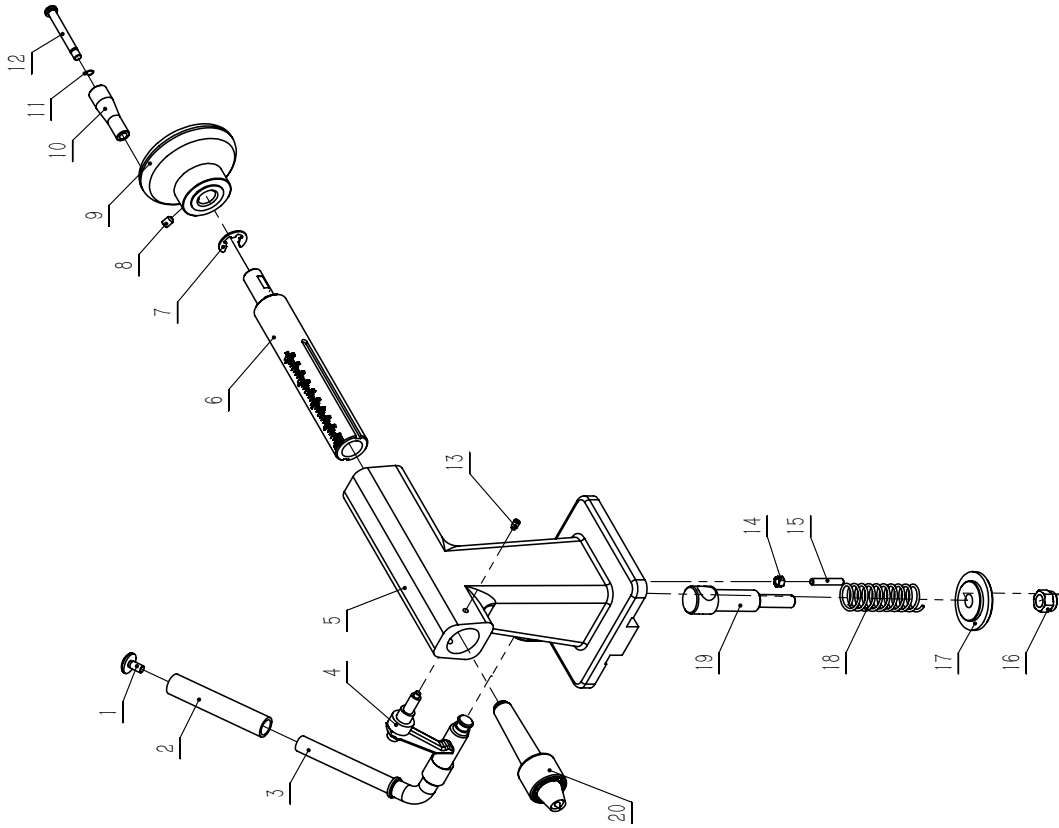
No.	Description	Part number
1	Hinge shaft	1-WL1216B020003
2	Hinge	1-WL1216B020002
3	Cross recess pan head screw	1-M4X10GB823B
4	Bed cover plate door	1-WL1216B01100-040U
5	Hex socket countersunk head screw	1-M4X12GB70D3B
6	Magnet	1-JMWL1203010006
7	Hex nut M4	1-M4GB6170B
8	Cable plate	1-1502014-02
9	Cross recess pan head screw	1-M4X8GB818B
10	Hex socket button head screw	1-M8X12GB70D2B
11	Eccentric washer	1-WL3040A010009
12	Bed	1-WL1216B010002-040L
13	Motor	1-ZYT-101SR-9-230
14	Thread cap	1-WL1216B010009
15	Handle sleeve	1-WL1216B010008
16	Tension Handle	1-WL1216B010007
17	Locking cam	1-WL1216B010006
18	Elastic cylindrical pin	1-PIN6X20GB879D1B
19	Locating shaft	1-WL1216B010005
20	Rotator gear	1-WL1216B010010
21	Motor connecting plate	1-WL1216B010001
22	Spring washer	1-WSH6GB93B
23	Hex socket button head screw	1-M6X16GB70D2B
24	Motor pulley	1-WL1216B010004
25	Hex locking nut	1-M8GB889D1ZF
26	Set screw	1-M8X10GB80B
27	Set screw	1-M8X6GB80B
28	Plate	1-WL1216B010003
29	Cross recess pan head screw	1-M6X12GB818B
30	Washer	1-WSH6GB97D1B
31	Tool holder	1-JL93010017-001S

## 2. HEADSTOCK ASSEMBLY

No.	Description	Part number
1	Hand wheel	1-WL1216B020008A
2	Set screw M6X8	1-M6X8GB80B
3	Self-locking round nut	1-M35GB812ZF
4	Washer	1-WL1216B020012
5	Ball bearing	1-BRG61907-2RSGB276
6	Spacer bush	1-WL1216B020011
7	Spindle pulley	1-WL1216B020006
8	Set screw M8X10	1-M8X10GB80B
9	Set screw M8X6	1-M8X6GB80B
10	Washer	1-WSH6GB97D1B
11	Spring washer	1-WSH6GB93B
12	Hexagon socket cap screw	1-M6X30GB70D1B
13	Hinge	1-WL1216B020002
14	Headstock cover	1-WL1216B020001-001S
15	Hinge shaft	1-WL1216B020003
16	Tapping screw	1-ST3X6GB846ZF
17	Magnet	1-WL1216B020014
18	Magnetic steel sleeve	1-WL1216B020010
19	Bearing end plate	1-WL1216B020013
20	Hex socket countersunk head screw	1-M5X12GB70D3Z
21	Spindle	1-WL1216B020004A
22	3" flange plate	1-JMWL1203020010B
23	Spur center	1-JL93011100
24	Headstock	1-WL1216B020005-117L
25	Split washer	1-CLP5GB896B
26	Spring	1-WL1216B020018
27	Locating sleeve	1-WL1216B020016
28	Hex socket countersunk head screw	1-M4X12GB70D3B
29	Locating pin assembly	1-WL1216B020100
30	Speed measuring head screw M3X10	1-WL1216B090009
31	Threading plate	1-M3X10GB70D1B
32	Washer	1-JMWL1203020014
33	Cross recess pan head screw	1-WSH4GB97D1B
34	Hexagon socket cap screw	1-M4X10GB823B
35	Cable plate	1-M5X8GB70D1B
36	Support bracket	1-1502014-02
37	Poly-v-belt	1-WL1216B020007
38		1-5PJ710GB16588

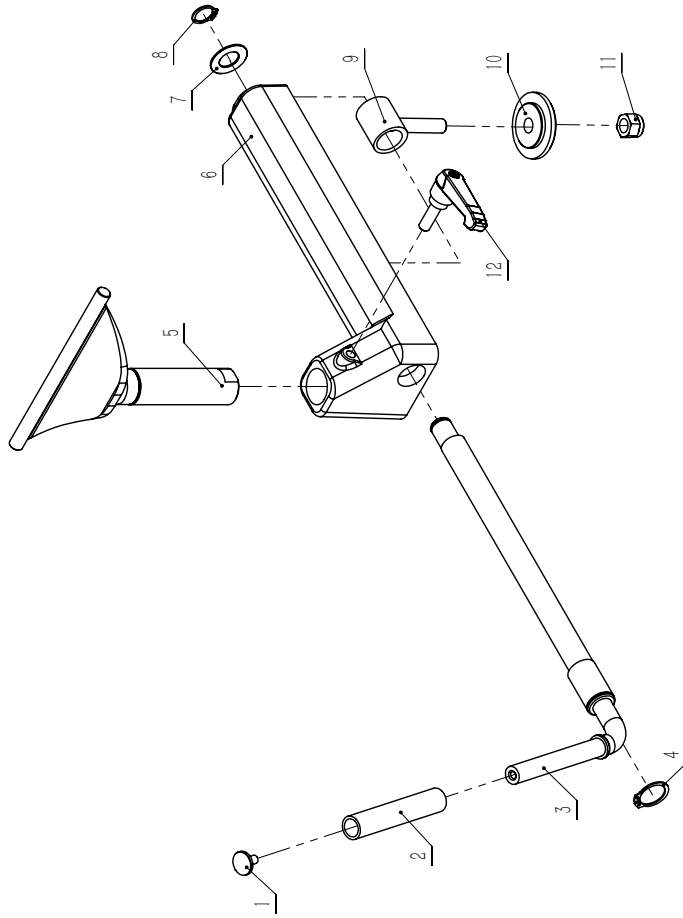


### 3. TAILSTOCK ASSEMBLY



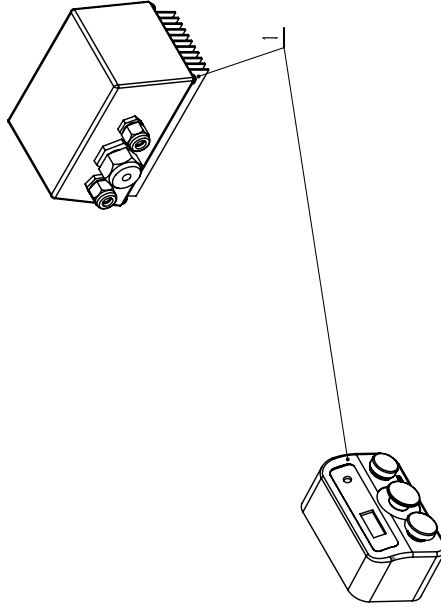
No.	Description	Part number
1	Thread cap	1-WL1216B010009
2	Handle sleeve	1-WL1216B010008
3	Tailstock locking lever	1-WL1216B040002
4	Locking handle	1-JMWL1203041000
5	Tailstock	1-WL1216B040001-117L
6	Axle Sleeve & Bolt	1-JMWL1203041100
7	Split washer	1-CLP12GB896B
8	Hex socket socket set screw	1-M6X8GB80B
9	Hand wheel	1-JMWL1203040005
10	Rotate hand	1-JL93030007
11	Spring coil	1-JMWL1203040007
12	Bolt	1-JL93030008
13	Set screw M5X8	1-M5X8GB79B
14	Hex nut	1-M5GB6170B
15	Set screw M5X25	1-M5X25GB77B12D9
16	Locking nut	1-M10GB889D1ZF
17	Clamping plate	1-JL93030012
18	Compression spring	1-JMWL1203040004
19	Threaded shaft	1-JMWL1203040002
20	Live center	1-JL93031000A

#### 4. TOOL REST ASSEMBLY



No.	Description	Part number
1	Thread cap	1-WL1216B010009
2	Handle sleeve	1-WL1216B010008
3	Eccentric handle	1-WL1216B050002
4	Circlip	1-CLP21GB894D1B
5	8" Tool rest	1-WL1216B052000A-001U
6	Tool base	1-WL1216B050001-040L
7	Thrust bearing washer	1-BRG1528AXKASGB4605-2
8	Circlip	1-CLP15GB894D1B
9	Threaded shaft & sleeve	1-JMWL1203050002
10	Clamping plate	1-JL93030012
11	Hex locking nut	1-M10GB889D1ZF
12	Locking handle	1-KTSB-1-B-M8X63X25

5. CONTROLLER ASSEMBLY



<b>No.</b> 1	<b>Description</b> Controller	<b>Part number</b> 1-WL1216B093000A
-----------------	----------------------------------	--

# 11. ACCESSORIES

## 10.1 24" LATHE BED EXTENSION

Made of heavy cast iron, it bolts to the right end of the WL1216B Lathe to extend the lathe's working spindle length capacity to 40-1/2".

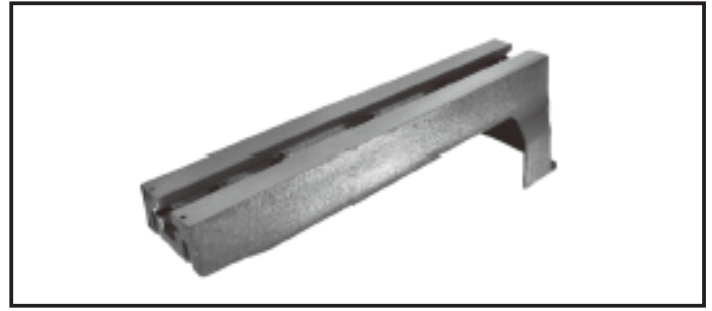


Fig.10.1

## 10.2 13-1/2" LATHE BED EXTENSION

This short, cast iron extension bolts to the left, head-stock end of the WL1216B Lathe for outboard turning. It extends the lathe's swing diameter capacity from 12" to 15-1/2". It also fits onto the left end of the lathe to extend spindle length capacity to 30".

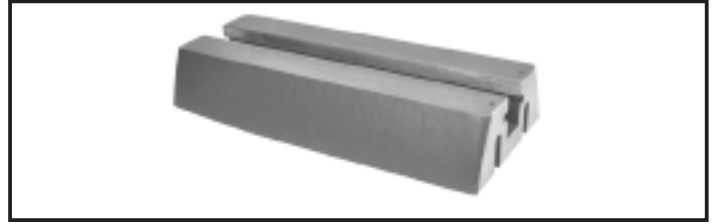


Fig.10.2

## 10.3 LATHE STAND

Universal, all-steel Stand adjusts from 23-1/4" to 37-1/4" long, and 24-1/2" to 34-1/2" working height.



Fig.10.3

Fig.10.4

## 10.4 LATHE STAND EXTENSION

Universal, all-steel Stand Extension bolts onto the stands to support lathes with Bed Extensions. The stand extension adjusts from 18-3/4" to 32-1/4" long, and 24-1/2" to 34-1/2" working height.

## 10.5 TOOL RESTS

Interchangeable turning Tool Rest Tops and Posts let you mix and match parts to meet the tool rest sizes that you need.

Posts have M12 x1.25 threaded ends that install into the base of the Tool Rest Tops. The Spring Washer secures the post and top together.

- A. Tool Rest Tops only  
 4" (102mm) Long  
 6" (152mm) Long  
 8" (203mm) Long  
 12" (305mm) Long

- B. Compression Spring Washer only  
 1" (25.4mm) diameter

- C. Tool Rest Posts only (includes Washer)  
 5-1/8" (130mm) Long x 1" (25.4mm) diameter  
 3-3/4" (95mm) Long x 1" (25.4mm) diameter  
 3-3/8" (85mm) Long x 1" (25.4mm) diameter  
 2-3/4" (70mm) Long x 5/8" (15.9mm) diameter

## 10.6 TOOL REST EXTENSION

Increases the reach of tool rests for turning surfaces not possible with standard tool rests. Has 1" post and hole, with 7-1/2" reach.

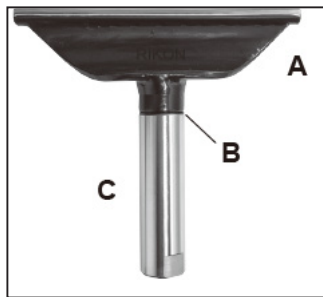


Fig.10.5



Fig.10.6

## 10.7 FACE PLATES

Have holes for screw mounting of projects. For lathes with M30 x 3.5 spindle threading.

- 3-3/8" Diameter  
 6" Diameter



Fig.10.7



Fig.10.8

## 10.8 60° LIVE CENTER

Great for centering stock with 1/8" to 1-3/8" pre-drilled end holes for turning. Features sealed double ball bearings for smooth operation, #2 Morse Taper and alloy steel construction.

