

**RIKON**  
POWER TOOLS®

70-1824VSR  
70-1824VSR2

# 18" x 24" VSR Lathes

## 1.75HP, 115V and 2.5HP, 230V Models



# Operator's Manual

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

The serial number can be found on the specification label on the rear of your machine.

Serial Number: \_\_\_\_\_ Date of purchase: \_\_\_\_\_

For technical support or parts questions, email [techsupport@rikontools.com](mailto:techsupport@rikontools.com) or call toll free at (877) 884-5167

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## SPECIFICATIONS # 70-1824VSR & 70-1824VSR2

|                                   |                |                |
|-----------------------------------|----------------|----------------|
| Motor TEFC .....                  | 1.75 HP        | 2.5 HP         |
| Volts, Phase (Input/Output) ..... | 115 V, 3/1 Ph  | 230 V, 3 Ph    |
| Amps, Hertz .....                 | 16 A, 50/60 Hz | 14 A, 50/60 Hz |

|  |  |
|--|--|
| Motor Speed (no load) .....                        | 1,720 RPM                              |
| Recommended Breaker Size .....                     | 20 Amp                                 |
| Spindle Rotation .....                             | Forward/Reverse                        |
| Swing Over Bed .....                               | 18"(457 mm)                            |
| Swing Over Tool Rest Base.....                     | 13-3/4" (350 mm)                       |
| Distance Between Centers.....                      | 24" (610 mm)                           |
| Speeds .....                                       | Variable 50 - 3,850 RPM                |
| Speed Ranges (3) .....                             | 50 - 900; 100 - 1,850; 200 - 3,850 RPM |
| Spindle Nose Threading.....                        | 1-1/4" x 8 TPI RH                      |
| Headstock Taper .....                              | MT-2                                   |
| Tailstock Taper .....                              | MT-2                                   |
| Hole Through Drive Spindle .....                   | 3/8" (10 mm)                           |
| Hole Through Tailstock .....                       | 3/8" (10 mm)                           |
| Tailstock RAM Travel Quill .....                   | 4-1/2" (115 mm)                        |
| Number of Indexing Positions.....                  | 24 (15 Degrees)                        |
| Headstock Rotation .....                           | 180 Degrees                            |
| Tool Rest Post Diameter .....                      | 1" (25.4 mm)                           |
| Spindle to Floor Distance .....                    | 43-5/16" (1100 mm)                     |
| Overall Height .....                               | 47-3/8" (1205 mm)                      |
| Overall Length .....                               | 63" (1600 mm)                          |
| Overall Width .....                                | 24-3/8" (620 mm)                       |
| Outboard Swing Over Bed Extension (optional) ..... | 27-1/2" (700 mm)                       |
| Outboard Swing Over Tool Rest Base .....           | 23-1/2" (600 mm)                       |
| Outboard Swing 90° Forward Over Stand Leg .....    | 44" (1118 mm)                          |
| Base / Legs Size (LxW) .....                       | 47-1/4" x 24-3/8" (1120 x 620 mm)      |
| Net Weight .....                                   | 373 lbs (169 kgs)                      |

**NOTE:** The specifications, photographs, drawings and information in this manual represent the current model when the manual was prepared. Changes and improvements may be made at any time, with no obligation on the part of RIKON Power Tools, Inc. 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.

## SAFETY SYMBOLS



**SAFETY ALERT SYMBOL:** Indicates DANGER, WARNING, or CAUTION. This symbol may be used in conjunction with other symbols or pictographs.



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



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



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


**NOTICE:** Shown without Safety Alert Symbol indicates a situation that may result in property damage.

## GENERAL SAFETY

**KNOW YOUR POWER TOOL.** Read the owner's manual carefully. Learn the tool's applications, work capabilities, and its specific potential hazards.

### BEFORE USING YOUR MACHINE

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 the State of California 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** the entire Owner's 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 3rd prong is used to ground the tool and provide protection against accidental electric shock. **DO NOT** remove the 3rd prong. See Grounding Instructions on the following pages.

4. **AVOID A DANGEROUS WORKING ENVIRONMENT.** **DO NOT** use electrical tools in a damp environment or expose them to rain.

5. **DO NOT** use electrical tools in the presence of flammable liquids or gases.

6. **ALWAYS** keep the work area clean, well lit, and organized. **DO NOT** work in an environment with floor surfaces that are slippery from debris, grease, and wax.

7. **KEEP VISITORS AND CHILDREN AWAY. DO NOT** permit people to be in the immediate work area, especially when the electrical tool is operating.

8. **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.

9. **WEAR PROPER CLOTHING. DO NOT** wear loose clothing, gloves, neckties, or jewelry. 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 the hair is long, to prevent it from contacting any moving parts.

10. **CHILDPROOF THE WORKSHOP AREA** by removing switch keys, unplugging tools from the electrical receptacles, and using padlocks.

11. **ALWAYS UNPLUG THE TOOL FROM THE ELECTRICAL RECEPTACLE** when making adjustments, changing parts or performing any maintenance.

# SAFETY INSTRUCTIONS

**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 workpiece. This is safer than attempting to hold the workpiece 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. 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 the dust may cause serious and permanent respiratory or other injury, including silicosis (a serious lung disease), cancer, and death. Avoid breathing the 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 NIOSH/OSHA approved respiratory protection appropriate for the dust exposure, and wash exposed areas with soap and water.

**26. USE A PROPER EXTENSION CORD IN GOOD CONDITION.** When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. The table on the following page shows the correct size to use depending on cord length and nameplate amperage rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the larger diameter of the extension cord. If in doubt of the proper size of an extension cord, use a shorter and thicker cord. An undersized cord will cause a drop in line voltage resulting in a loss of power and overheating.  
**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.**

**27. ADDITIONAL INFORMATION** regarding the safe and proper operation of this product is available from:

- Power Tool Institute  
1300 Summer Avenue  
Cleveland, OH 44115-2851  
[www.powertoolinstitute.org](http://www.powertoolinstitute.org)
- National Safety Council  
1121 Spring Lake Drive  
Itasca, IL 60143-3201  
[www.nsc.org](http://www.nsc.org)
- American National Standards Institute  
25 West 43rd Street, 4th Floor  
New York, NY 10036  
[www.ansi.org](http://www.ansi.org)
- ANSI 01.1 Safety Requirements for Woodworking Machines and the U.S. Department of Labor regulations  
[www.osha.gov](http://www.osha.gov)

**28. SAVE THESE INSTRUCTIONS.** Refer to them frequently and use them to instruct others.



# SAFETY INSTRUCTIONS - 70-1824VSR

## ELECTRICAL SAFETY

**⚠ WARNING:** THIS 115V TOOL MUST BE GROUND-ED 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 is equipped with an electric cord that has an equipment grounding conductor and requires a grounding plug (not included). 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 ANY PLUG.** If it will not fit the electrical receptacle, have the proper electrical receptacle installed by a qualified electrician.

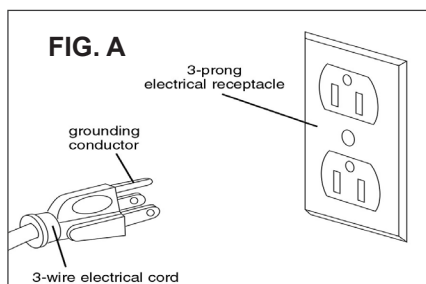
**IMPROPER ELECTRICAL CONNECTION** of the equipment grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. **DO NOT** connect the equipment grounding conductor to a live terminal if repair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

**USE ONLY A 3-WIRE EXTENSION CORD THAT HAS THE PROPER TYPE OF A 3-PRONG GROUNDING PLUG THAT MATCHES THE MACHINE'S 3-PRONG PLUG AND ALSO THE 3-POLE RECEPTACLE THAT ACCEPTS THE TOOL'S PLUG. \***

**REPLACE A DAMAGED OR WORN CORD IMMEDIATELY.**

This tool is intended for use on a circuit that has an electrical receptacle as shown in **FIGURE A**. It shows a 3-wire electrical plug and electrical receptacle that has a grounding conductor. If a properly grounded electrical receptacle is not available, an adapter as shown in **FIGURE B** can be used to temporarily connect this plug to a 2-contact ungrounded receptacle. The adapter has a rigid lug extending from it that **MUST** be connected to a permanent earth ground, such as a properly grounded receptacle box. **THIS ADAPTER IS PROHIBITED IN CANADA.**



## EXTENSION CORDS

**⚠ WARNING:** THE USE OF AN EXTENSION CORD WITH THIS MACHINE IS NOT RECOMMENDED. For best power and safety, plug the machine directly into a dedicated, grounded electrical outlet that is within the supplied cord length of the machine.

If an extension cord needs to be used, it should only be for a limited operation of the machine. The extension cord should be as short as possible in length, and have a minimum gauge size of 14AWG.

**⚠ WARNING:** Check extension cords before each use. If damaged replace immediately. Never use a tool with a damaged cord, since touching the damaged area could cause electrical shock, resulting in serious injury.

Use a proper extension cord. Only use cords listed by Underwriters Laboratories (UL). Other extension cords can cause a drop in line voltage, resulting in a loss of power and overheating of tool. When operating a power tool outdoors, use an outdoor extension cord marked "W-A" or "W". These cords are rated for outdoor use and reduce the risk of electric shock.

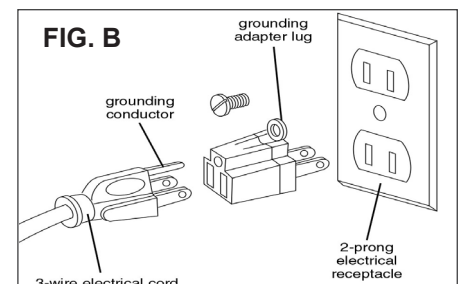
### MINIMUM RECOMMENDED GAUGE FOR EXTENSION CORDS (AWG)

| 120 VOLT OPERATION ONLY |          |          |           |           |
|-------------------------|----------|----------|-----------|-----------|
|                         | 25' LONG | 50' LONG | 100' LONG | 150' LONG |
| 0 to 6 Amps             | 18 AWG   | 16 AWG   | 16 AWG    | 14 AWG    |
| 6 to 10 Amps            | 18 AWG   | 16 AWG   | 14 AWG    | 12 AWG    |
| 10 to 12 Amps           | 16 AWG   | 16 AWG   | 14 AWG    | 12 AWG    |

**⚠ WARNING:** Keep the extension cord clear of the working area. Position the cord so that it will not get caught on lumber, tools or other obstructions while you are working with your power tool.

\* Canadian electrical codes require extension cords to be certified SJT type or better.

\*\* The use of an adapter in Canada is not acceptable.



# SAFETY INSTRUCTIONS - 70-1824VSR2

## ELECTRICAL SAFETY

**⚠ WARNING** THIS TOOL REQUIRES THE USE OF A 220V PLUG (NOT INCLUDED), AND 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 is equipped with an electric cord that has an equipment grounding conductor and requires a grounding plug (not included). 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 ANY PLUG.** If it will not fit the electrical receptacle, have the proper electrical receptacle installed by a qualified electrician.

**REPLACE A DAMAGED OR WORN CORD OR PLUG IMMEDIATELY.**

**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 when installing or replacing a plug.

This tool is intended for use on a circuit that has a 220 volt electrical receptacle. **FIGURE A** shows the type of the 220V, 3-wire electrical plug and electrical receptacle that has a grounding conductor that is required.

\* Canadian electrical codes require extension cords to be certified **SJT type or better**.

\*\* The use of an adapter in Canada is not acceptable.

Sample of 220 volt plug required for this machine.

FIG. A



NEMA 6-20P

Consult a qualified electrician if the distance of the machine from the electrical panel is greater than 30 feet.

## EXTENSION CORDS

**⚠ WARNING:** USE OF AN EXTENSION CORD WITH THIS MACHINE IS NOT RECOMMENDED. FOR BEST POWER AND SAFETY, PLUG THE MACHINE DIRECTLY INTO A DEDICATED GROUNDED ELECTRICAL OUTLET THAT IS WITHIN THE SUPPLIED CORD LENGTH OF THE MACHINE.

**IF AN EXTENSION CORD NEEDS TO BE USED, IT SHOULD ONLY BE FOR LIMITED OPERATION OF THE MACHINE. THE EXTENSION CORD SHOULD BE AS SHORT AS POSSIBLE IN LENGTH, AND HAVE A MINIMUM GAUGE SIZE OF 14AWG.**

**USE ONLY A 3-WIRE EXTENSION CORD THAT HAS THE PROPER TYPE OF A 3-PRONG GROUNDING PLUG THAT MATCHES THE MACHINE'S 3-PRONG PLUG AND ALSO THE 3-POLE RECEPTACLE THAT ACCEPTS THE TOOL'S PLUG.**

**⚠ WARNING:** Check extension cords before each use. If damaged replace immediately. Never use a tool with a damaged cord, since touching the damaged area could cause electrical shock, resulting in serious injury.

Use a proper extension cord. Only use cords listed by Underwriters Laboratories (UL). Other extension cords can cause a drop in line voltage, resulting in a loss of power and overheating of tool. When operating a power tool outdoors, use an outdoor extension cord marked "W-A" or "W". These cords are rated for outdoor use and reduce the risk of electric shock.

**⚠ WARNING:** Keep the extension cord clear of the working area. Position the cord so that it will not get caught on lumber, tools or other obstructions while you are working with a power tool.

**NOTE:** The WIRING DIAGRAM for the #70-1824VSR2 Lathe is listed on Page 25.

The AC Inverter Control Box that is located on the rear of the headstock does not require any programming. It is pre-programmed from the factory. The buttons and knob on the face of inverter should not be changed. Only use the 5 electronic controls on the front of headstock to operate the lathe.



THIS SYMBOL DESIGNATES THAT THIS TOOL IS LISTED BY THE INTERTEK TESTING SERVICES, TO UNITED STATES AND CANADIAN STANDARDS.

# SAFETY INSTRUCTIONS

## SPECIFIC SAFETY INSTRUCTIONS FOR WOOD LATHES

This machine is intended for the shaping, smoothing and finishing of natural, solid woods. The permissible workpiece dimensions must be observed (see Technical Specification). Any other use not as specified, including modification of the machine or use of parts not tested and approved by the equipment manufacturer can cause unforeseen damage, and invalidate the warranty.

**ATTENTION:** Use of this lathe still presents risks that cannot be eliminated by the manufacturer. Therefore, the user must be aware that wood working machines are dangerous if not used with care and all safety precautions are adhered to.

1. Do not operate this machine until you have read all of the following instructions.
2. Do not attempt to operate this machine until it is completely assembled.
3. Do not turn ON this machine if any pieces are damaged or missing.
4. This machine must be properly grounded.
5. If you are not familiar with the operation of the machine, obtain assistance from a qualified person.
6. Always wear approved, safety protective eye wear and hearing protection when operating this machine.
7. Always wear a dust mask and use adequate dust collection and proper ventilation.
8. Do not wear loose clothing or jewelry when operating this machine. Keep long hair tied back.
9. Always make sure the power switch is in the OFF position prior to plugging in the machine.
10. Always make sure the power switch is in the OFF position and the machine is unplugged when doing any cleaning, assembly, setup operation, or when not in use.
11. Use only sharp lathe tools. Dull tools can damage your work and are unsafe to use.
12. When turning between centers, make sure the headstock and tailstock are snug against the workpiece.
13. When face plate turning, rough-cut the workpiece close to the finished shape before screwing it to the face plate.
14. Never jam tools into the workpiece or take too big of a cut.
15. Make sure there are no loose knots, nails, staples, dirt or foreign objects in the workpiece to be turned.
16. Wood should not be warped, cracked or have improperly made or cured glue joints.
17. Test spin the workpiece to ensure that it does not hit the lathe bed or tool rest before turning on the lathe.
18. Start the lathe at slow speeds to check the settings, then increase the speed to your desired level for working.
19. Low speeds are best for roughing stock, and for long or large diameter work pieces.
20. If excessive vibration occurs, stop the lathe to check the workpiece settings between centers or on face plates.
21. For sanding or applying finishes, remove the tool rest from the machine. Use low speeds to avoid heat build-up.
22. Do not engage the spindle lock when the lathe is turning, and be sure to disengage the spindle lock when done working to avoid damage to the machine next time the lathe is turned on.
23. Never stop the machine by grabbing the workpiece, faceplate or hand wheel. Let the machine stop on its own.
24. The use of any accessories or attachments not recommended may cause injury to you and damage your machine.
25. Remove material or debris from the work area. Keep the floor and work area neat and clean.
26. Keep these instructions for future reference.

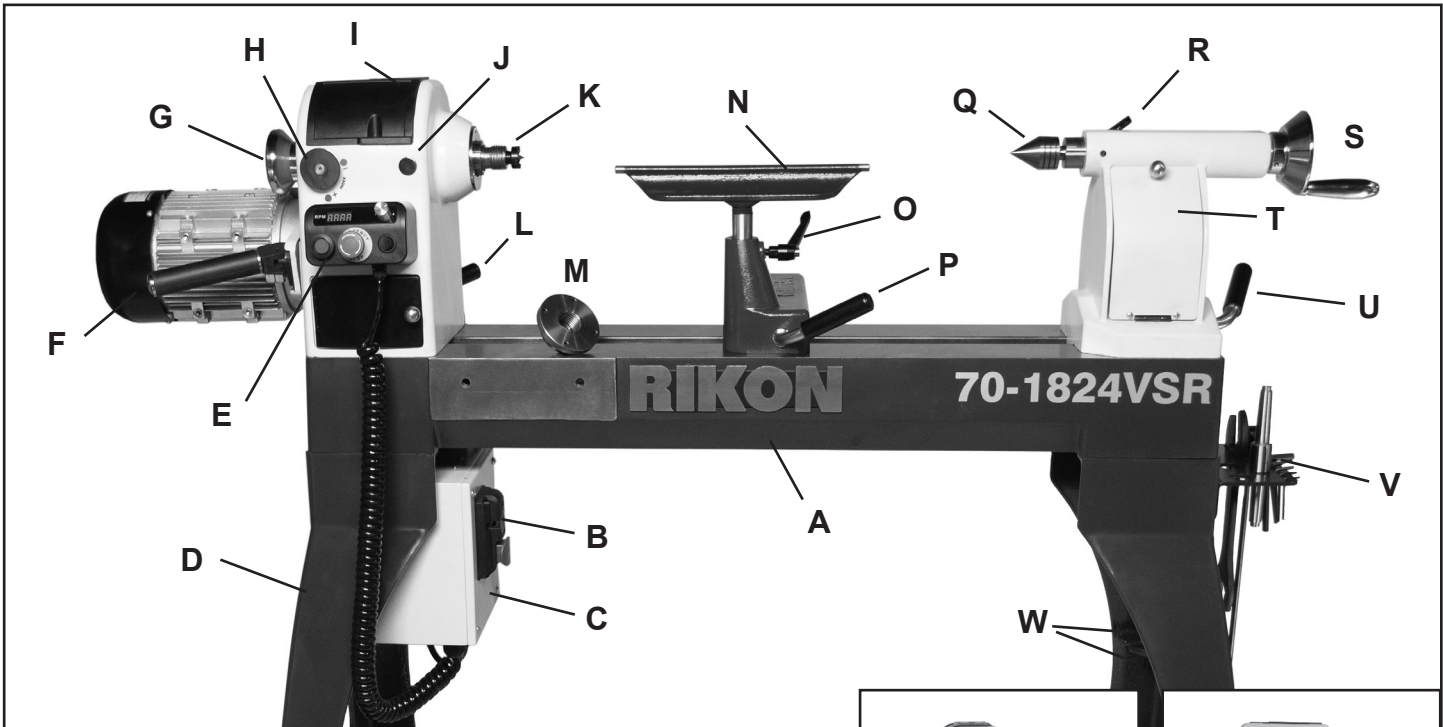
**This owner's manual is not a teaching aid and is intended to show assembly, adjustments, and general use.**

### CALIFORNIA PROPOSITION 65 WARNING:

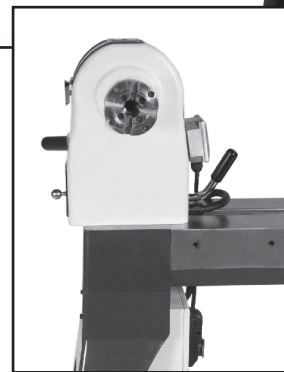


**WARNING:** Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood).

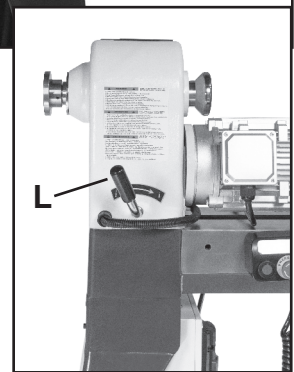
## GETTING TO KNOW YOUR MACHINE



- |   |                                     |
|---|-------------------------------------|
| A. Lathe Bed                                      | L. Headstock Locking Handle         |
| B. Master ON/OFF Switch & 115V Outlet (not shown) | M. 3-3/8" Faceplate                 |
| C. Inverter Control Box                           | N. PRO Tool Rest 12"                |
| D. Legs (2)                                       | O. Tool Rest Locking Handle         |
| E. Electronic Controls                            | P. Tool Rest Base Locking Handle    |
| F. Motor & Locking Handle                         | Q. 60° Live Center                  |
| G. Outboard Hand Wheel                            | R. Tailstock Locking Handle         |
| H. Indexing Control Assembly                      | S. Tailstock Hand Wheel             |
| I. Headstock & Lid to Spindle                     | T. Tailstock Storage (front & back) |
| J. Spindle Lock                                   | U. Tailstock Locking Handle         |
| K. Spindle with Spur Center                       | V. Tool Holder                      |
|   | W. Shelf Brackets (4)               |



Headstock turned towards front.  
Shown with chuck (not included)



Headstock turned towards outboard.  
Shown with faceplate.

## CONTENTS OF PACKAGE

Model #70-1824VSR and 70-1824VSR2 Wood Lathes are shipped complete in one box.

### Unpacking and Clean-up

- 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 RIKON Customer Service (877-884-5167) 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.
- Report any shipping damage to your local distributor. Take photographs for any possible insurance claims.
- Clean all rust protected surfaces with ordinary house hold type grease or spot remover. Do not use; gasoline, paint thinner, mineral spirits, etc. These may damage painted surfaces. Clean thoroughly under the headstock, tailstock and tool rest body.
- Apply a coat of paste wax to any machined surfaces to prevent rust. Wipe all parts thoroughly with a clean dry cloth.
- Set packing material and shipping carton aside. Do not discard until the machine has been set up and is running properly.



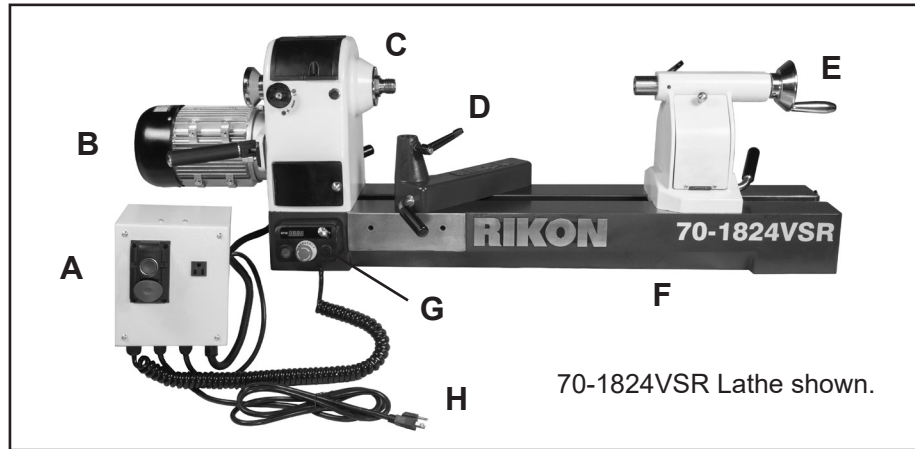
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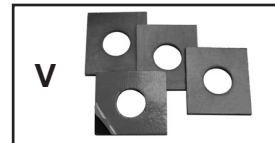
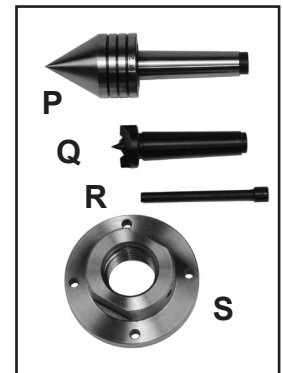
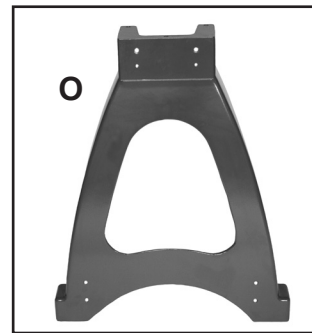
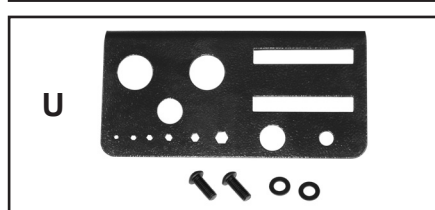
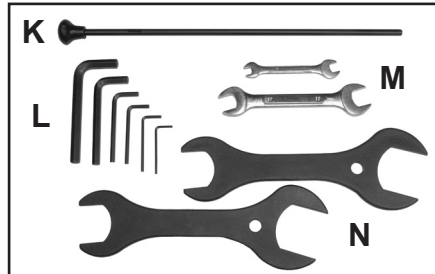
### Lathe Bed Assembly

- A. Inverter Box Assembly
- B. Motor Assembly
- C. Headstock Assembly
- D. Tool Rest Base Assembly
- E. Tailstock Assembly
- F. Lathe Bed
- G. Electronic Controls
- H. Power Cord \*

\* 70-1824VSR 115V includes the electrical plug. The 70-1824VSR2 230V does not include the plug.



70-1824VSR Lathe shown.



- I. Bolts (6) & Washers (12)
- J. Bolts (2) for Inverter
- K. Long Knockout Bar
- L. Hex Wrenches (6) - 2.5, 3, 4, 5, 8 & 10mm

- M. Wrenches (2) 8/10 & 17/19mm
- N. Wrenches (2) 38/46mm
- O. Legs (2)
- P. 60° Live Center

- Q. Spur Center
- R. Small Knockout Bar for Spur Center Point
- S. Faceplate 3-3/8"
- T. 12" Tool Rest

- U. Tool Holder & Bolts (2) & Washers (2)
- V. Rubber Foot Pads (4)
- W. MT2-MT2 Gauge
- X. Manual (not shown)

# INSTALLATION

## MOVING & INSTALLING THE LATHE

**CAUTION** The lathe is VERY heavy- over 360 lbs! A fork lift, hoist, pallet jack or additional help will be required to assemble the machine. It is best to assemble the machine in an open, well lit area near where it will eventually reside.

When moving an assembled lathe, DO NOT use the headstock assembly, motor, tool rest or tailstock as this may damage the machine. Use a forklift, or pallet jack under the lathe's bed or legs to lift and move the machine. Straps or battens placed under the lathe bed can also be used to lift and move the machine.

1. Carefully remove the machine from the shipping pallet. Do not push or lift the lathe by the headstock, tailstock or tool rest assemblies as this may damage the machine. See pages 10 - 12 for Assembly instructions for the lathe.

2. Position the machine on a solid, level foundation 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. 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.

3. 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.

4. Once in place in your shop, level the machine with shims or the optional adjustable feet. Or, if the floor is level, secure the machine to the floor with lag screws (not supplied). Remove the adjustable feet (if installed) and use the holes in the bottom of the leg's feet for this purpose.



# ASSEMBLY

**NOTE:** The parts listed in the instructions refer to either the Contents of Package on page 9 (A, B, C..), and/or the Parts Diagram & Parts List on pages 29 & 36 (Sheet A part #4 is listed as #4A, etc.).

**WARNING** THE MACHINE MUST NOT BE PLUGGED IN AND THE POWER SWITCH MUST BE IN THE OFF POSITION UNTIL ASSEMBLY IS COMPLETE.

## INSTALL THE PADS OR FEET ONTO THE LEGS

The 70-1824VSR Lathe has a floor-to-spindle height of approximately 43-5/16" (1100mm).

**If this working height is fine**, then the lathe can be used as is.

1. Install the provided 4 Rubber Foot Pads (V) onto the bottoms of the lathe Legs (O) to reduce any possible vibration or lathe 'walking' during use. Figure 1.
2. Assemble the legs to the lathe body. See page 11.

For best stability, it is recommended that the lathe be bolted to the floor. The bottom of the lathe's feet have 11/16" (17mm) diameter holes to allow fasteners to bolt them to the floor. Fasteners (lag bolts, screws, washers, etc.) are not provided.

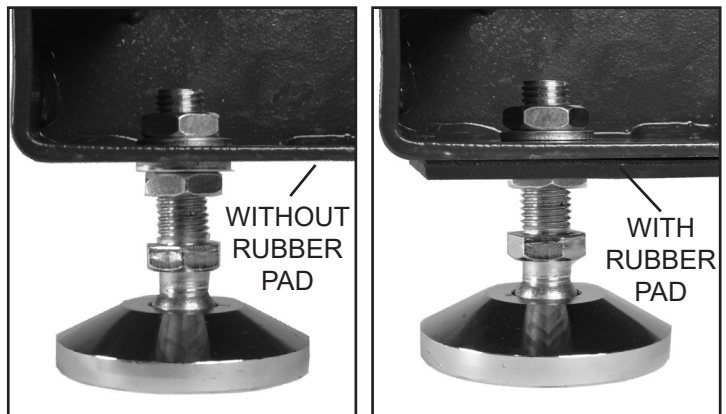
**NOTE:** If the lathe is to be permanently bolted to the floor, DO NOT install adjustable feet (see below) which also use the holes in the feet for installation. Riser blocks or shims will have to be made by the user to put under the legs to level the lathe and/or raise the lathe height before bolting the lathe to the floor.

**If the lathe's working height is too low**, then a set of four Adjustable Feet (#70-972) are available to be installed onto the bottom of the legs. Figure 2. These feet can be installed onto the legs if the rubber pads are installed or not. See page 37 for information on these optional accessories.

1. Before attaching the legs to the lathe bed, install the optional four adjustable feet onto the bottom of the legs. These will raise the 43-5/16" spindle height approximately 1-3/4" to 2-1/2" more.
2. The Adjustable Feet have two hex nuts and washers assembled on their threaded shafts. Remove the top nut and washer (Fig. 3, A) and leave the bottom nut and washer on the shaft. The bottom nut will be used to adjust the level of the lathe later on. Figure 3.
3. Insert the threaded shaft through the hole in the bottom of the leg, and re-install the top washer and nut onto the shaft to secure the foot onto the leg. Do not fully tighten the nut at this time.
4. Install the other three adjustable feet on the other three legs following steps 2 and 3 above.
5. Assemble the legs to the lathe body. See page 11.



FIG. 1



A

FIG. 2

B

**NOTE:** For clarity, figures 2A & 3 are shown without the anti-vibration rubber foot pads attached on the bottom of the lathe legs.

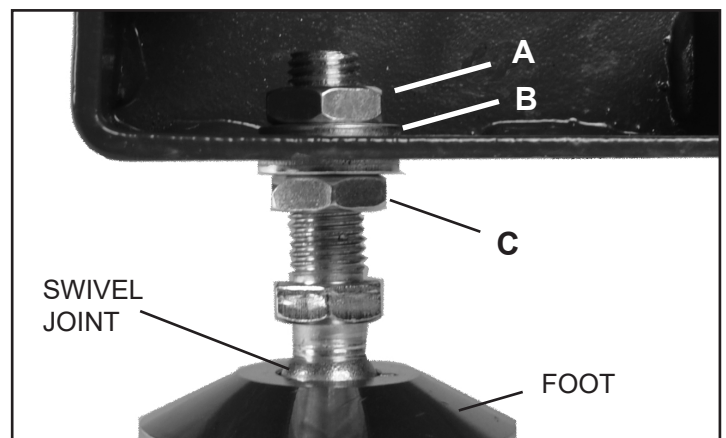


FIG. 3

**NOTE:** Once the lathe is assembled and in its final location, adjust the bottom nut(s) (Fig. 3, C) that are right under the bottom of the foot to set your desired spindle height and to level the lathe. Once set, then tighten the top nuts to secure the adjustable feet in position.

# ASSEMBLY

## INSTALL THE LATHE BED ONTO THE LEGS

1. Position the two Legs (O) approximately 44" (1118mm) apart measuring from the outside edges. Be sure that the shelf brackets on the legs are facing inward, towards each other. Figure 4.

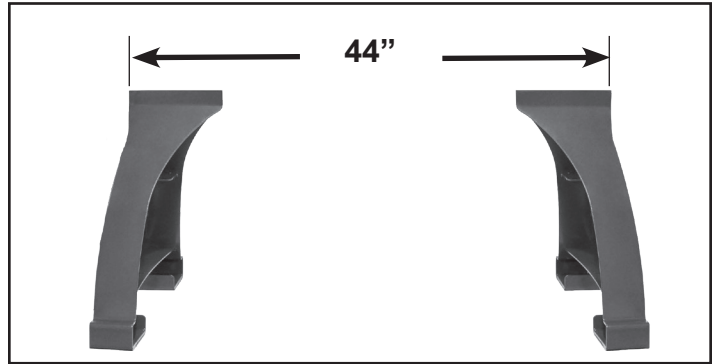


FIG. 4

2. Secure the Tailstock (E), and Tool Rest Base (D) assemblies to the Lathe Bed (F) by tightening their locking Lever Handles. See page 20 of this manual on how to make adjustments if needed.

**NOTE:** To lighten the weight of the bed assembly, the tailstock and tool rest base assembly can be removed from the lathe.

- At the right end of the Bed, with a 5mm hex wrench loosen the Bolt (#11C) so that the offset Stop Washer (#10C) swivels down below the bed surface. Fig. 5.

- Loosen the Tailstock Handle (#25A), and slide the tailstock assembly off of the lathe end.

- Loosen the Tool Rest Base Handle (#3A), and slide the tool rest base assembly off of the lathe end.

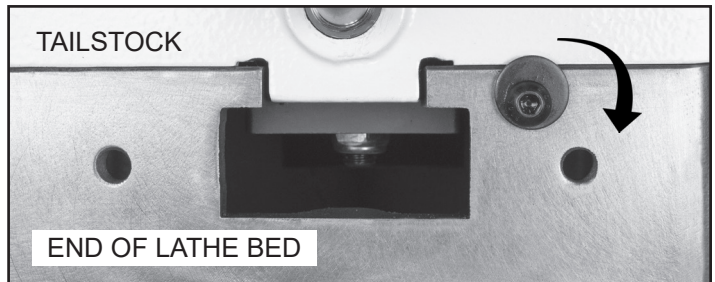


FIG. 5

3. With assistance from 4 or more friends, a hoist or fork lift, lift up the lathe bed assembly and carefully position it onto the stand legs to align the 6 bolt holes. **NOTE:**

**CAUTION** Lift the lathe body by the underside of the bed only, not by the motor, headstock, tailstock, or tool rest assemblies. Prevent the lathe from tipping, as the headstock end is extremely heavy.

**CAUTION** The Inverter box (A) is attached to the Headstock (C) and Switch Box (G) with wires, so extreme care must be taken to secure the inverter and Switch Box when handling the lathe bed assembly for attaching it onto the legs.

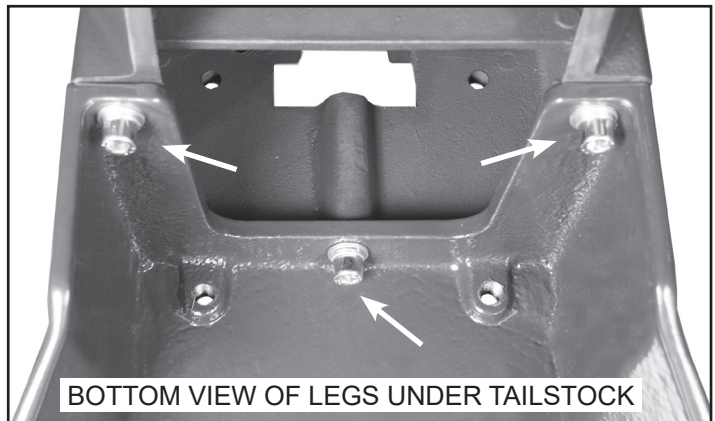
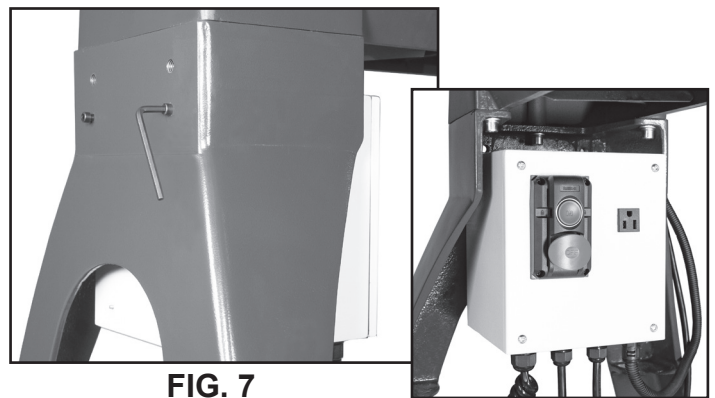


FIG. 6

4. Secure the lathe bed to the stand legs with the six Washers, Spring Lock Washers and Hex Head Bolts (I). Use the 8mm hex wrench provided. Figure 6 shows 3 bolts securing the legs to the tailstock end of the lathe bed.

5. Attach the Inverter Box Assembly (A) to the inside of the left leg under the headstock with the 2 bolts (J) and 5mm hex wrench provided. Fig. 7.



6. The lathe can now be moved into its final location for turning. If previously removed (step 2 above), install the tool rest and tailstock back onto the lathe bed. Reverse the process as described in the Step 2 NOTE above.

7. If the legs were assembled with the optional Adjustable Feet (see page 10), the feet can now be set. Adjust the bottom nut(s), page 10 Fig. 3C, that are right under the bottom of the foot to set your desired spindle height and to level the lathe. Once set, then tighten the top nuts, Fig. 3A, to secure the feet in position.

**WARNING** THE MACHINE MUST NOT BE PLUGGED IN AND THE POWER SWITCH MUST BE IN THE OFF POSITION UNTIL ASSEMBLY IS COMPLETE.

# ASSEMBLY

## INSTALL THE TOOL REST

Install the 12" long PRO Tool Rest (T) into the Tool Rest Base (also called a Banjo) (D). Secure the tool rest's 1" diameter post in the base with the Adjustable Locking Handle (#2A). Figure 8, A.

**NOTE:** The handle can be adjusted to any position for best operation, loosening or tightening, or to set it at a spot that will not interfere with you while working. Simply pull out the spring load handle, rotate it to your desired spot on its locking shaft, and then release it back onto its new position.

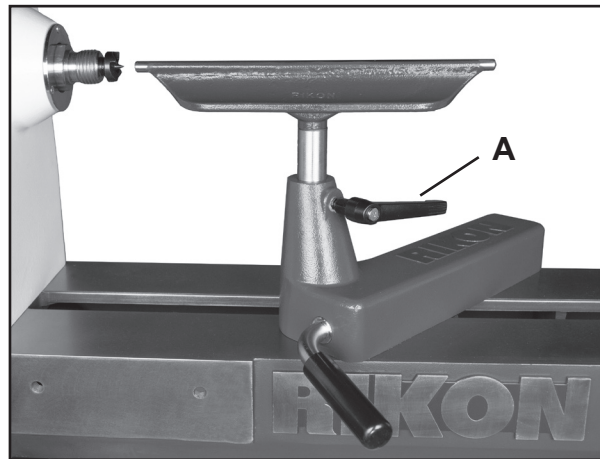


FIG. 8

## INSTALL THE TAILSTOCK HAND WHEEL

If not pre-assembled for shipping, install the Tailstock Hand Wheel (#10D) onto the rear spindle of the Shaft Assembly (Quill) (#3A). Secure with the 2 set screws onto the 2 flat spindle areas with the 3mm Hex Wrench provided. Figure 9, A.

## TAILSTOCK STORAGE

For additional storage of spur and live centers, the tailstock features a small tool holder behind the front hinged door. It will also hold the short knockout bar used to remove the spur center's removable point. Figure 9.

On the back side of the tailstock, a post is provided to store the 3-3/8" faceplate when not in use. Figure 10.

**NOTE:** The Faceplate (S) 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 with the 3mm hex wrench. Then unscrew it from the spindle (counter-clockwise rotation) using the two large 38/46mm wrenches (N) or one wrench while pushing in the Spindle Lock Button (see page 13, Fig. 13,A).

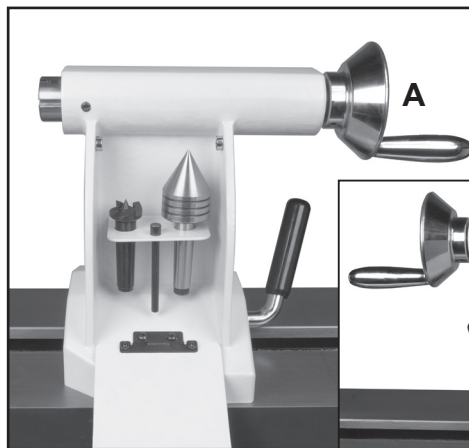


FIG. 9



FIG. 10

## INSTALL THE TOOL HOLDER

Install the Tool Holder (U) onto the outside of the right leg with the two hex head screws and washers provided. Use the 5mm hex wrench provided. FIG. 11.

The Tool Holder has holes and slots for storing the wrenches, MT2-MT2 Gauge, Long Knockout Bar and any other optional tool rests or centers obtained.

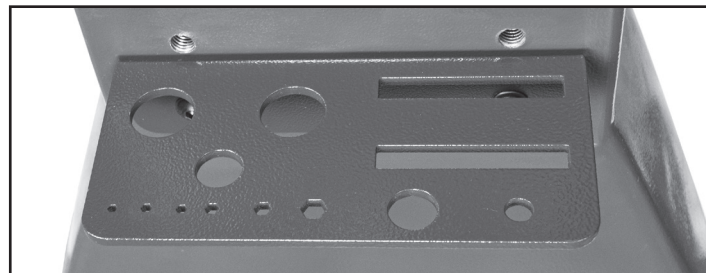


FIG. 11

## INSTALL STORAGE SHELVES (OPTIONAL)

One or two shelves can be added between the legs for storage of tools, turning supplies or to add extra lathe hold-down weight with sand bags or cement blocks. Each leg has 2 sets of brackets, one low and one high, to mount and secure your self-made shelves onto. Use 2x4s and thick plywood to construct these shelves to your specific design or storage needs. (Plans are not provided).

**NOTE:** Installing a full size shelf between the assembled legs is not possible. So, construct your shelves in pieces that can be secured together in place on the brackets. Fig. 12.

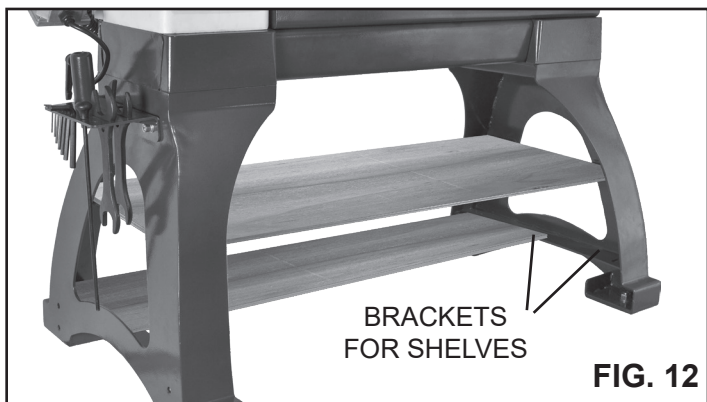


FIG. 12



# OPERATION

## HEADSTOCK CONTROLS

**A. SPINDLE LOCK BUTTON (FIG. 13, A)** secures the headstock spindle for the mounting or removal of faceplates or chucks. To operate, simply push in the button which will insert its rear pin into one of the 4 holes in the Spindle Lock Disc (Fig. 16, E). Release the button to unlock the spindle to resume work.

**B. SPINDLE INDEXING CONTROLS: (FIG. 13, B)** The Index Pin Assembly is used to hold and 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 and more.

See page 19 for instructions on this lathe feature.

**C. HEADSTOCK DOORS: (FIG. 13, C & D)** Lift upper door/lid 'C' for access to the spindle drive & index pulley, RPM reader and spindle lock assemblies (FIG. 16). Open door 'D' to access the motor drive pulley (page 18, Fig. 31).

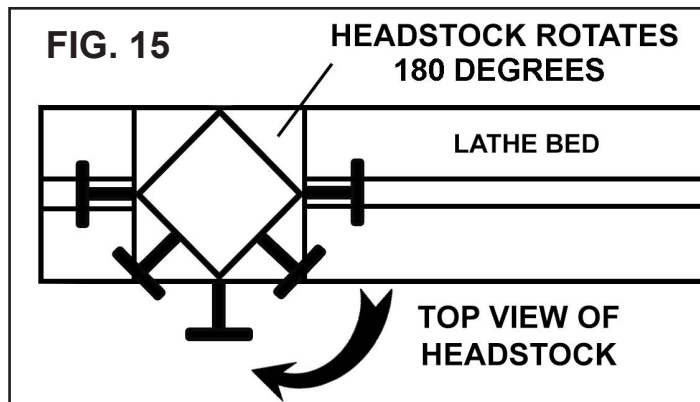
**D. HEADSTOCK LOCKING HANDLE: (FIG. 14, A)** The rear lever locks the headstock head in position on the lathe bed. To rotate the headstock on the bed, unlock lever handle, then re-tighten handle when the headstock is repositioned.

**E. HEADSTOCK POSITIONS:** Figure 15. The headstock can rotate 180° on the bed to allow the user to position workpieces for better working/tool access or for larger diameter bowls or platters using faceplates or chucks.

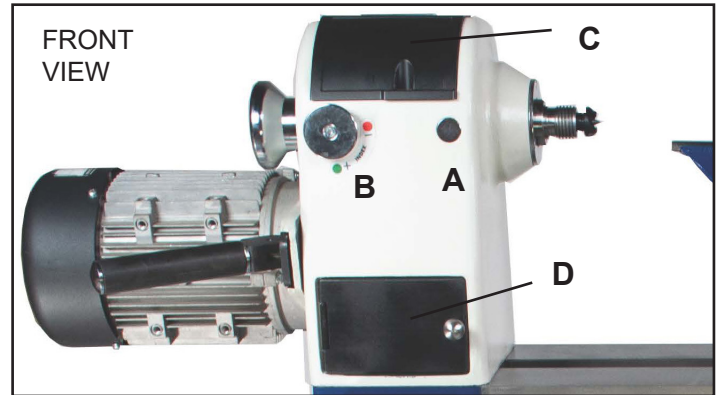
- *Standard 'Inboard' position* is for spindle turning and bowl or platter turnings up to 18" diameter.

- *'Outboard' position* with the headstock rotated away from the tailstock and the use of the optional 70-908 Extension allows bowl or platter turning up to 27-1/2" diameter. See page 17 for additional information.

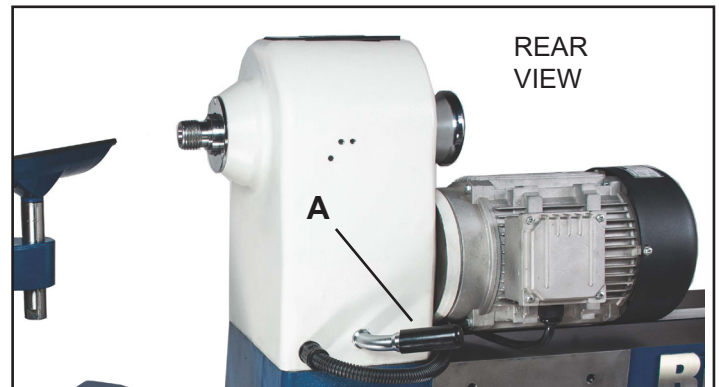
- *'Forward' position* with the headstock turned 90° in-line with the legs allows turnings up to approximately 44" in diameter. The use of a floor standing tool rest (not included) is required for working with the headstock in these forward positions.



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

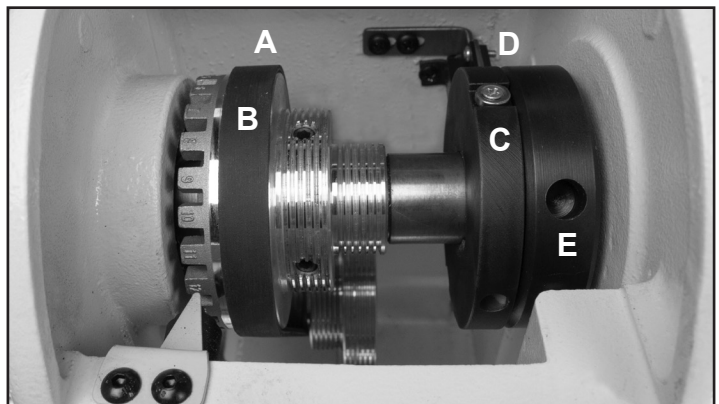


**FIG. 13**



**FIG. 14**

**NOTE:** The alignment of the headstock to tailstock should always be done if the headstock is rotated away from the Standard 'Inboard' headstock-facing-the-tailstock position. See page 20 for information on aligning headstock and tailstock centers.



**FIG. 16**

### INSIDE VIEW OF HEADSTOCK SPINDLE

- A. 3-Step Spindle Pulley with index notches on left side
- B. Drive Belt
- C. RPM Magnetic Reader Disc
- D. RPM Speed Reader
- E. Spindle Lock Disc

# OPERATION

## HEADSTOCK SPUR CENTER

The Spur Center (Q) is used for turning between centers. It fits into the spindle. Both spindle and the spur center have matching MT-2 tapers. The spur center can be removed from the spindle with the long Knockout Bar (K). Insert the knockout bar through the opposite, outboard left end of the spindle, and then hit the spur center's back end to knock it out of the spindle.

**NOTE:** Be careful and hold the spur center during this process so it does not fly out onto the floor. Figure 17.

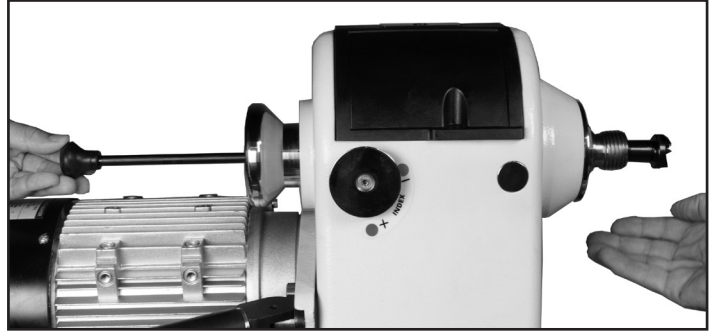


FIG. 17

## HEADSTOCK FACEPLATE

Faceplates (S) are used for turning bowls and plates. There are a number of screw holes on the plate for mounting the workpiece for turning.

*To INSTALL the faceplate*, thread the faceplate onto the spindle in a clockwise direction, and tighten it in place with the set screws that are located on the back hub of the faceplate. **NOTE:** there may be more than one set of set screws on the faceplate hub. Figure 18.

*To REMOVE the faceplate*, first loosen the set screws. The spindle and rear hub of the faceplate each have flats that are for use with open end wrenches. FIG. 19. Next, use the 2 extra large, double ended wrenches (N) (38mm/46mm) for holding the spindle and also to hold the back hub of the faceplate for removal of the faceplate. Or use one wrench while pushing in the Spindle Lock Button. Use the same process for removing a chuck.

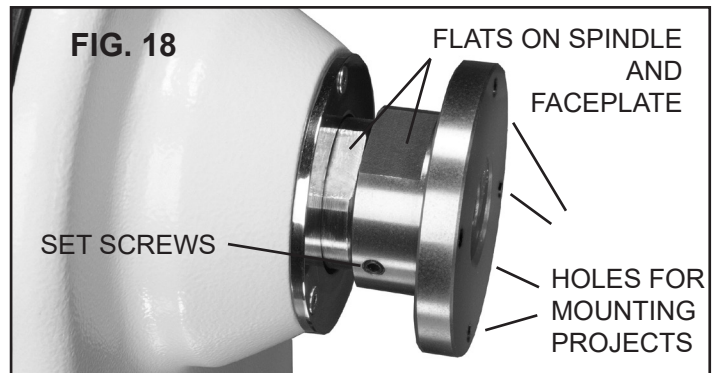


FIG. 19

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

**⚠ WARNING**  
NEVER USE THE INDEX PIN TO HOLD THE SPINDLE TO REMOVE ACCESSORIES FROM THE LATHE, OR DAMAGE TO THE PIN OR THE SPINDLE PULLEY WILL RESULT.

## TOOL REST CONTROLS - Figure 20

**A. TOOL REST BODY LOCK HANDLE:** This cam action lever handle locks the tool rest body 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 20 for instructions on how to adjust the locking tension.

**B. TOOL REST LOCK HANDLE:** 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.

**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.

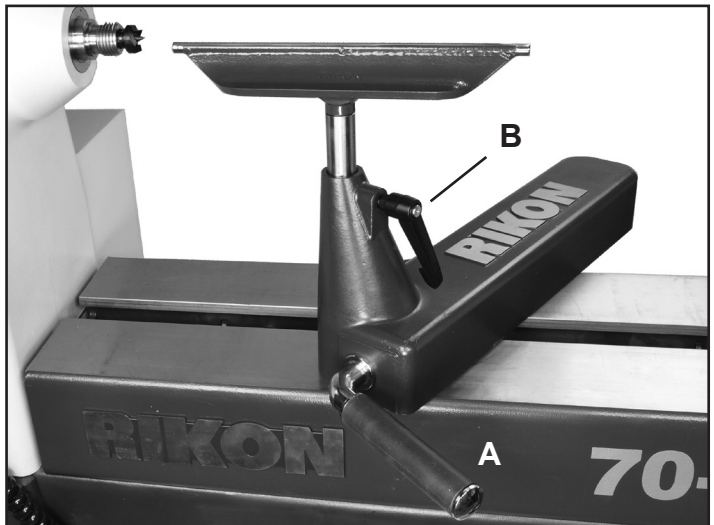


FIG. 20



# OPERATION

## TAILSTOCK CONTROLS - Figure 21

**A. TAILSTOCK LOCK HANDLE:** Locks the tailstock in position along the length of the lathe bed. Unlock handle to position the tool rest to move the tailstock. Tighten handle when properly positioned. See page 20 for instructions on how to adjust the locking tension.

**B. TAILSTOCK QUILL HAND WHEEL:** The hand wheel advances or retracts the quill. The quill's locking handle (C) must be loose to move the quill.

**C. TAILSTOCK QUILL LOCK HANDLE:** 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.

**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.

**D. TAILSTOCK LIVE CENTER:** Used for turning between centers. The Live Center and the Quill have Morse #2 Tapers (MT2) Remove the live center by retracting the quill until the center loosens, or use the long knockout bar.

**NOTE:** Be careful and hold the live center during this process so it does not fly out onto the floor.

## MAIN ON/OFF SWITCH

The #70-1824VSR Lathe has a Main ON/OFF switch (Fig. 22, A) located on the inverter box which is under the headstock end of the lathe bed. This switch **MUST** be operated before and after the lathe is used. It allows electrical access to the switch box for using the lathe. It also totally shuts down the lathe when not in use for an extended time. This switch protects the lathe's electricals, particularly the LCD display from burning out, and prevents unwanted access by children or bystanders. The switch will also hold a lock to further secure the lathe from being activated. Push the green Button (Fig. 23, C) so that it turns the lathe ON. Push the red Button (D) to turn the lathe OFF.

## POWER RECEPTACLE

A 115V electrical receptacle (Fig. 22, B) is provided on the inverter for the use with corded lights or other accessories with grounded 3-prong plugs. When not in use and for child proofing, the supplied plug cover should be inserted into the receptacle. This will also keep dust out of the unit.

**NOTE:** The AC Inverter Control Box does not require any programming. It is pre-programmed from the factory. The connections on the inverter should not be changed. Figure 24 shows the inverter with the cover open.

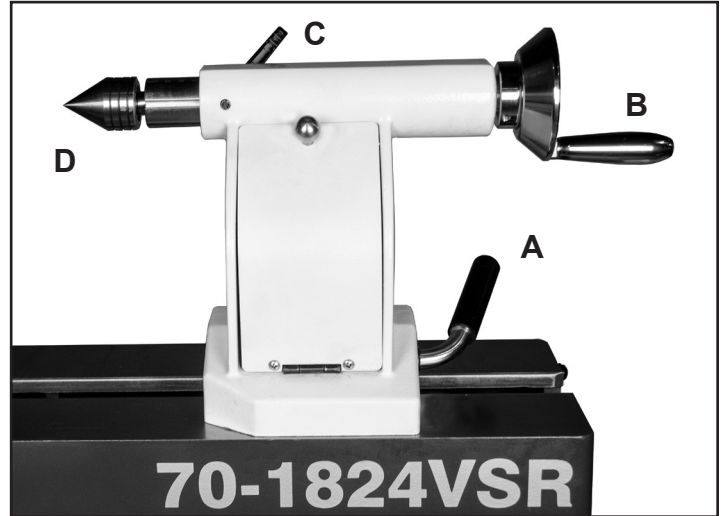


FIG. 21

See page 12 for additional information on the tailstock's features for storing lathe accessories.

**CAUTION** Prior to turning "ON" the machine, check for and remove any tools or parts in the immediate area, workpieces do not hit the lathe bed or tool rest, and the index pin or spindle lock are not engaged.

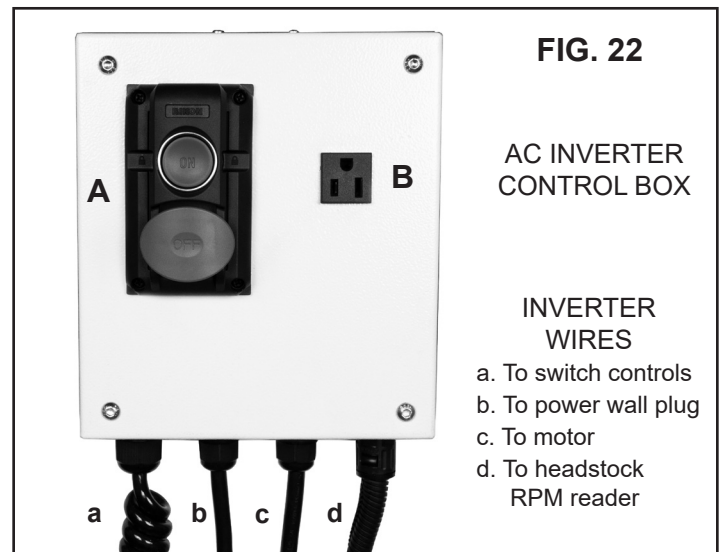


FIG. 22

AC INVERTER CONTROL BOX

INVERTER WIRES

- a. To switch controls
- b. To power wall plug
- c. To motor
- d. To headstock RPM reader

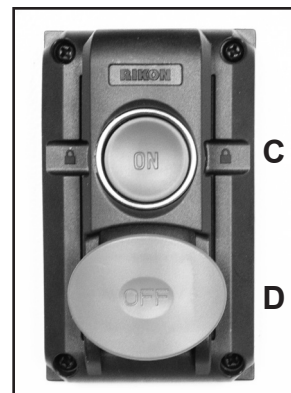


FIG. 23

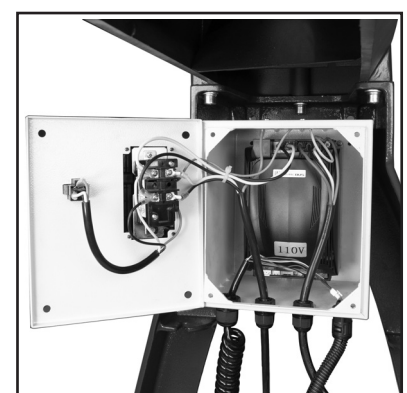


FIG. 24

# OPERATION

## OPERATING SWITCH CONTROLS - FIG. 25

The lathe features a corded Switch Box (G) with magnets on its back that allow it to be positioned anywhere 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, rotation direction or for stopping the lathe.

**NOTE:** The Main ON/OFF Switch (Page 15, Fig. 22, A) must be turned ON for the Switch Controls to work.

**A. FORWARD / REVERSE SWITCH:** This selector switch will change the direction that the spindle turns - clockwise (forward) or counter-clockwise (reverse).

**⚠ CAUTION** 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 and a '0000' protection mode will be displayed on the LCD Display screen (E). Press the green 'ON' button to resume work in the new rotation setting.

**B. 'ON' BUTTON:** Push the green Button so that it turns the lathe ON. Push the red Button (D) to turn the lathe OFF.

**C. RPM KNOB:** This knob controls the desired spindle revolutions per minute (RPM). Spindle speeds are shown on the LCD Display (E). See the Speed Chart below for the 3 speed range settings. FIG. 26.

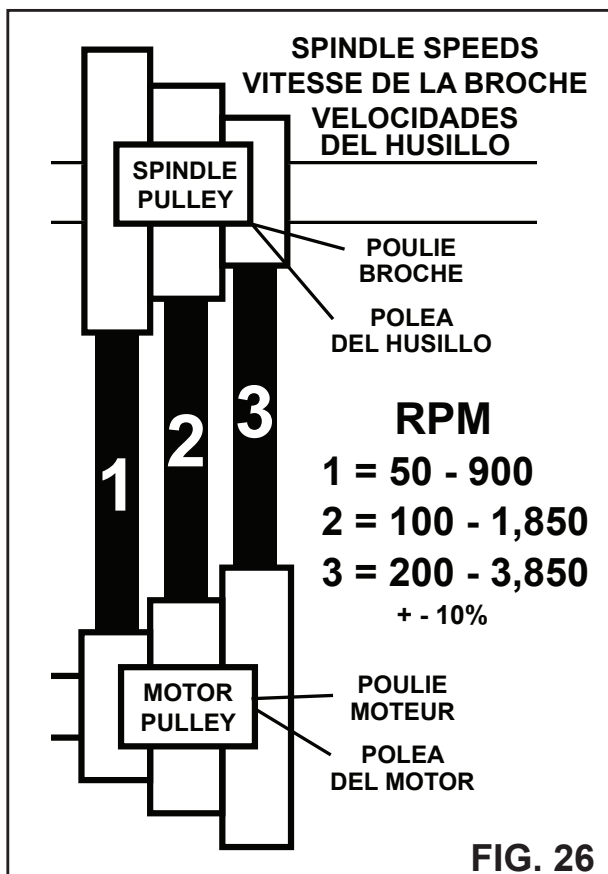


**FIG. 25**

**D. 'OFF' BUTTON:** Push in the extended red Button to stop the lathe. To restart the lathe, rotate the button *clockwise* and it will pop out to reset itself. Then press the green 'ON' button to restart the lathe.

**NOTE:** See page 26 for a list of Electronic Digital Codes.

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



## 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           |
| 16 to 20"        | 170          | 350                 | 500           |
| 20 to 24"        | 50           | 200                 | 375           |

See page 18 for information on CHANGING SPEEDS.

# OPERATION

## LATHE BED EXTENSIONS - (OPTIONAL)

The 70-1824VSR Lathe features a cast iron bed with three sides machined to add bed extensions which will expand the work capabilities for turning.

**NOTE:** the only bed extension made to fit the specifications of the 70-1824VSR lathe is the #70-908. This optional 16" long Extension easily bolts onto the lathe for solid working support. See page 37 for the Extension.

**NOTE:** Longer bed extensions can not be used on this bed front connection as damage to the bed casting will result.

**RIGHT BED END:** To extend the spindle length between centers, the addition of the #70-908 bed extension extends the lathe's maximum spindle length from 24" to 40". FIG. 27.

**FRONT of BED:** Mounting the extension onto the lathe front allows the tool rest for improved access to turning and finishing the sides and backs of bowls and platters. FIG. 28.

**LEFT BED END:** To extend the swing for larger diameter turning of bowls and platters with faceplates or chucks, the addition of the #70-908 bed extension on the left, headstock end of the lathe is provided for outboard turning. This will expand the lathe's swing from 18" over the lathe bed, to 27-1/2" over this outboard extension bed. FIG. 29.

**NOTE:** for out board turning, the use of the 4" Tool Rest Height Extension #70-959 is required. FIG. 29, A. This optional accessory is listed on page 37.

For outboard turning, remove the tool rest assembly from the lathe bed, and mount it on the bed extension. For this:

- Loosen the lathe bed's end Screw (#11C) with the 5mm Hex Wrench then rotate the safety Washer (#10C) downward so the tailstock and tool rest can be removed. Fig. 5, page 11.
- Release the tailstock's locking handle and slide the tailstock 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 16" outboard extension.
- Remount the tailstock onto the lathe bed and reset the safety end washer in place for security.

Rotate the headstock 180° to the outboard position and secure it in place for turning. See page 13.

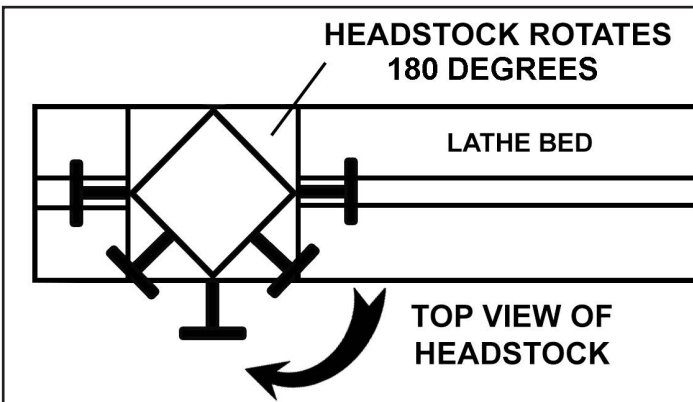


FIG. 27



FIG. 28

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



FIG. 29



# ADJUSTMENTS

## CHANGING SPEEDS

To change between the 3 speed ranges, Figure 30, the position of the drive belt on the motor and spindle pulleys must be changed. To do this:

1. Unplug the lathe from the power source.
2. Open the 2 Belt Doors to gain access to the belt and pulleys that are inside of the headstock. FIG. 31, A & B.
3. Pull the Belt Tensioning Handle (#54B) forward, away from the motor. Figure 32.
4. Push the Tensioning Handle down to loosen the tension on the Poly-V-Belt (#2B). FIG. 33. The belt can now be positioned on the pulleys for the desired speed range. FIG. 30 shows the belt positions for the three speed ranges.

**NOTE:** The 'High' speed range #3 (200-3,850 RPM) provides maximum speed. The 'Low' speed range #1 (50-900 RPM) will provide maximum torque.

5. With the Poly-V-Belt positioned on the pulleys, raise the tensioning handle so that the weight of the motor provides the needed tension on the belt. Then secure the tensioning handle in place by pushing the handle back towards the motor. Figure 32.
6. Close the two front Belt Doors on the headstock to protect the belt, pulleys and internal working from dust.
7. Plug the lathe back into the power source.

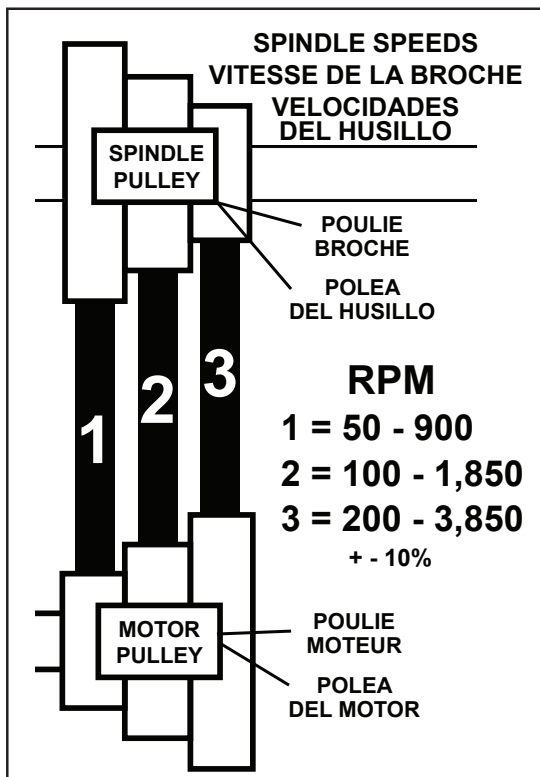


FIG. 30

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

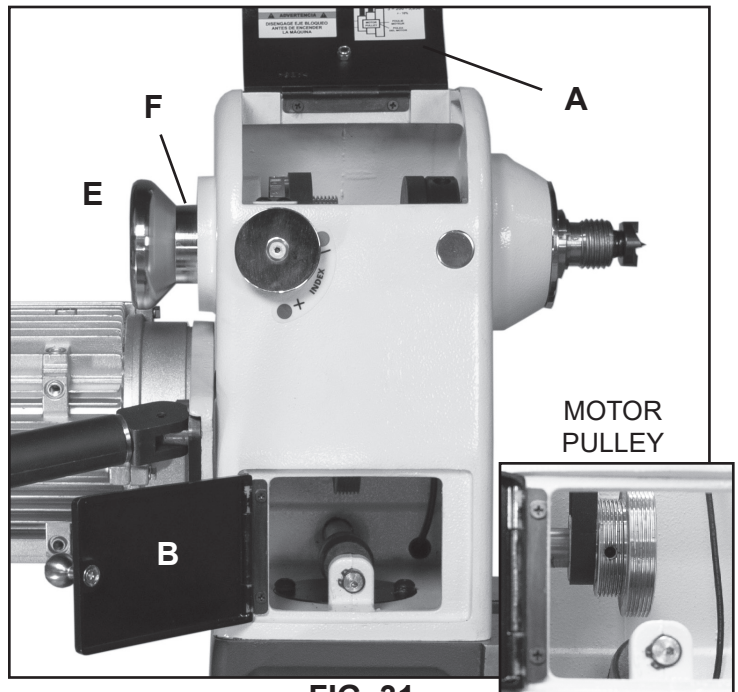


FIG. 31

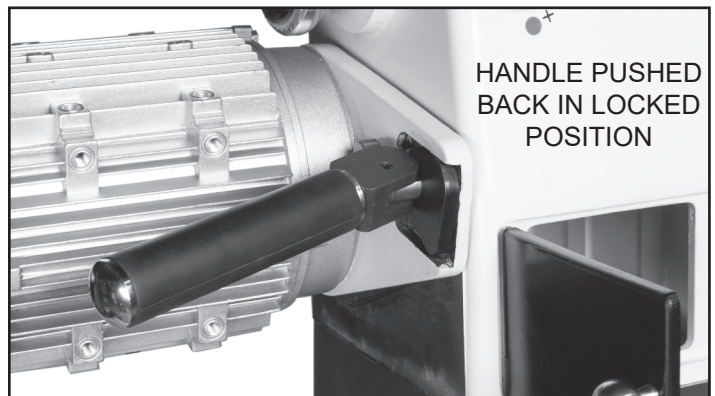


FIG. 32

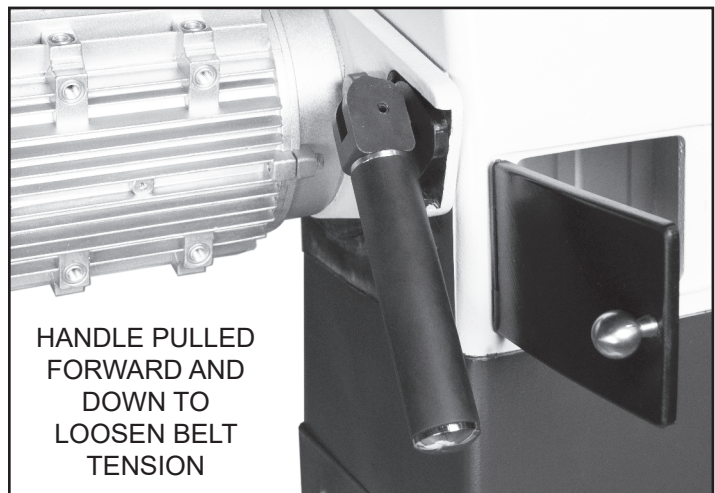


FIG. 33

# ADJUSTMENTS

## SPINDLE INDEXING ADJUSTMENTS

Conveniently located on the front of the headstock, the Index Pin Assembly (FIG. 34 & 35) is used to hold and 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 and more.

The Headstock Spindle has 24 indexing holes, each 15° apart. The Indexing Chart, FIG. 36, shows how to rotate the spindle to access any of the 24 indexing holes. The 8 primary settings are listed below, however, other indexing/design settings are possible. Vary the index combinations to make non-equal, spaced patterns. Also, by rotating/repositioning 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.

The Index Pin is spring loaded. To operate:

- Rotate the Index Knob (FIG. 34) from the 'not-indexing' position (red dot -) down to the 'indexing position' (green dot +). This will insert the Index Pin's shaft into one of the Spindle Pulley's holes, locking the spindle in place.
- To unlock and free the spindle, reverse the process.

The Pointer (FIG. 35) lets you select a specific, numbered index hole when creating patterns on your work.

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.

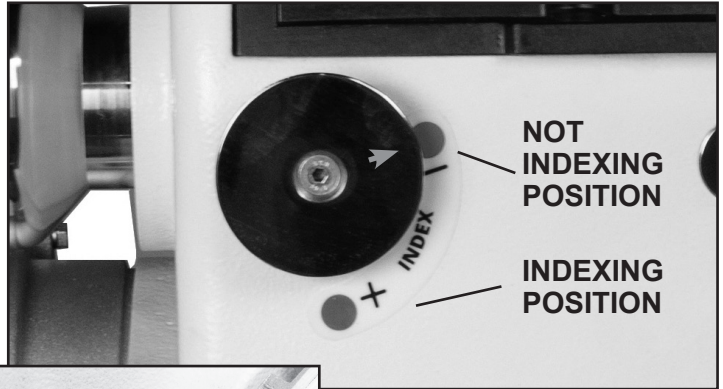


FIG. 34

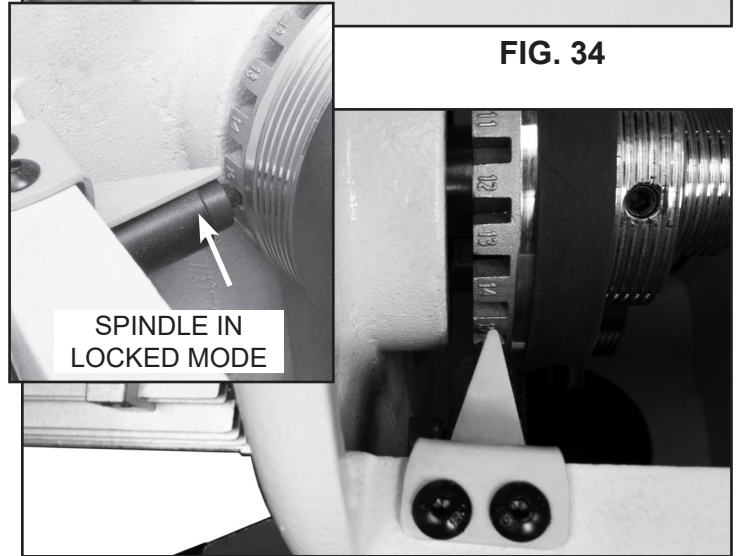


FIG. 35



**WARNING**

**NEVER USE THE INDEX PIN TO HOLD THE SPINDLE TO REMOVE ACCESSORIES FROM THE LATHE.**



**WARNING**

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

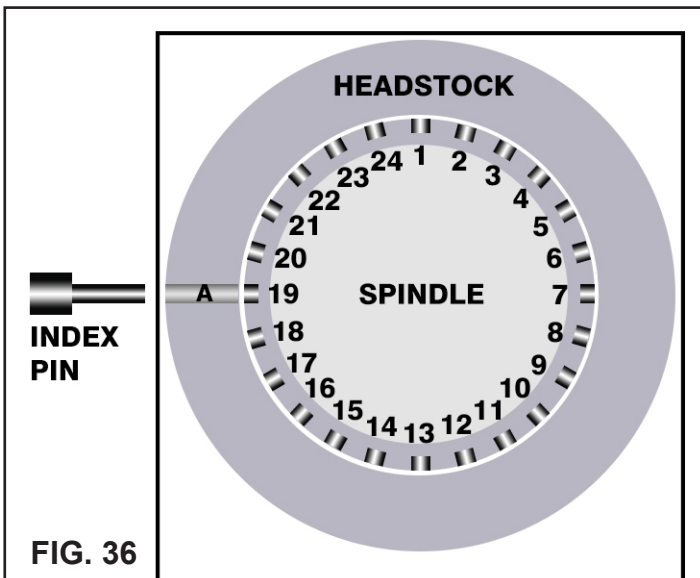


FIG. 36

| 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                        |



# ADJUSTMENTS

## ALIGNING SPINDLE CENTERS

The alignment of the headstock spur center and the tailstock live center are set at the factory, but this should be checked once the lathe is assembled and ready for use.

1. Slide the tailstock towards the headstock until the center point of the live center almost touches the headstock's spur center. Figure 37.
2. Check the alignment of the center points by viewing from the top and side, and also by rotating the spur center.
3. If the centers do not align, use the provided MT2-MT2 Alignment Gauge (FIG. 38) to align the headstock to the tailstock;

- Remove the Spur Center from the headstock and Live Center from the tailstock.
- Insert one tapered end of the MT2-MT2 Gauge into the headstock spindle's tapered hole.
- Unlock the headstock and keep it facing the tailstock.
- Unlock the tailstock and slide it towards the headstock so the right, free end of the MT2-MT2 gauge held in the headstock enters the tapered hole in the tailstock.
- With both headstock and tailstock unlocked, move the tailstock further left so that the MT2-MT2 gauge is fully inserted in the two tapered holes. The headstock and tailstock are now aligned.
- Lock the headstock in place.
- The tailstock can now be moved right, away from the tailstock and the MT2-MT2 gauge removed.

**NOTE:** The alignment of the headstock to tailstock should always be done if the headstock is rotated away from the standard lathe headstock-facing-the-tailstock position.

See page 13 for information on rotating the headstock.

## ADJUSTING THE LOCKING HANDLES

The locking handles on the Tool Rest Base and Tailstock 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 (#4A, 30D) that are located under the lathe bed and below the assemblies. This can be done with a 19mm (3/4") or adjustable wrench (not included). See Figure 39, A.

1. Loosen the locking Handle, B, (#3A, 25D) so that there is no clamping pressure being exerted on the lathe assembly.
2. With the wrench, slightly turn the Hex Nut to loosen or tighten it on its threaded Drawbar Bolt (#7A, 26D).
3. Test the clamping pressure with the locking handle, and adjust the nut again, if needed, to set the right pressure.

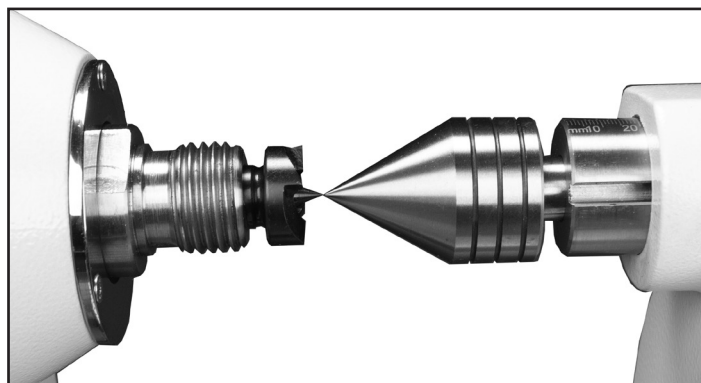


FIG. 37

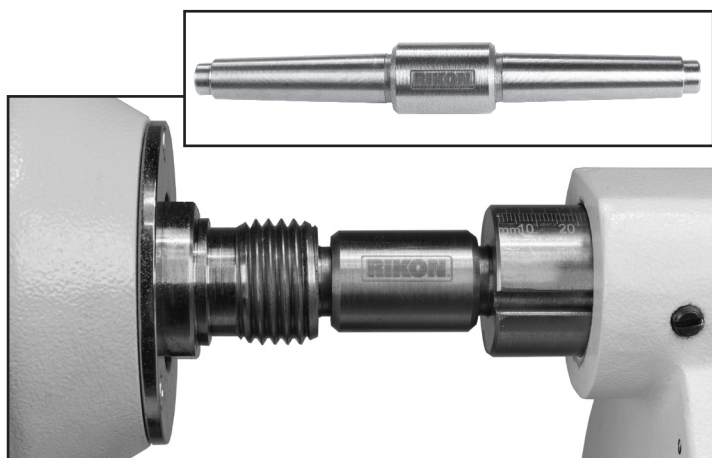


FIG. 38

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

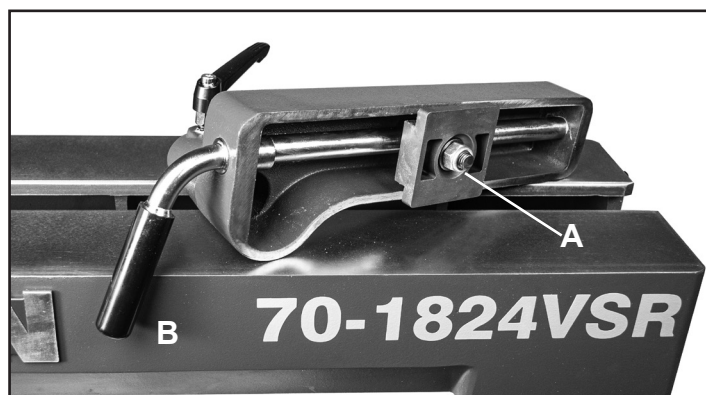


FIG. 39

See pages 37 & 38 for Lathe Accessories.

# ADJUSTMENTS

## 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 installed spur center or faceplate from the spindle.
2. Open the 2 Belt Doors to gain access to the belt and pulleys that are inside of the headstock. Figure 40, A & B.
3. Pull the Belt Tensioning Handle forward, away from the motor. FIG. 41. (See Page 18, Figures 32 & 33).
4. Push the Tensioning Handle down, FIG. 41, to loosen the tension on the Poly-V-Belt, and then secure the handle in place by pushing the handle back towards the motor. The belt can now be moved off of the 2 pulleys. **NOTE:** If the belt is not to be saved, the old belt can be cut off at this time.
5. Unscrew the Spindle Lock Nut (#63B) clockwise with the supplied 10mm Hex Wrench, while holding the spindle steady at the opposite end with the large 38mm Wrench. Figure 42.
6. Unscrew the Spindle Hand Wheel (#64B) counterclockwise from the spindle.
7. Unscrew the large Locking Nut (#66B) counterclockwise from the spindle with the large 38mm Wrench. Figure 43.
8. Unscrew / Loosen the Set Screws (#4B) that attach the Spindle Pulley (#3B) to the spindle. Screws are on the middle step of the pulley. **NOTE:** There are 2 sets screws in each hole, one stacked upon the other. Remove the top set screw then loosen the bottom set screw. Figure 44, A.
9. Unscrew the 2 Set Screws (#6B) that attach the Plastic RPM Reader Disc (#7B) to the spindle. Figure 44, B.
10. Unscrew the 2 Set Screws that attach the Spindle Lock Disc (#8B) to the spindle. Figure 44, C.
11. Unscrew the 3 hex head bolts (#22B) from the Spindle Ring (#21B) and remove the Ring from the headstock casting. Figure 46.

The spindle can now be removed, or half removed, from the headstock in order to install the new belt.

CONTINUED ON PAGE 22

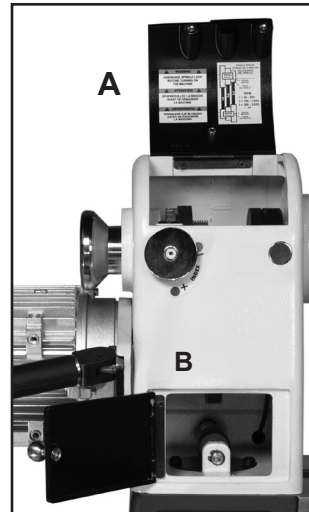


FIG. 40

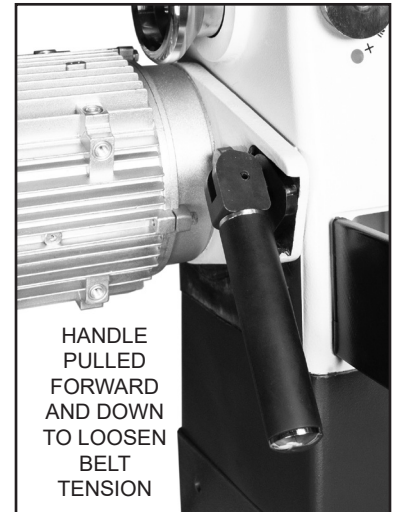


FIG. 41



FIG. 42



FIG. 43

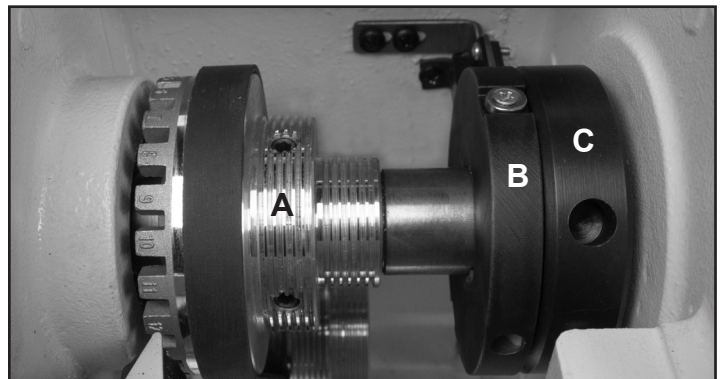


FIG. 44

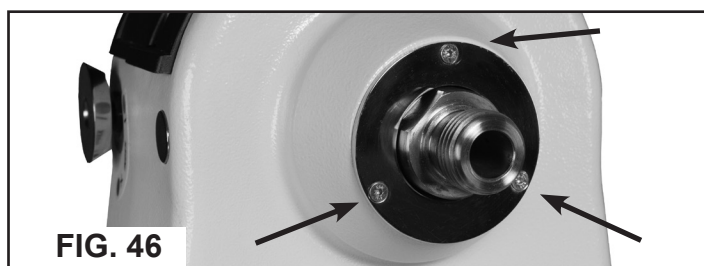


FIG. 46

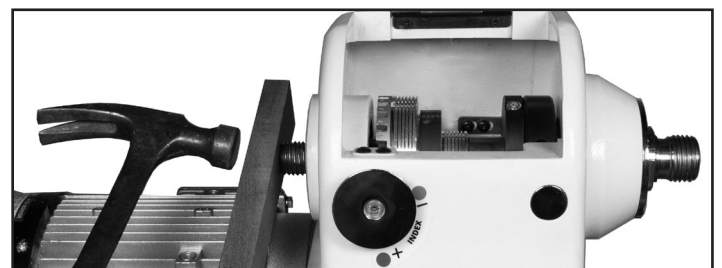


FIG. 45

# ADJUSTMENTS

CONTINUED FROM PAGE 21

12. Place a block of wood against the left spindle end and strike it with a mallet/hammer to move the spindle towards the tailstock. The wood will prevent any damage when the spindle is hit. Once there is enough space, the old drive belt can be removed around the spindle end, and replaced with the new belt. Figure 45, page 21.

**NOTE:** Care must be taken when moving the spindle to prevent the sliding Spindle Pulley and plastic RPM Reader Disc from hitting the fixed Mounting Plate and RPM Reader Assembly (#13B & 12B).

13. Reposition the Spindle. Place a block of wood against the right spindle end and strike it with a mallet to move the spindle left, away from the tailstock and back into operating position. Also carefully tap the bearings back into position if they happen to move during this process.

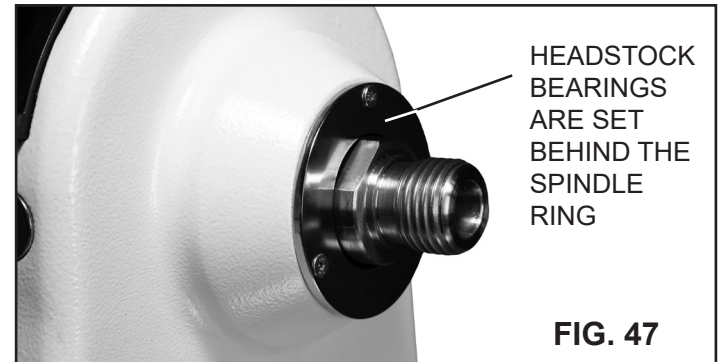
14. Reassemble the lathe parts by also reversing the procedure described in steps 1 - 11. Make sure that the Spindle Pulley and RPM Reader Disc are secured in their original positions on the spindle - the spindle pulley aligns with the lower motor pulley, and the RPM reader disc aligns to the RPM Reader.

## CHANGING THE SPINDLE BEARINGS

**NOTE:** CHANGING THE SPINDLE BEARINGS follow the same spindle removal process as described on pages 21 & 22 'CHANGING THE BELT'.

1. Unplug the lathe from the power source, and remove any installed spur center or faceplate from the spindle.
2. Follow the steps 2-11 on page 21 for 'Changing the Belt'.
3. Once the Spindle Pulley, Plastic RPM Reader Disc and Spindle Lock Disc set screws are loose, and the Spindle Ring has been removed, place a block of wood against the left spindle end and strike it with a mallet/hammer to move the spindle towards the tailstock. The wood will prevent any damage when the spindle is hit. Carefully knock out the spindle.

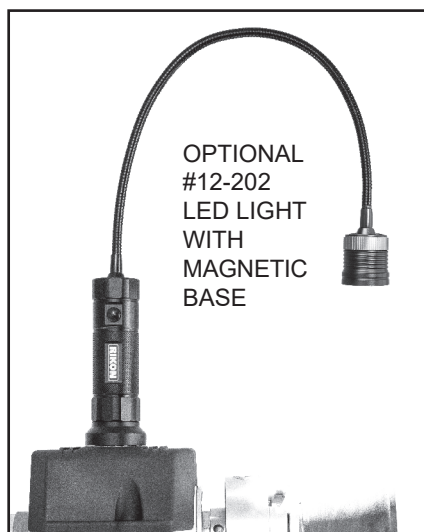
**NOTE:** Care must be taken when moving the spindle to prevent the sliding Spindle Pulley, plastic RPM Reader Disc and Spindle Lock Disc from hitting the fixed Mounting Plate and RPM Reader Assembly (#13B & 12B).



**FIG. 47**

4. Carefully remove the bearings from the spindle and/or headstock casting by tapping them loose. Bearings on the spindle can be removed with a gear pulley, if available.
5. Replace the four Bearings (#19B & 69B) on the spindle or in the headstock casting as applicable.
6. Reassemble the lathe parts by reversing the procedure described in steps 3 - 1 above, and 11-1 on page 21.

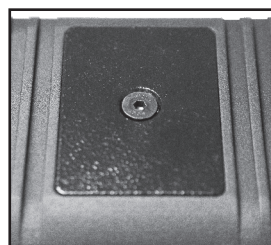
**WARNING** THE MACHINE MUST NOT BE PLUGGED IN AND THE POWER SWITCH MUST BE IN THE OFF POSITION UNTIL ALL ADJUSTMENTS ARE COMPLETE.



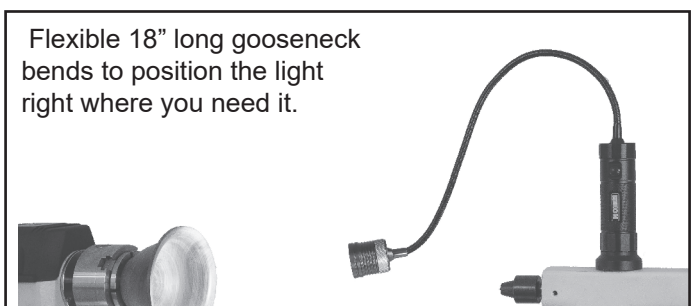
OPTIONAL  
#12-202  
LED LIGHT  
WITH  
MAGNETIC  
BASE

## USING MAGNETIC BASE LIGHTS & ACCESSORIES

The 70-1824VSR lathe is designed with flat headstock and tailstock metal surfaces for attaching magnetic based lights, storage bowls or other accessories. The headstock lid is fitted with a steel plate just for this purpose. The cast iron tailstock's top surface offers a generous 8-1/4" (210mm) long x 1-3/8" (35mm) wide flat surface. See page 38 for the 12-202 LED Light.



Metal Plate on  
headstock lid



Flexible 18" long gooseneck  
bends to position the light  
right where you need it.



# MAINTENANCE

**⚠ WARNING:** 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 7.
- 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 base, tailstock and upper sliding bed on/over the lathe bed.

4. Keep the lathe tools sharp and make sure the steel is not loose in the handle so that no accidents might occur. Making sure that they 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. To prevent slipping, keep the drive belt free of oil and grease.

7. When not in use, make sure that the #70-1824VSR’s Main ON/OFF Switch that is located on the lathe’s inverter box is turned off. This will prevent any damage to the lathe’s electrical system and prevent any unauthorized use. Note that the switch will also hold a lock to further secure the lathe from being activated. See page 15 for details.

8. To prevent any dust from accumulating in the electrical outlet located on the lathe’s inverter box, keep the supplied outlet cover installed when not in use.

---

## TAILSTOCK MAINTENANCE

The occasional disassembly and cleaning/lubricating of the lathe’s quill and screw is proper regular maintenance of this machine. One of the common issues with lathe quills is that the 2 grooves in the quill sides get damaged by the tailstock’s positioning set screws from the rotational pressure from normal use, and especially by drilling. The sides of the grooves can expand up & out beyond the diameter of the quill, thus making it harder to slide through the tailstock casting from the resulting friction.

To solve this, just use a fine metal file to carefully take down the offending raised metal on the exterior of the quill’s grooves. Also make sure that the grooves’ slots inside walls are smooth. This process is also covered on many internet videos on tailstock maintenance.

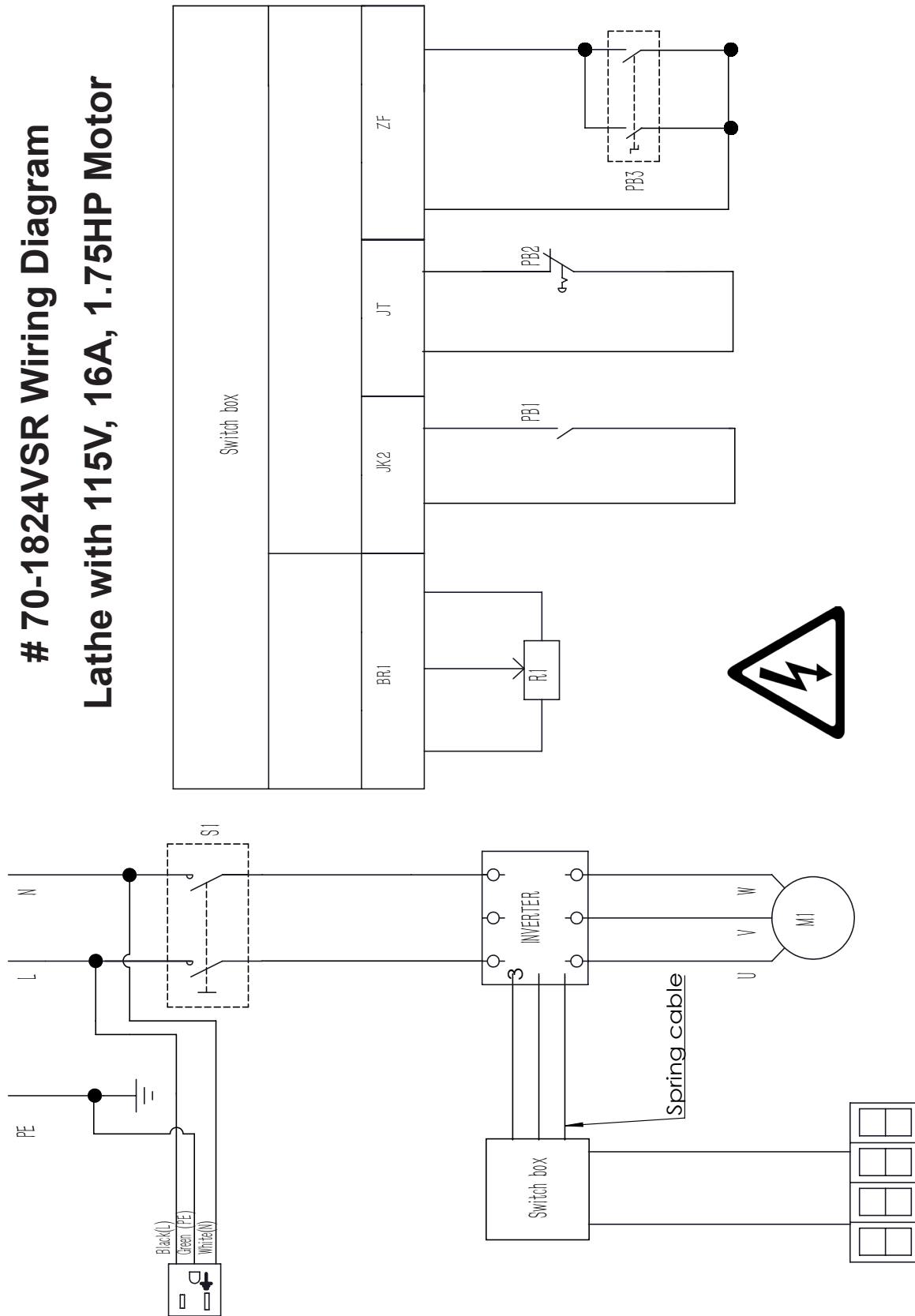
Another thing to check is the nub end on the hex screw of the rear locking handle. The round nub end could have expanded in diameter from the locking pressure that has been put on it, and thus contribute to its binding in the slot that it slides in. The nubs’ circumference can be carefully filed down so it is again narrower than the width of the quill slot. The quill’s front set screw has nubs with 2 flats for best sliding action in the forward quill slot. This should not expand under use or require any maintenance other than to make sure the flats are positioned parallel in the quill slot and lightly lubricated.

Lastly, the overall cleaning of the screw and other surfaces of any debris and old oil/grease should also be done, then reapply new grease or oil to lubricate the parts.

FYI, many turners find drilling with their tailstocks faster and with more control by not using the tailstock’s screw. They just slide the unlocked tailstock with drill bit forward-and-back by hand. They can better control the drilling of their holes and then remove the shavings inside of the turnings faster than by cranking the tailstock handwheel.



**WARNING:** This machine must be grounded. Replacement of the power supply cable should only be done by a qualified electrician. See page 5 for additional electrical information.

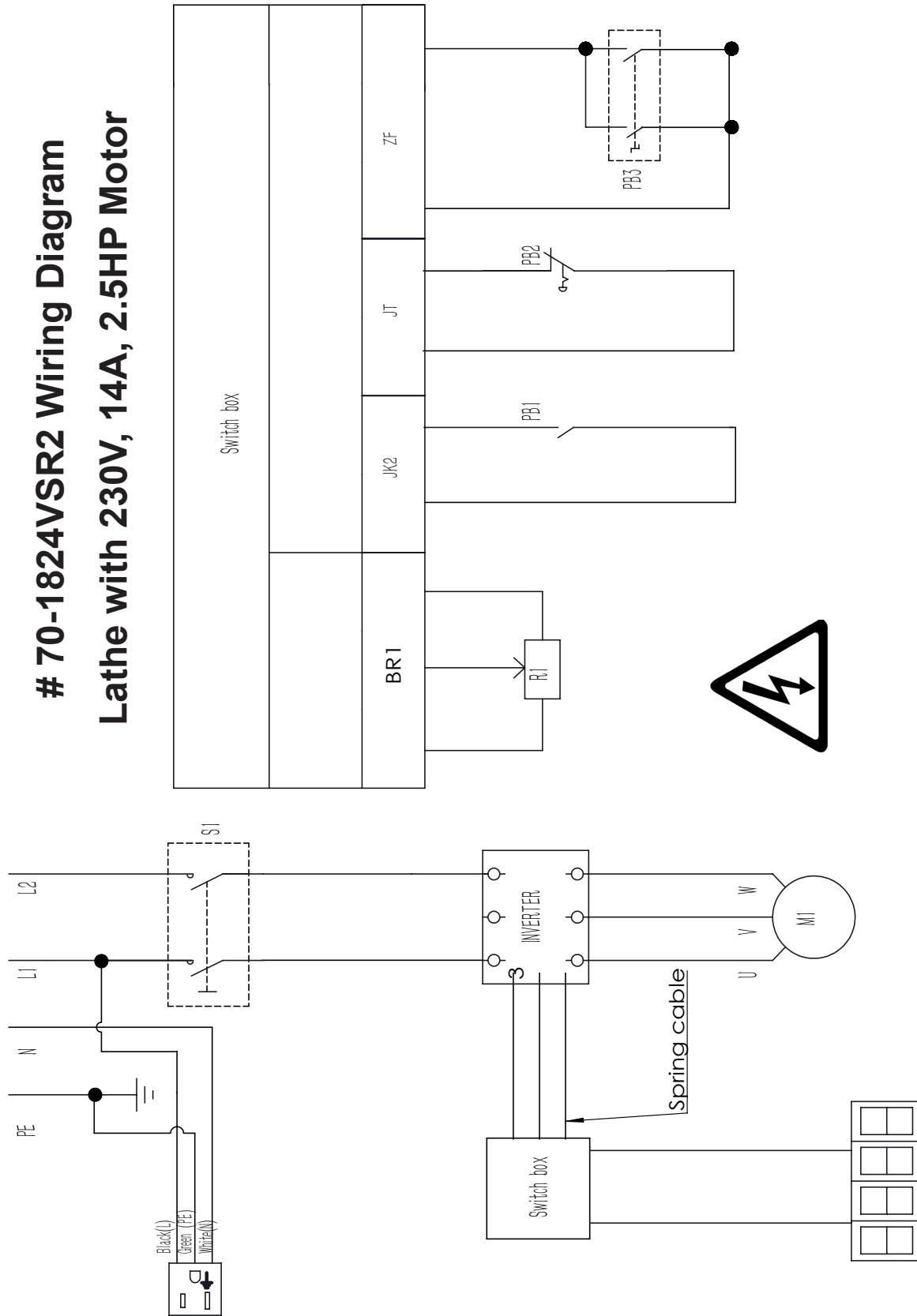


**NOTE:** The AC Inverter Control Box (Page 15, Figure 22) that is located under the bed at the headstock end does not require any programming. It is pre-programmed from the factory. Only use the electronic controls on the control box (Page 16, Figure 25) to operate the lathe.





**WARNING:** This machine must be grounded. Replacement of the power supply cable should only be done by a qualified electrician. See page 6 for additional electrical information.



**NOTE:** The AC Inverter Control Box (Page 15, Figure 22) that is located under the bed at the headstock end does not require any programming. It is pre-programmed from the factory. Only use the electronic controls on the control box (Page 16, Figure 25) to operate the lathe.

# TROUBLESHOOTING

## ELECTRONIC SPEED CONTROL ACTION CODES

| LED CODE | INV CODE | CONDITION             | SOLUTION  |
|----------|----------|-----------------------|---|
| E04      | OC       | Over current          | <ol style="list-style-type: none"><li>1. Power off and wait 5 minutes before restarting</li><li>2. Check the load on the motor</li><li>3. Check if Index Pin or turnings are preventing spindle rotation</li><li>4. If you can not return to normal contact Customer Service</li></ol>  |
| E06      | OE       | Over voltage          | <ol style="list-style-type: none"><li>1. Check if the voltage of the power source is valid</li><li>2. Power off and wait 1 minute before restarting. If you can not return to normal contact Customer Service</li></ol>   |
| E0b      | OL1      | VFD Drive overload    | <ol style="list-style-type: none"><li>1. Check the load on the motor</li><li>2. Check if Index Pin or turnings are preventing spindle rotation</li></ol>  |
| E0d      | LF       | Lead fault            | <ol style="list-style-type: none"><li>1. Check if the motor wires are firmly connected</li><li>2. Check if the inverter is connected to the motor</li></ol>   |
| E23      | LE       | Low voltage           | <ol style="list-style-type: none"><li>1. Check if the voltage of power source is valid</li><li>2. Check and confirm all wires and plugs are firmly connected</li></ol>  |
| E09      | OH       | VFD Drive overheating | <ol style="list-style-type: none"><li>1. Improve the system ventilation. Clean dust &amp; debris from the machine and inside of the Inverter box</li><li>2. Rest lathe for 30 minutes and turn on main power switch only to run the inverter's cooling fan</li><li>3. If you can not return to normal contact Customer Service</li></ol>                    |
| E08      | GF       | Ground Fault          | <ol style="list-style-type: none"><li>1. Power off and wait 1 minute before restarting</li><li>2. Check and confirm all wires and plugs are firmly connected</li><li>3. Check the load on the motor</li><li>4. Check if Index Pin or turnings are preventing spindle rotation</li><li>5. If you can not return to normal contact Customer Service</li></ol> |
| E0A      | OL       | Motor overload        | <ol style="list-style-type: none"><li>1. Check the load of motor</li><li>2. Check if Index Pin or turnings are preventing spindle rotation</li></ol>  |
| E0E      | dbuP     | Dynamic brake         | <ol style="list-style-type: none"><li>1. Power off and wait 2 minutes before restarting.</li><li>2. If you can not return to normal contact Customer Service</li></ol>  |
| E21      | PrEr     | Flash program         | <ol style="list-style-type: none"><li>1. Power off and wait 2 minutes before restarting.</li><li>2. If you can not return to normal contact Customer Service</li></ol>  |
| E22      | EER      | Flash error           | <ol style="list-style-type: none"><li>1. Power off and wait 2 minutes before restarting.</li><li>2. If you can not return to normal contact Customer Service</li></ol>  |
| E25      | ESP      | Emergency stop        | <ol style="list-style-type: none"><li>1. The emergency switch is loose or disconnected</li><li>2. The display to the inverter connection line is loose</li></ol>  |

# 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. Main on/off switch is in 'off' position</li> <li>3. Low voltage or loose connection</li> </ol>   | <ol style="list-style-type: none"> <li>1. Plug in machine</li> <li>2. Turn main on/off switch to 'on'</li> <li>3. Check plug, connections and fuse</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. Low voltage</li> <li>4. 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. Request voltage check from power company and correct low voltage condition</li> <li>4. 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>   |
| 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. Lathe is on an uneven surface</li> <li>3. Motor mount bolt or handles are loose</li> <li>4. Worn belt</li> <li>5. Worn spindle bearings</li> </ol> | <ol style="list-style-type: none"> <li>1. Correct problem by planing, band sawing, or discard the workpiece</li> <li>2. Shim the lathe stand, or adjust the feet on the stand for stability</li> <li>3. Tighten all bolts or handles</li> <li>4. Replace the belt</li> <li>5. Replace the bearings</li> </ol> |
| Tailstock Moves when applying pressure           | <ol style="list-style-type: none"> <li>1. Tailstock is not secured in place</li> <li>2. Excessive pressure being applied by the tailstock onto the workpiece</li> <li>3. Lathe bed and tailstock mating surfaces are greasy or oily.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Tighten tailstock locking lever</li> <li>2. Apply only sufficient force with the tailstock to hold the workpiece securely between centers.</li> <li>3. Remove tailstock and clean bed surfaces with a cleaner de greaser</li> </ol>                                 |
| Tailstock Handwheel is hard to turn              | <ol style="list-style-type: none"> <li>1. Tailstock quill's locking lever is still tight</li> <li>2. Build up of dirt, resin on inside quill thread</li> </ol>   | <ol style="list-style-type: none"> <li>1. Loosen tailstock quill's locking lever</li> <li>2. Remove quill, clean all parts, oil and grease parts, then re-assemble</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>   |
| Spur or Live Centers slip when turning           | <ol style="list-style-type: none"> <li>1. MT2 tapers are damaged, or have buildup of dirt or excessive grease</li> <li>2. Insufficient pressure when loading</li> </ol>  | <ol style="list-style-type: none"> <li>1. File or polish away any damage and clean tapers, inside and out.</li> <li>2. Apply light coating of oil on tapers to prevent rusting</li> <li>3. Install centers with firm hand pressure. Do not knock in with solid object</li> </ol>                              |
| Spur and Live Centers do not align               | <ol style="list-style-type: none"> <li>1. Headstock is not aligned with tailstock</li> </ol>   | <ol style="list-style-type: none"> <li>1. Loosen bolts securing headstock to the bed, align centers, then re-tighten headstock bolts.</li> </ol>  |

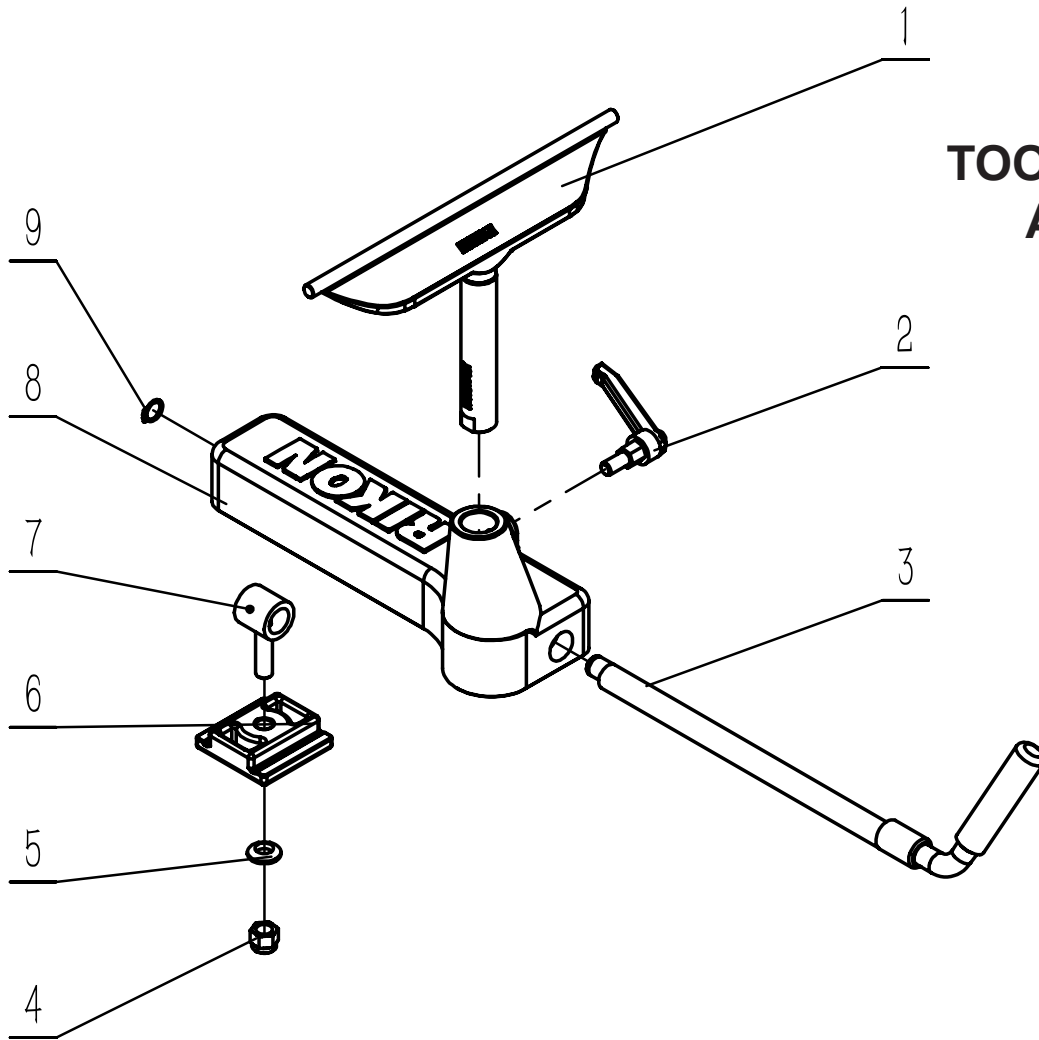
CONTINUED ON PAGE 28

For parts or technical questions contact: [techsupport@rikontools.com](mailto:techsupport@rikontools.com) or 877-884-5167.





# PARTS DIAGRAM & PARTS LIST



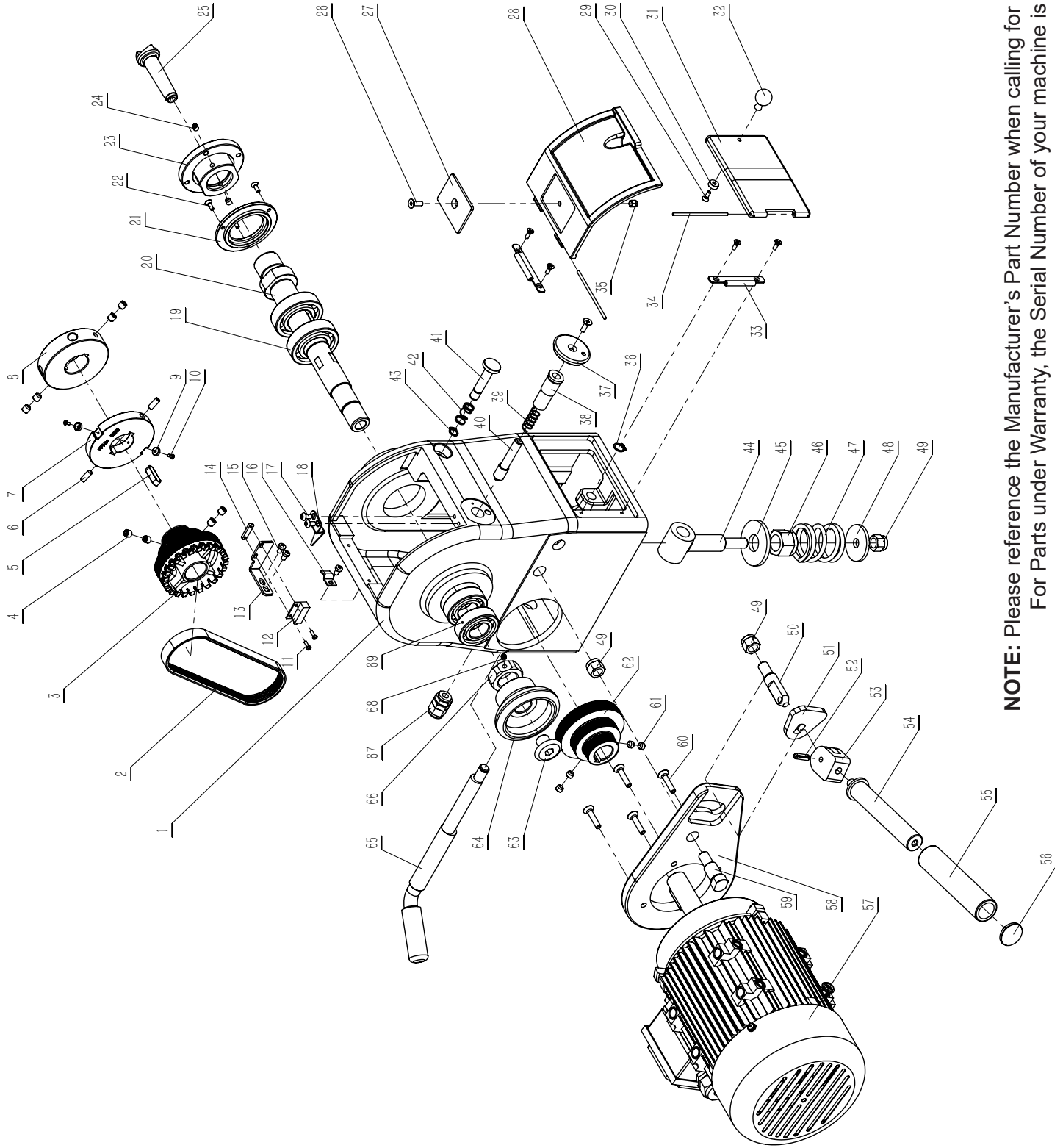
## TOOL REST BASE ASSEMBLY SHEET A

| KEY NO. | DESCRIPTION                          | PART NO.               | QUANTITY |
|---------|--------------------------------------|------------------------|----------|
| 1A      | 12" Tool rest assembly (see Page 37) | 70-978, 70-970, 70-966 | 1 Each   |
| 2A      | Locking handle                       | P70-1824VSR-2A         | 1        |
| 3A      | Handle                               | P70-1824VSR-3A         | 1        |
| 4A      | Hex lock nut M12                     | P70-1824VSR-4A         | 1        |
| 5A      | Washer 12                            | P70-1824VSR-5A         | 1        |
| 6A      | Position plate                       | P70-1824VSR-6A         | 1        |
| 7A      | Drawbar                              | P70-1824VSR-7A         | 1        |
| 8A      | Tool rest base                       | P70-1824VSR-8A         | 1        |
| 9A      | Retaining ring 15                    | P70-1824VSR-9A         | 1        |

**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts. For Parts under Warranty, the Serial Number of your machine is required.

# PARTS DIAGRAM

## HEADSTOCK ASSEMBLY - SHEET B



**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts.  
For Parts under Warranty, the Serial Number of your machine is required.

# PARTS LIST

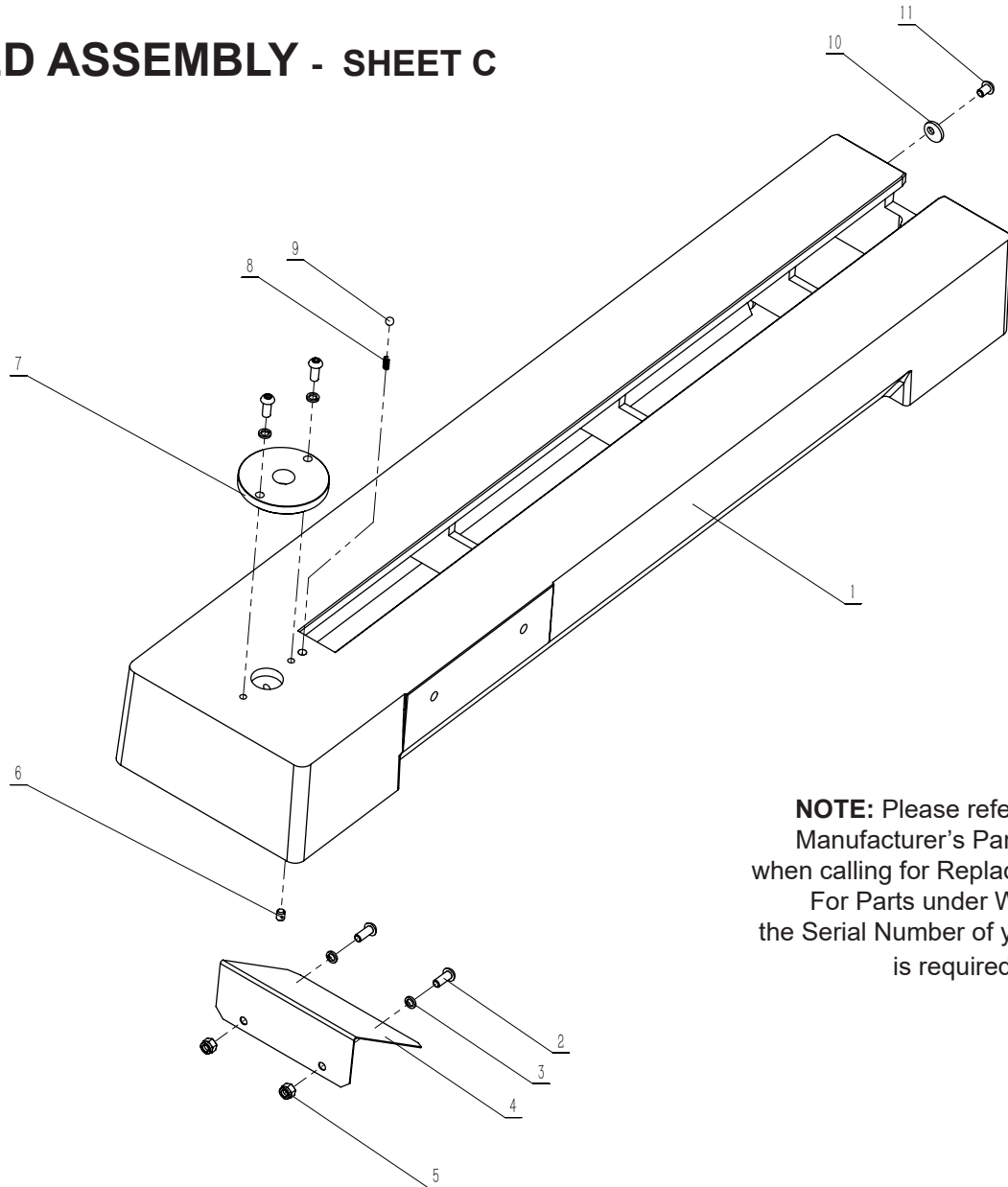
## HEADSTOCK ASSEMBLY - SHEET B

| KEY NO. | DESCRIPTION                          | PART NO.        | QTY. | KEY NO. | DESCRIPTION                  | PART NO.          | QTY. |
|---------|--------------------------------------|-----------------|------|---------|------------------------------|-------------------|------|
| 1B      | Headstock                            | P70-1824VSR-1B  | 1    | 37B     | Knob                         | P70-1824VSR-37B   | 1    |
| 2B      | Poly V-Belt                          | P70-1824VSR-2B  | 1    | 38B     | Locating sleeve              | P70-1824VSR-38B   | 1    |
| 3B      | Spindle pulley                       | P70-1824VSR-3B  | 1    | 39B     | Spring                       | P70-1824VSR-39B   | 1    |
| 4B      | Hex socket set screw M8x8            | P70-1824VSR-4B  | 8    | 40B     | Locating pin                 | P70-1824VSR-40B   | 1    |
| 5B      | Flat key 8x7x28                      | P70-1824VSR-5B  | 1    | 41B     | Pin shaft                    | P70-1824VSR-41B   | 1    |
| 6B      | Hex socket set screw M6x16           | P70-1824VSR-6B  | 2    | 42B     | Spring                       | P70-1824VSR-42B   | 1    |
| 7B      | Magnetic steel sleeve                | P70-1824VSR-7B  | 1    | 43B     | Retaining ring 10            | P70-1824VSR-43B   | 1    |
| 8B      | Spindle lock disc                    | P70-1824VSR-8B  | 1    | 44B     | Bushing                      | P70-1824VSR-44B   | 1    |
| 9B      | Magnetic steel                       | P70-1824VSR-9B  | 2    | 45B     | Washer 5x55x5                | P70-1824VSR-45B   | 1    |
| 10B     | Tapping screw ST2D9x9D5              | P70-1824VSR-10B | 2    | 46B     | Hex lock nut M20             | P70-1824VSR-46B   | 1    |
| 11B     | Cross recess pan head screw M3x10    | P70-1824VSR-11B | 2    | 47B     | Spring                       | P70-1824VSR-47B   | 1    |
| 12B     | RPM reader                           | P70-1824VSR-12B | 1    | 48B     | Big washer 12                | P70-1824VSR-48B   | 1    |
| 13B     | Mounting plate                       | P70-1824VSR-13B | 1    | 49B     | Hex lock nut M12             | P70-1824VSR-49B   | 3    |
| 14B     | Threaded plate                       | P70-1824VSR-14B | 1    | 50B     | Position shaft               | P70-1824VSR-50B   | 1    |
| 15B     | Cross recess pan head screw M5x8     | P70-1824VSR-15B | 4    | 51B     | Adjusting cam                | P70-1824VSR-51B   | 1    |
| 16B     | Cable pressing plate                 | P70-1824VSR-16B | 2    | 52B     | Elastic cylindrical pin 6x22 | P70-1824VSR-52B   | 1    |
| 17B     | Hex socket flat rnd head screw M5x10 | P70-1824VSR-17B | 2    | 53B     | Positioning cam              | P70-1824VSR-53B   | 1    |
| 18B     | Pointer                              | P70-1824VSR-18B | 1    | 54B     | Handle                       | P70-1824VSR-54B   | 1    |
| 19B     | Bearing 6206                         | P70-1824VSR-19B | 2    | 55B     | Handle sleeve                | P70-1824VSR-55B   | 1    |
| 20B     | Spindle                              | P70-1824VSR-20B | 1    | 56B     | Threaded cap                 | P70-1824VSR-56B   | 1    |
| 21B     | Bearing end cap                      | P70-1824VSR-21B | 1    | 57.1B   | Motor 1.75HP, 115V (VSR)     | P70-1824VSR-57-1B | 1    |
| 22B     | Hex socket cntrsk head screw M4x12   | P70-1824VSR-22B | 3    | 57.2B   | Motor 2.5HP, 230V (VSR2)     | P70-1824VSR-57-2B | 1    |
| 23B     | Faceplate                            | P70-1824VSR-23B | 1    | 58B     | Motor adjusting plate        | P70-1824VSR-58B   | 1    |
| 24B     | Hex socket set screw M6x8            | P70-1824VSR-24B | 2    | 59B     | Shoulder screw               | P70-1824VSR-59B   | 1    |
| 25B     | Spur center                          | 70-943          | 1    | 60B     | Hex head cntrsk screw M6x25  | P70-1824VSR-60B   | 4    |
| 26B     | Hex socket cntrsk head screw M5x16   | P70-1824VSR-26B | 2    | 61B     | Hex socket set screw M8x6    | P70-1824VSR-61B   | 4    |
| 27B     | Panel                                | P70-1824VSR-27B | 1    | 62B     | Motor pulley                 | P70-1824VSR-62B   | 1    |
| 28B     | Headstock cover                      | P70-1824VSR-28B | 1    | 63B     | Locking nut                  | P70-1824VSR-63B   | 1    |
| 29B     | Cross recess cntrsk hd screw M4x12   | P70-1824VSR-29B | 5    | 64B     | Spindle hand wheel           | P70-1824VSR-64B   | 1    |
| 30B     | Magnet                               | P70-1824VSR-30B | 1    | 65B     | Locking handle               | P70-1824VSR-65B   | 1    |
| 31B     | Plate                                | P70-1824VSR-31B | 1    | 66B     | Spindle lock nut             | P70-1824VSR-66B   | 1    |
| 32B     | Small handle                         | P70-1824VSR-32B | 1    | 67B     | Bellows joint (M16)          | P70-1824VSR-67B   | 1    |
| 33B     | Hinge                                | P70-1824VSR-33B | 2    | 68B     | Hex socket set screw M6x5    | P70-1824VSR-68B   | 1    |
| 34B     | Hinge shaft                          | P70-1824VSR-34B | 2    | 69B     | Bearing 6205                 | P70-1824VSR-69B   | 2    |
| 35B     | Hex lock nut M5                      | P70-1824VSR-35B | 1    |         |                              |                   |      |
| 36B     | Retaining ring 12                    | P70-1824VSR-36B | 1    |         |                              |                   |      |



# PARTS DIAGRAM & PARTS LIST

## LATHE BED ASSEMBLY - SHEET C

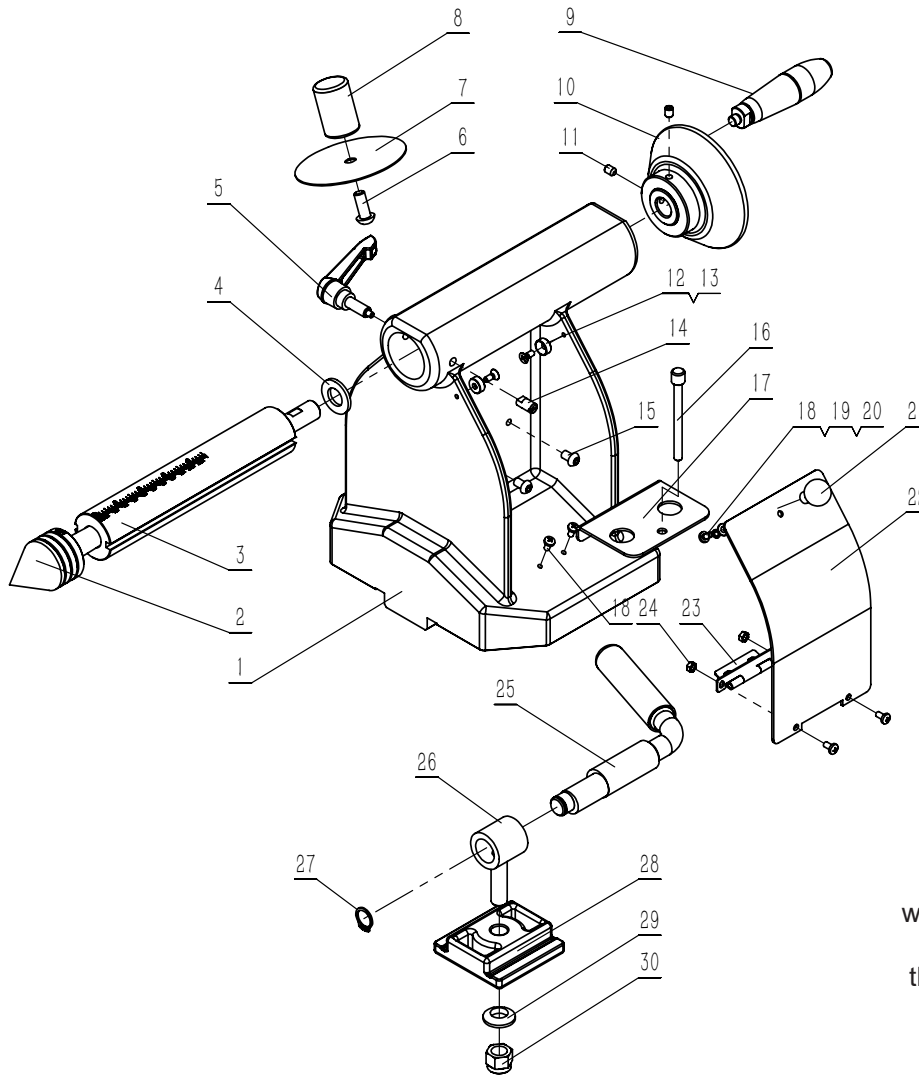


**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts. For Parts under Warranty, the Serial Number of your machine is required.

| KEY NO. | DESCRIPTION                            | PART NO.        | QTY. |
|---------|--|-----------------|------|
| 1C      | Bed                                    | P70-1824VSR-1C  | 1    |
| 2C      | Hex socket flat round head screw M8x20 | P70-1824VSR-2C  | 4    |
| 3C      | Spring washer 8                        | P70-1824VSR-3C  | 4    |
| 4C      | Dust guard plate                       | P70-1824VSR-4C  | 1    |
| 5C      | Hex lock nut M8                        | P70-1824VSR-5C  | 2    |
| 6C      | Hex socket set screw M8x10             | P70-1824VSR-6C  | 1    |
| 7C      | Locating plate                         | P70-1824VSR-7C  | 1    |
| 8C      | Spring                                 | P70-1824VSR-8C  | 1    |
| 9C      | Steel ball                             | P70-1824VSR-9C  | 1    |
| 10C     | Eccentric washer                       | P70-1824VSR-10C | 1    |
| 11C     | Hex socket flat round head screw M8x12 | P70-1824VSR-11C | 1    |

# PARTS DIAGRAM & PARTS LIST

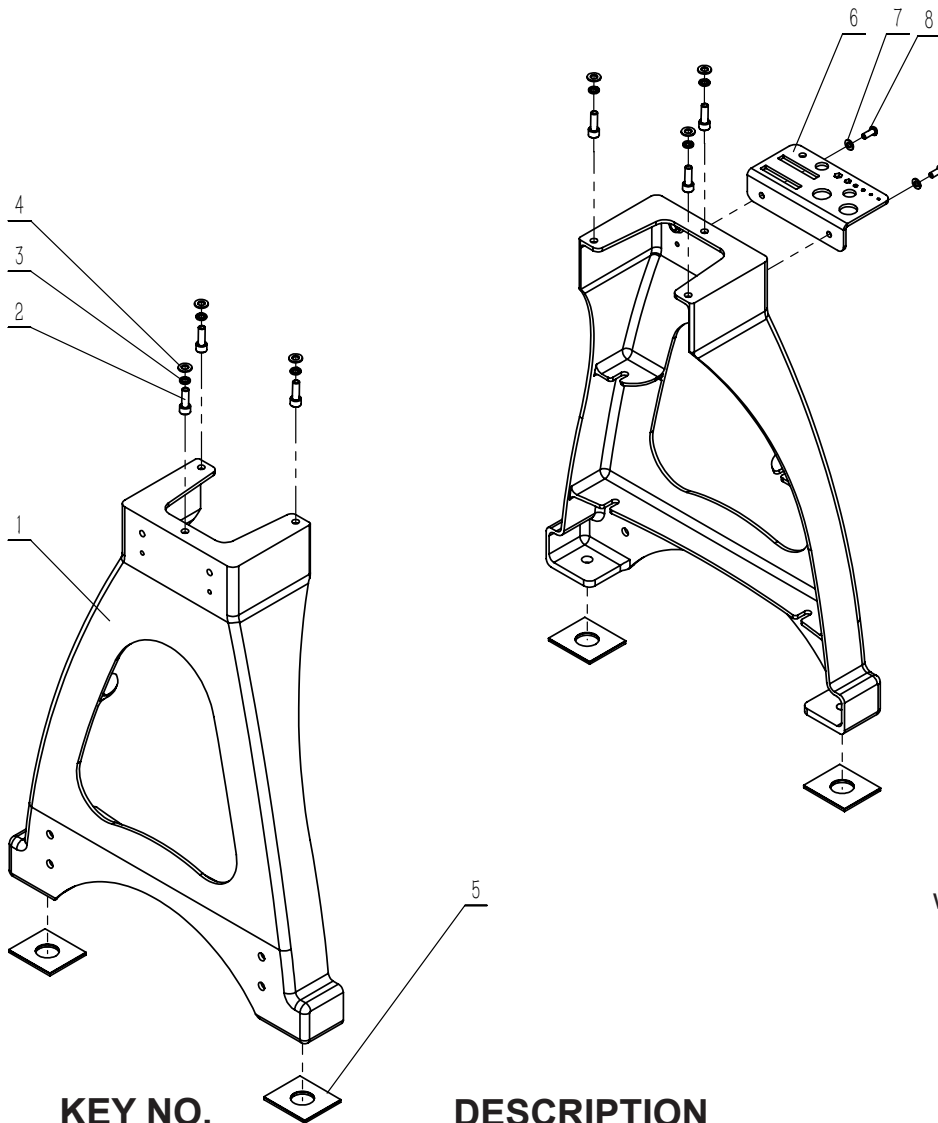
## TAILSTOCK ASSEMBLY SHEET D



**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts. For Parts under Warranty, the Serial Number of your machine is required.

| KEY NO. | DESCRIPTION                     | PART NO.        | QTY. | KEY NO. | DESCRIPTION                 | PART NO.        | QTY. |
|---------|---------------------------------|-----------------|------|---------|-----------------------------|-----------------|------|
| 1D      | Tailstock                       | P70-1824VSR-1D  | 1    | 16D     | Short Knockout Bar          | P70-1824VSR-16D | 1    |
| 2D      | 60° Live center                 | 70-942          | 1    | 17D     | Tool holder                 | P70-1824VSR-17D | 1    |
| 3D      | Shaft assembly (Quill)          | P70-1824VSR-3D  | 1    | 18D     | Cross rec pan hd screw M4x8 | P70-1824VSR-18D | 5    |
| 4D      | Spacer                          | P70-1824VSR-4D  | 1    | 19D     | Spring washer 4             | P70-1824VSR-19D | 1    |
| 5D      | Handle                          | P70-1824VSR-5D  | 1    | 20D     | Flat washer 4               | P70-1824VSR-20D | 1    |
| 6D      | Hex socket rnd hd screw M8x20   | P70-1824VSR-6D  | 1    | 21D     | Small handle                | P70-1824VSR-21D | 1    |
| 7D      | Rubber pad                      | P70-1824VSR-7D  | 1    | 22D     | Cover plate                 | P70-1824VSR-22D | 1    |
| 8D      | Nylon round bar                 | P70-1824VSR-8D  | 1    | 23D     | Hinge                       | P70-1824VSR-23D | 1    |
| 9D      | Handle assembly                 | P70-1824VSR-9D  | 1    | 24D     | Hex nut M4                  | P70-1824VSR-24D | 2    |
| 10D     | Hand wheel                      | P70-1824VSR-10D | 1    | 25D     | Tailstock locking lever     | P70-1824VSR-25D | 1    |
| 11D     | Hex socket set screw M6x8       | P70-1824VSR-11D | 2    | 26D     | Drawbar                     | P70-1824VSR-26D | 1    |
| 12D     | Magnet                          | P70-1824VSR-12D | 2    | 27D     | Retaining ring 15           | P70-1824VSR-27D | 1    |
| 13D     | Cross rec cntrsk hd screw M4x10 | P70-1824VSR-13D | 2    | 28D     | Position plate              | P70-1824VSR-28D | 1    |
| 14D     | Screw                           | P70-1824VSR-14D | 1    | 29D     | Washer 12                   | P70-1824VSR-29D | 1    |
| 15D     | Hex socket rnd hd screw M6x10   | P70-1824VSR-15D | 2    | 30D     | Hex lock nut M12            | P70-1824VSR-30D | 1    |

# PARTS DIAGRAM & PARTS LIST



## LATHE BASE ASSEMBLY SHEET E

**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts. For Parts under Warranty, the Serial Number of your machine is required.

| KEY NO. | DESCRIPTION                            | PART NO.       | QTY. |
|---------|--|----------------|------|
| 1E      | Leg                                    | P70-1824VSR-1E | 2    |
| 2E      | Hex socket head cap screw M10x30       | P70-1824VSR-2E | 6    |
| 3E      | Spring washer 10                       | P70-1824VSR-3E | 6    |
| 4E      | Flat washer 10                         | P70-1824VSR-4E | 6    |
| 5E      | Rubber pads                            | P70-1824VSR-5E | 4    |
| 6E      | Tool holder                            | P70-1824VSR-6E | 1    |
| 7E      | Flat washer 8                          | P70-1824VSR-7E | 2    |
| 8E      | Hex socket flat round head screw M8x20 | P70-1824VSR-8E | 2    |

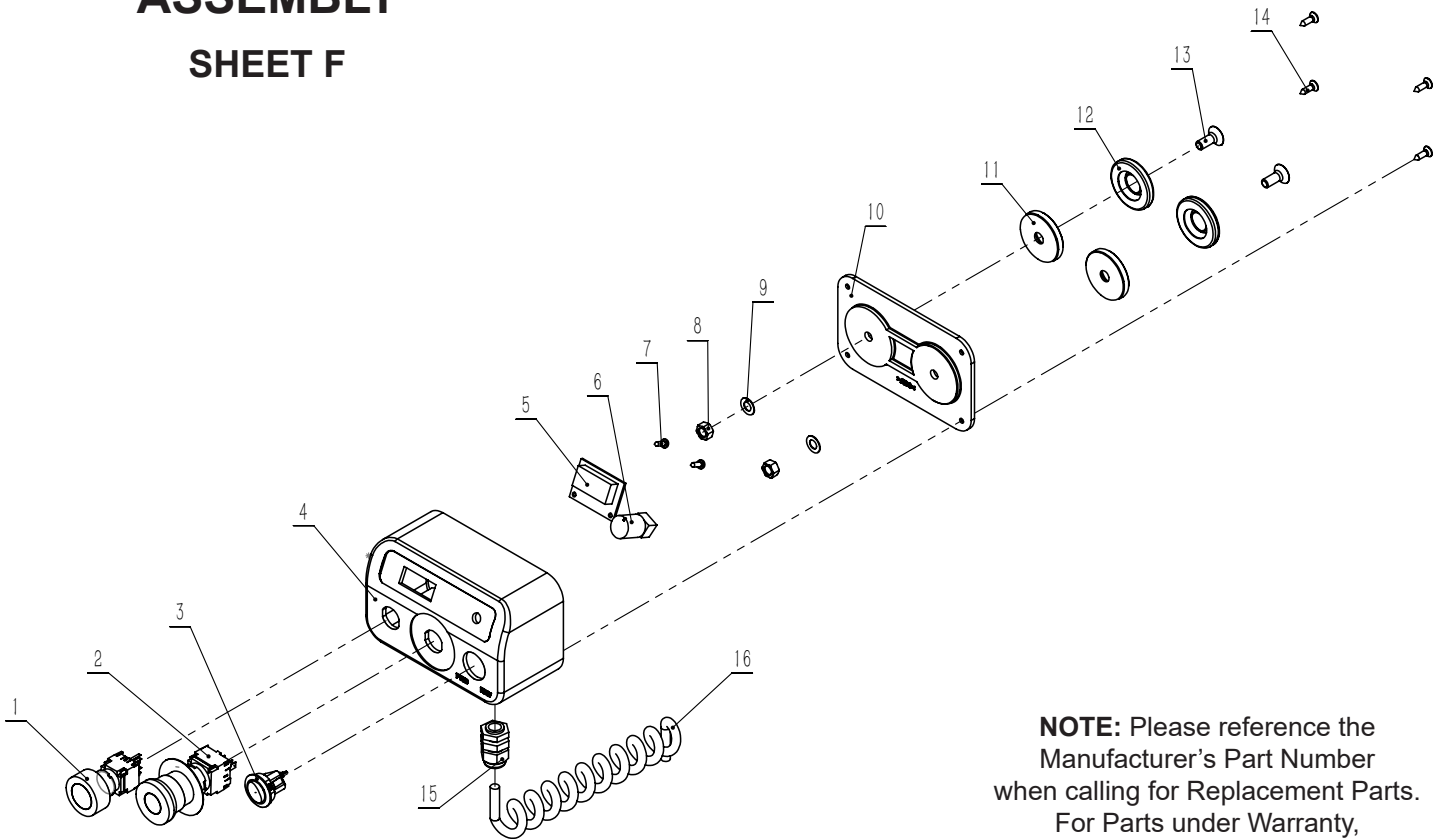
### TOOLS NOT SHOWN OR LISTED ON PREVIOUS PAGES

|                    |          |  |                  |
|--------------------|----------|--|------------------|
| Hex Wrench - 2.5mm | P-HEX2.5 | Wrench - 8mm/10mm                        | P-WRENCH 8/10mm  |
| Hex Wrench - 3mm   | P-HEX3   | Wrench - 17mm/19mm                       | P-WRENCH 17/19mm |
| Hex Wrench - 4mm   | P-HEX4   | Wrench - 38mm/46mm                       | P-WRENCH 38/46mm |
| Hex Wrench - 5mm   | P-HEX5   |  |                  |
| Hex Wrench - 8mm   | P-HEX8   | Knockout Bar x-long                      | P70-3040-KOBAR   |
| Hex Wrench - 10mm  | P-HEX10  | Knockout bar small for spur center point | P70-100-104A     |

# PARTS DIAGRAM & PARTS LIST

## SWITCH BOX ASSEMBLY

### SHEET F



**NOTE:** Please reference the Manufacturer's Part Number when calling for Replacement Parts. For Parts under Warranty, the Serial Number of your machine is required.

| KEY NO. | DESCRIPTION                | PART NO.       | QTY. | KEY NO. | DESCRIPTION                     | PART NO.        | QTY. |
|---------|----------------------------|----------------|------|---------|---------------------------------|-----------------|------|
| 1F      | Start button               | P70-1824VSR-1F | 1    | 9F      | Washer 6                        | P70-1824VSR-9F  | 2    |
| 2F      | Emergency stop button      | P70-1824VSR-2F | 1    | 10F     | Switch box cover                | P70-1824VSR-10F | 1    |
| 3F      | Forward and reverse switch | P70-1824VSR-3F | 1    | 11F     | Magnet steel                    | P70-1824VSR-11F | 2    |
| 4F      | Switch box                 | P70-1824VSR-4F | 1    | 12F     | Magnet steel sleeve             | P70-1824VSR-12F | 2    |
| 5F      | Digital display board      | P70-1824VSR-5F | 1    | 13F     | Hex sockt cntrsk hd screw M6x16 | P70-1824VSR-13F | 2    |
| 6F      | Potentiometer knob         | P70-1824VSR-6F | 1    | 14F     | Tapping screw ST3D5x13          | P70-1824VSR-14F | 4    |
| 7F      | Tapping screw ST2D9x9D5    | P70-1824VSR-7F | 2    | 15F     | Cable strain relief M12         | P70-1824VSR-15F | 1    |
| 8F      | Hex nut M6                 | P70-1824VSR-8F | 2    | 16F     | Spring cable                    | P70-1824VSR-16F | 1    |

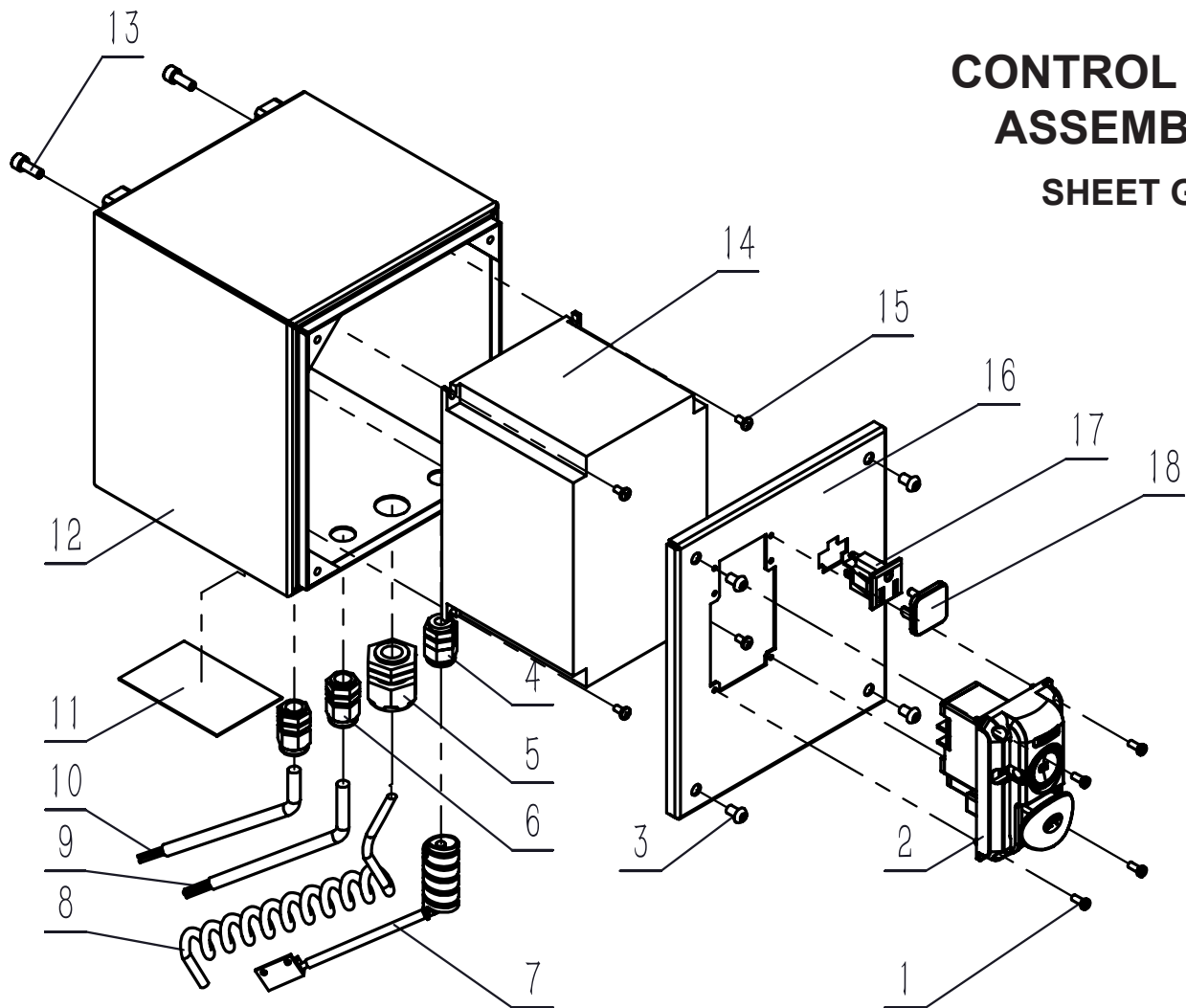
- Switch Box Assembly ( Includes parts #1F to 16F ) P70-1824VSR-116F



# PARTS DIAGRAM & PARTS LIST

## CONTROL BOX ASSEMBLY

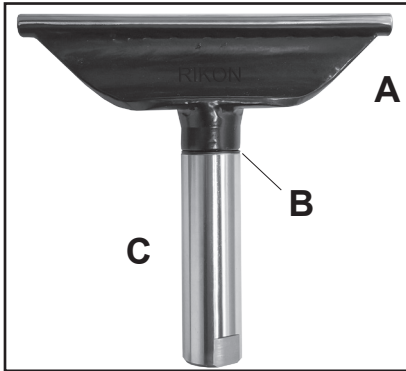
SHEET G



| KEY NO. | DESCRIPTION                   | PART NO.          | QTY. | KEY NO. | DESCRIPTION                      | PART NO.          | QTY. |
|---------|-------------------------------|-------------------|------|---------|----------------------------------|-------------------|------|
| 1G      | Crs recess pan hd screw M4x10 | P70-1824VSR-1G    | 4    | 10.2G   | Plug cable 230V (VSR2)           | P70-1824VSR-10-2G | 1    |
| 2G      | Switch                        | P70-1824VSR-2G    | 1    | 11G     | Filter                           | P70-1824VSR-11G   | 1    |
| 3G      | Hex sokt rnd hd screw M6x10   | P70-1824VSR-3G    | 4    | 12G     | Controller box                   | P70-1824VSR-12G   | 1    |
| 4G      | Bellows joint M16             | P70-1824VSR-4G    | 1    | 13G     | Hex sokt hd cap screw M6x16      | P70-1824VSR-13G   | 2    |
| 5G      | Cable strain relief M22       | P70-1824VSR-5G    | 1    | 14.1G   | Inverter 115V (for 1.75HP motor) | P70-1824VSR-14-1G | 1    |
| 6G      | Cable strain relief M16x1.5   | P70-1824VSR-6G    | 2    | 14.2G   | Inverter 230V (for 2.5HP motor)  | P70-1824VSR-14-2G | 1    |
| 7G      | RPM reader                    | P70-1824VSR-12B   | 1    | 15G     | Crs recess pan hd screw M4x8     | P70-1824VSR-15G   | 4    |
| 8G      | Switch Box Cable              | P70-1824VSR-16F   | 1    | 16G     | Cover plate                      | P70-1824VSR-16G   | 1    |
| 9G      | Motor Cable                   | P70-1824VSR-9G    | 1    | 17G     | Socket                           | P70-1824VSR-17G   | 1    |
| 10.1G   | Plug cable 115V (VSR)         | P70-1824VSR-10-1G | 1    | 18G     | Three pin safety plug            | P70-1824VSR-18G   | 1    |

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For Parts under Warranty, the Serial Number of your machine is required.

# ACCESSORIES



## RIKON PRO 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. PRO Tool Rest Tops only

- 70-975 4" (102mm) Long
- 70-976 6" (152mm) Long
- 70-977 8" (203mm) Long
- 70-978 12" (305mm) Long

### B. Compression Spring Washer only

- 70-970 1" (25.4mm) diameter

### C. PRO Tool Rest Posts only (includes Washer)

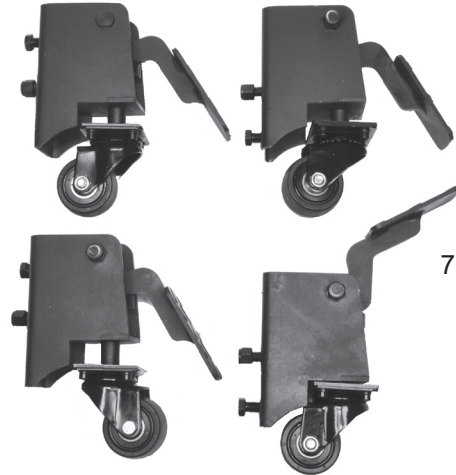
- 70-966 5-1/8" (130mm) Long x 1" (25.4mm) diameter
- 70-965 4-5/16" (110mm) Long x 1" (25.4mm) diameter
- 70-967 3-3/4" (95mm) Long x 1" (25.4mm) diameter
- 70-969 3-3/8" (85mm) Long x 1" (25.4mm) diameter
- 70-968 2-3/4" (70mm) Long x 5/8" (15.9mm) diameter

## 70-972 ADJUSTABLE FEET - SET OF 4

All-metal feet with 3-1/8" (80mm) swivel base pads. Set includes hardware to install on lathe legs with pre-bored mounting holes.



## 70-971 RETRACTABLE SWIVEL CASTERS SET OF 4



Includes brackets and hardware to install these 2-1/2" diameter casters on the 70-1824VSR and 70-3040 lathe legs. Foot activated pedals raise the lathe about 1", so the lathe can be easily moved when needed.



## FACE PLATES

Have holes for screw mounting of projects. For lathes with 1-1/4" x 8 TPI spindle threading.

- 70-934 3-3/8" Diameter
- 70-937 6" Diameter

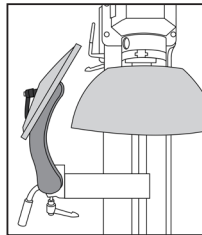


## 30-991 DRILL CHUCK & ARBOR SET

Set includes Keyed Chuck with 1/32" to 5/8" diameter holding capacity. Use on lathes with MT2 spindle holes.

## 70-960 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.

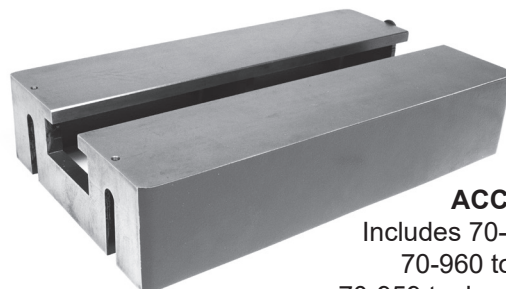


## 70-959 TOOL REST HEIGHT EXTENSION

Raises tool rests 4" higher when working outboard or on larger swing capacity lathes. Has 1" post and 1" receiving hole for securing your tool rests with its lever handle.

## 70-908 16" BED EXTENSION

This 16" long cast iron lathe bed extension installs on the 70-1824VSR lathe in 3 different locations!  
 1) Mounted on the end of the bed, it increases center-to-center length from 24" to 40". 2) Mounted on the front of the bed, it gives extra positioning options for the tool rest base to access project surfaces, and 3) Mounted on the left, outboard bed end, it increases swing from 18" to 22". See page 17 for information.



**70-9083 ACCESSORY SET of 3**  
 Includes 70-908 bed extension, 70-960 tool rest extension & 70-959 tool rest height extension.

# ACCESSORIES

## 12-202 LED WORK LIGHT WITH MAGNETIC BASE



Position the light right where you need it.

LED bulb produces 500 lumens of light and the beam adjusts in size by focusing the magnifying lens. Flexible 18" long gooseneck bends to position the light right where you need it. The magnetic base holds firmly on any steel surface. Light runs on 3 AA batteries (not included), or with the supplied USB cord and electrical outlet converter (not included). Includes a side clip with magnetic back for alternative mounting options on steel products.

## 70-942 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.



## 70-984 DRIVE BELT

Rubber Multi-V drive belt for the 70-1824VSR and 70-1824VSR2 lathes.



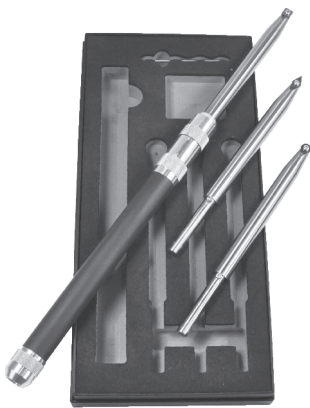
## 70-990 NYLON SPINDLE WASHER

Install on 1-1/4" x 8TPI lathe spindles for easier removal of faceplates and chucks. 1-3/8" ID x 1-3/4" OD.



## 70-800 WOOD TURNING SYSTEM

RIKON's 4-piece turning set features tungsten carbide cutters that keep their sharp cutting edges longer than typical carbon or high speed steel tools. If a cutter becomes dull, just rotate it to work with another fresh new edge. Changes only take seconds. System includes a 16" long handle with anti-vibration grip and collet chuck. Three, 8-3/8" steel Shafts with Circle, Square or Diamond shaped carbide Insert Cutter. Packaged in a presentation storage box.



## 70-941 MT2 - MT2 Alignment Gauge

The alignment of a lathe's headstock to tailstock should always be done if the headstock is rotated away from the standard lathe headstock-facing-the-tailstock position. This double-ended #2 Morse Taper tool will perfectly realign the lathe heads for spindle turning. Made of precision machined hardened steel 7" Long. See page 20 for user information.

## 99-500 TURNERS' TOOL ROLL

- Great for Transporting Turning Tools
- Rolls Up for Easy Transport
- Fits Up to 17 Turning Tools to 16" Long



- Made from Durable 600 x 600 Denier Fabric
- Quick Release Buckle Secures Tools when Rolled Up
- Full Size: 35" X 13"
- Folded Size: 17-1/4" X 13"

## LATHE CENTERS with MT2 TAPERS

**70-943** Spur Center, 3-1/16" long

**70-945** Live Center, 4-1/2" long

**70-948** Center Point for 70-943 & 70-945



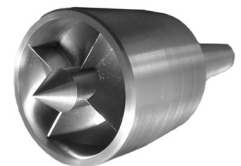
70-943



70-945

## 70-940 BADGER SAFETY SPUR CENTER

The only lathe drive center with a safety guard! The unique spring-loaded guard prevents accidental contact with the spurs with turning chisels or the tool rest. Use on spindles down to 1/2" diameter.



# RIKON

## POWER TOOLS®

### 5-Year Limited Warranty

RIKON Power Tools Inc. ("Seller") warrants to only the original retail consumer/purchaser of our products that each product be free from defects in materials and workmanship for a period of five (5) years from the date the product was purchased at retail. This warranty may not be transferred.

This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs, alterations, lack of maintenance or normal wear and tear. Under no circumstances will Seller be liable for incidental or consequential damages resulting from defective products. All other warranties, expressed or implied, whether of merchantability, fitness for purpose, or otherwise are expressly disclaimed by Seller. This five-year warranty does not cover products used for commercial, industrial or educational purposes. The warranty term for these claims will be limited to a two-year period. The warranty for the machine's inverter is also limited to a two-year period, 1-year for commercial, industrial, or educational use.

This limited warranty does not apply to accessory items such as blades, drill bits, sanding discs, grinding wheels, belts, guide bearings and other related items.

Seller shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, proof of purchase documentation must be provided which has the date of purchase and an explanation of the complaint.

The Seller reserves the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

To register your machine online, visit RIKON at [www.rikontools.com/warranty](http://www.rikontools.com/warranty)

To take advantage of this warranty, or if you have any questions, please contact us at 877-884-5167 or email [warranty@rikontools.com](mailto:warranty@rikontools.com)



**RIKON**  
POWER TOOLS®

70-1824VSR  
70-1824VSR2



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LINK TO RIKON WEBSITE