Grizzly Industrial, Inc.®

MODEL G5963
6" X 12" SURFACE GRINDER w/STAND

OWNER'S MANUAL

(For models manufactured since 8/13)

#BL357 PRINTED IN CHINA

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities 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.

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INTRODUCTION

Machine Description

This 6 x 12" Surface Grinder allows you to resurface metallic workpieces to create high-tolerance flat surfaces. It utilizes a table that moves on a horizontal plane and a grinding wheel that moves along a vertical axis. By mounting a workpiece to the table, then moving the table and the grinding wheel during the grinding process, extremely small amounts of material can be removed.

The G5963 is equipped with easy-to-reach front-mounted handwheels for controlling table movement. The table travels in the longitudinal direction driven by a rack-and-pinion mechanism. The stand doubles as a storage cabinet where you can keep the necessary tools and extra grinding wheels right where you need them.

The included diamond dresser is used to true the grinding wheel, ensuring high-precision results.

Contact Info

We stand behind our machines. If you have any questions or need help, use the information below to contact us. Before contacting, please get the serial number and manufacture date of your machine. This will help us help you faster.

Grizzly Technical Support
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

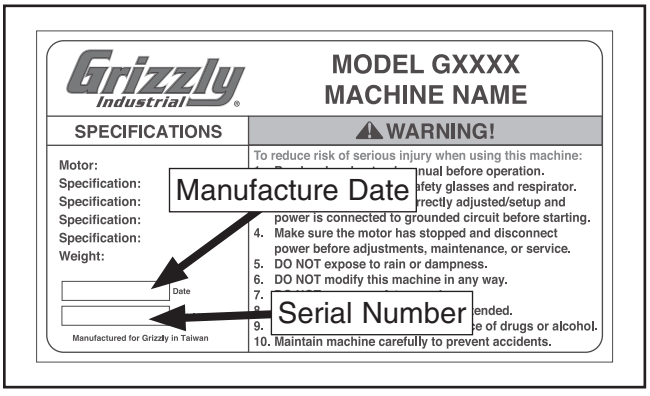
Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

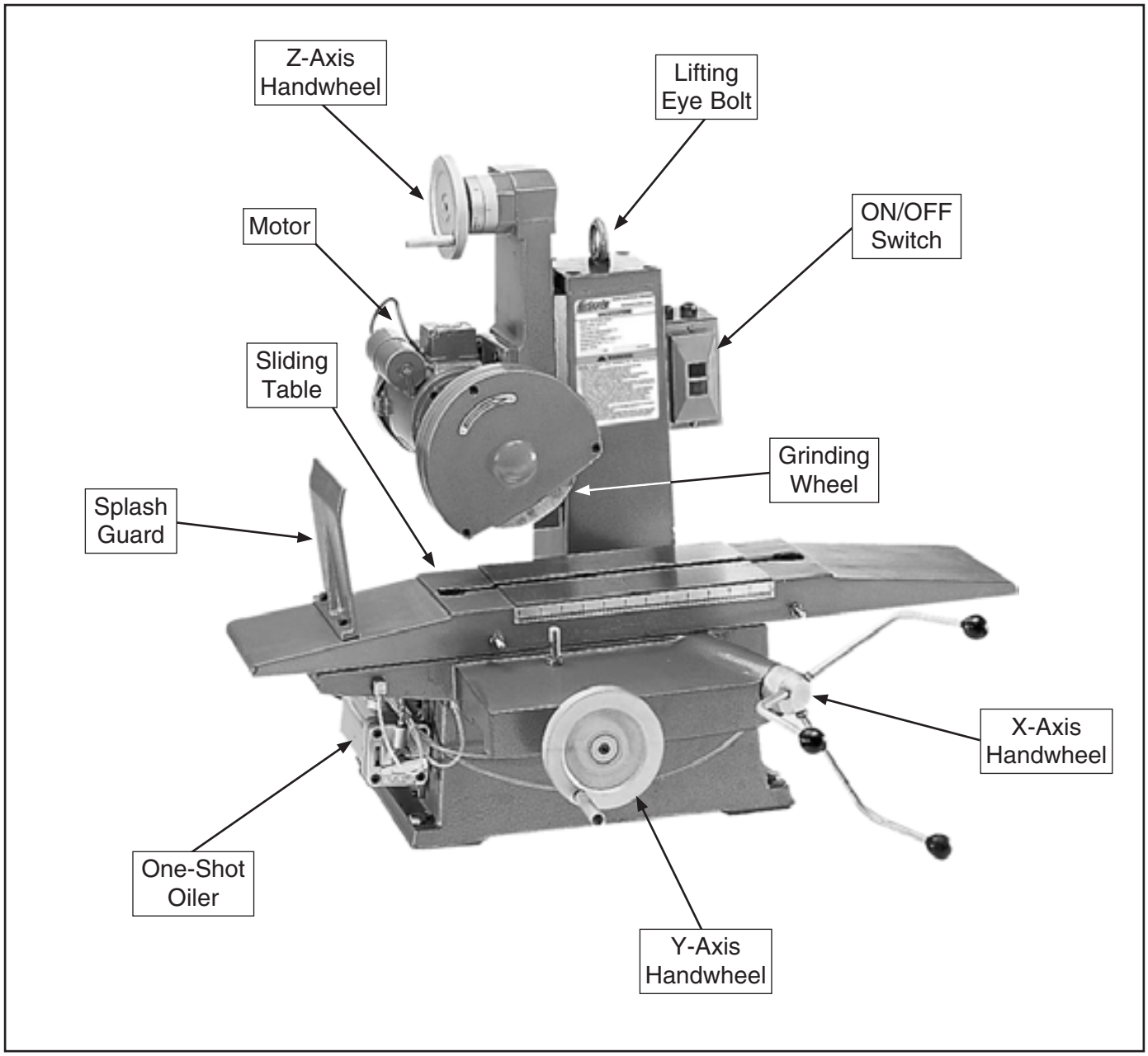
We made every effort to be exact with the instructions, specifications, drawings, and photographs contained inside. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive will be slightly different than what is shown in the manual**.

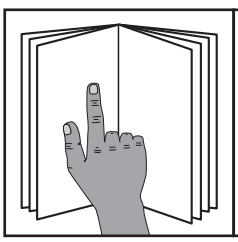
If you find this to be the case, and the difference between the manual and machine leaves you confused about a procedure, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

Alternatively, you can call our Technical Support for help. Before calling, please write down the **Manufacture Date** and **Serial Number** stamped into the machine ID label (see below). This information helps us determine if updated documentation is available for your machine.



Identification





⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G5963 6" X 12" SURFACE GRINDER W/ STAND

Product Dimensions:

Weight..... 533 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 36-1/2 x 33 x 64 in.
Footprint (Length x Width)..... 20 x 20 in.

Shipping Dimensions:

Carton #1

Type..... Wood Crate
Content..... Machine
Weight..... 522 lbs.
Length x Width x Height..... 29 x 30 x 42 in.
Must Ship Upright..... Yes

Carton #2

Type..... Cardboard Box
Content..... Stand
Weight..... 69 lbs.
Length x Width x Height..... 28 x 22 x 22 in.
Must Ship Upright..... No

Electrical:

Power Requirement..... 115V or 230V, Single-Phase, 60 Hz
Prewired Voltage..... 115V
Full-Load Current Rating..... 7.4A at 115V, 3.7A at 230V
Minimum Circuit Size..... 15A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 5 ft.
Power Cord Gauge..... 14 AWG
Plug Included..... Yes
Included Plug Type..... 5-15
Recommended Plug Type..... 6-15 for 230V
Switch Type..... Magnetic Switch w/Thermal Overload Protection

Motors:

Main

Type..... TEFC Capacitor-Start Induction
Horsepower..... 3/4 HP
Phase..... Single-Phase
Amps..... 7.4A/3.7A
Speed..... 3450 RPM
Bearings..... Shielded & Permanently Lubricated

Main Specifications:

Operation Info

Max. Dist Wheel To Table	8-7/8 in.
Max. Distance Table To Spindle Center	12-1/2 in.
Longitudinal Travel	13-1/4 in.
Cross Travel	7-1/8 in.
Spindle Dia	1-1/4 in.
Spindle Speed	3450 RPM
Max. Grinding Length	13-1/2 in.
Max. Grinding Width	7-1/4 in.
Grinding Wheel Bore	1-1/4 in.
Grinding Wheel Diameter	7 in.
Grinding Wheel Width	1/2 in.
Downfeed Range	0.0001 - 0.001 in.
Vertical Handwheel Graduation	0.001 in.
Vertical Handwheel Revolution	0.05 in.
Crossfeed Handwheel Graduation	0.001 in.
Crossfeed Handwheel Revolution	0.1 in.
Crossfeed of Saddle Range	7-1/4 in.

Table Info

Table Size Length	12 in.
Table Size Width	6 in.
Floor To Table Height	38-1/2 in.
T Slot Size Width	1/2 in.
T Slot Size Height	3/4 in.
Stud Size	1/2 in.
Head Size	7/8 in.

Construction

Table	Cast Iron
Body	Cast Iron
Base	Cast Iron
Spindle Bearing Type	Shielded and Permanently Lubricated
Paint	Epoxy

Other

Column Diameter	5 in.
Mobile Base	D2057A

Other Specifications:

Country Of Origin	China
Warranty	1 Year
Approximate Assembly & Setup Time	30 Minutes
Serial Number Location	ID Label on Motor
ISO 9001 Factory	No
CSA Certified	No

Features:

One Shot Lubrication
Column Dial
Cross Feed Dial
Heavy Gauge Sheet Metal Cabinet
Power Indicator Lights
Super Slide Table
Guard

SECTION 1: SAFETY

For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the machine.**

Safety Instructions for Machinery

⚠WARNING

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are NOT approved safety glasses.

⚠WARNING

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips, which could cause loss of workpiece control.

HAZARDOUS DUST. Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and always wear a NIOSH-approved respirator to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine ***OFF*** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

CHECK DAMAGED PARTS. Regularly inspect machine for any condition that may affect safe operation. Immediately repair or replace damaged or mis-adjusted parts before operating machine.

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

⚠WARNING
Additional Safety for Surface Grinders

EYE PROTECTION. Grinding causes small particles to become airborne at a high rate of speed. ALWAYS wear eye protection when using this machine.

WHEEL SPEED RATING. Wheels operated at a faster speed than rated for may break or fly apart. Before mounting a new wheel, be sure the wheel RPM rating is equal or higher than the speed of the grinder.

WHEEL FLANGES. Only use the flanges included with the grinder when mounting wheels. Other flanges may not properly secure the wheel and could cause the wheel to fly off or break apart.

RING TEST. Perform a "ring test" on grinding wheels before installation to ensure that they are safe to use. A wheel that does not pass the ring test may break or fly apart during operation.

STARTING GRINDER. If a wheel IS damaged, it will usually fly apart shortly after start-up. To protect yourself, always stand to the side of the grinder when turning it ***ON*** and allow it to gain full speed before standing in front of it.

CRACKED WHEEL. Cracked wheels may break and fly apart during operation. Replace cracked wheels immediately!

WORKPIECE CONTACT. A heavy impact on a grinding wheel can cause it to break or fly apart, causing serious personal injuries. Avoid jamming the workpiece into the wheel to reduce this risk.

LUNG PROTECTION. Grinding produces hazardous dust, which may cause long-term respiratory problems if breathed. Always wear a NIOSH approved dust mask or respirator when grinding.

HAND/WHEEL CONTACT. Grinding wheels have the capability of removing a lot of skin fast. Make sure the workpiece is securely clamped to the table, then position your hands a safe distance away when grinding. Avoid wearing gloves as they may get caught in the grinding wheel and cause even more serious entanglement injuries.

FIRE HAZARD. DO NOT connect a surface grinder to a dust collection system that is used with woodworking machines. Sparks emitted from the grinding process may ignite wood particles, resulting in fire or explosion. Only use a metal-specific dust collection system with this machine.

⚠WARNING

Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

⚠CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

SECTION 2: POWER SUPPLY

Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by an electrican or qualified service personnel in accordance with all applicable codes and standards.

⚠WARNING

Electrocution, fire, or equipment damage may occur if machine is not correctly grounded and connected to the power supply.

Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating at 115V..... 7.4 Amps
Full-Load Current Rating at 230V .... 3.7 Amps

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the requirements in the following section.

Circuit Information

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)

⚠CAUTION

For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or electrical codes in your area.

Note: *The circuit requirements listed in this manual apply to a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure that the circuit is properly sized for safe operation.*

Circuit Requirements for 115V

This machine is prewired to operate on a 115V power supply circuit that has a verified ground and meets the following requirements:

Acceptable Voltage Range 104V–126V
Cycle ..... 60 Hz
Phase ..... Single-Phase
Power Supply Circuit ..... 15 Amps
Plug/Receptacle ..... NEMA 5-15

Circuit Requirements for 230V

This machine can be converted to operate on a 230V power supply (refer to **Voltage Conversion to 230V** on **Page 11**). This power supply must have a verified ground and meet the following requirements:

Acceptable Voltage Range 207V–253V
Cycle ..... 60 Hz
Phase ..... Single-Phase
Power Supply Circuit ..... 15 Amps
Plug/Receptacle ..... NEMA 6-15

Grounding Requirements

This machine MUST be grounded. In the event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current.

For 110V operation: This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug (see following figure). The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances.

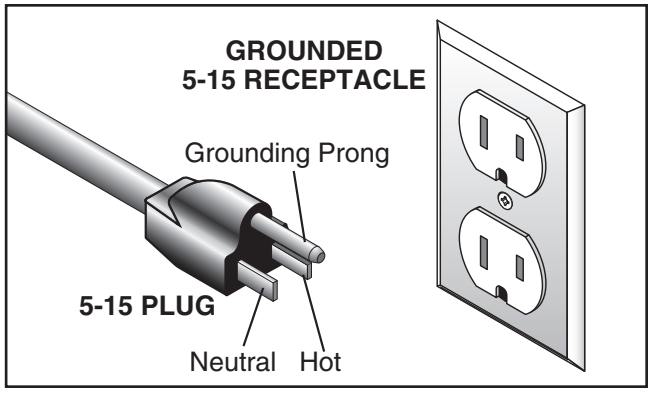
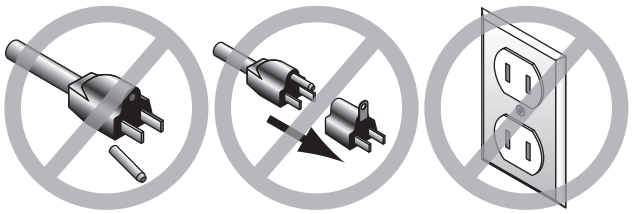


Figure 1. Typical 5-15 plug and receptacle.

⚠CAUTION



SHOCK HAZARD!

Two-prong outlets do not meet the grounding requirements for this machine. Do not modify or use an adapter on the plug provided—if it will not fit the outlet, have a qualified electrician install the proper outlet with a verified ground.

For 220V operation: The plug specified under "Circuit Requirements for 220V" on the previous page has a grounding prong that must be attached to the equipment-grounding wire on the included power cord. The plug must only be inserted into a matching receptacle (see following figure) that is properly installed and grounded in accordance with all local codes and ordinances.

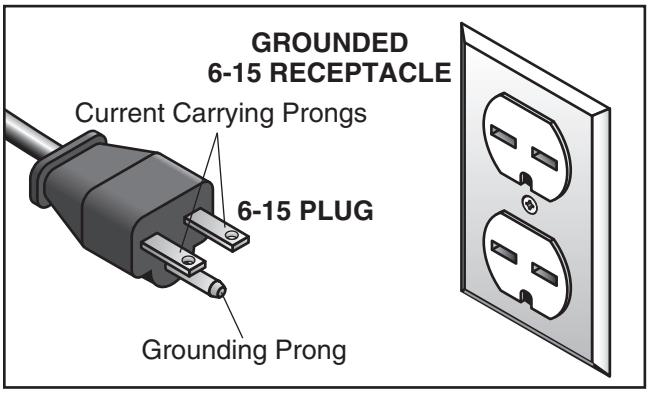


Figure 2. Typical 6-15 plug and receptacle.

Improper connection of the equipment-grounding wire can result in a risk of electric shock. The wire with green insulation (with or without yellow stripes) is the equipment-grounding wire. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding wire to a live (current carrying) terminal.

Check with a qualified electrician or service personnel if you do not understand these grounding requirements, or if you are in doubt about whether the tool is properly grounded. If you ever notice that a cord or plug is damaged or worn, disconnect it from power, and immediately replace it with a new one.

Extension Cords

We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:

Minimum Gauge Size .....14 AWG
Maximum Length (Shorter is Better).....50 ft.

Voltage Conversion to 230V

The voltage conversion MUST be performed by an electrician or qualified service personnel. To perform the voltage conversion, re-arrange the terminal jumpers as indicated below, and attach the correct plug to the power cord.

Note: *If the 230V wiring diagram inside the motor wiring junction box conflicts with the one provided in this manual, the motor may have changed since the manual was printed. In this case, use the diagram provided inside the motor wiring junction box.*

Items Needed	**Qty**
Phillips Screwdriver #2	1
6-15 Plug	1

To convert the machine to 230V:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the 5-15 plug from the power cord.
3. Open the motor junction box, then remove the terminal jumpers indicated in **Figure 3**.

   Note: *All wire connections remain the same between 115V and 230V.*

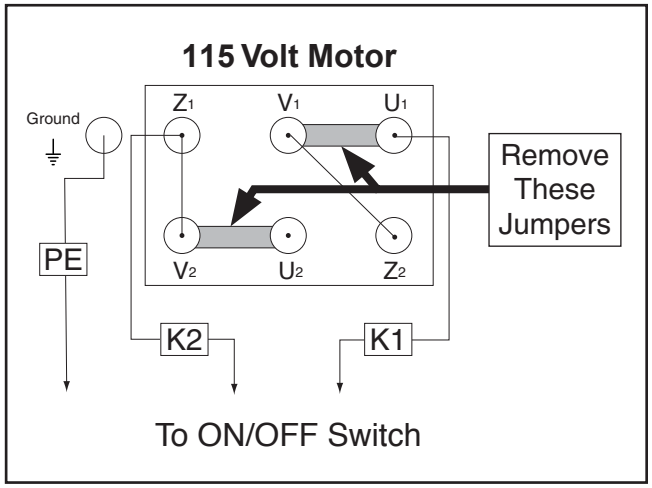


Figure 3. Terminal jumpers to be removed.

4. Install a terminal jumper as indicated in **Figure 4**.

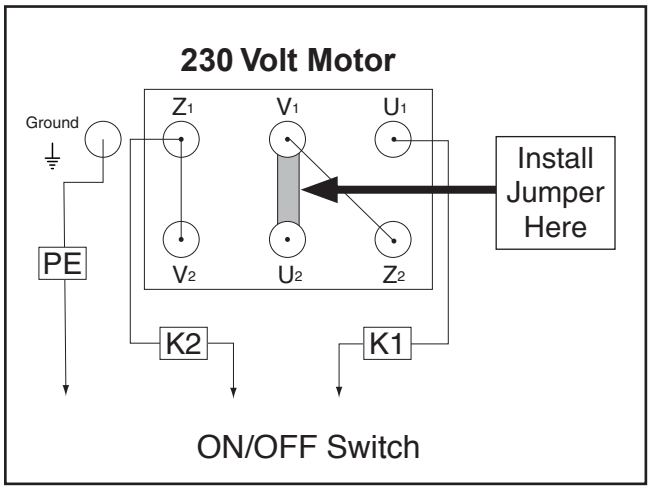


Figure 4. Location of terminal jumper to be installed.

5. Close and secure the motor junction box.
6. Attach a 6-15 plug to the power cord according to the manufacturer's instructions.

SECTION 3: SETUP

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover any damage, *please call us immediately at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.

⚠WARNING

SUFFOCATION HAZARD!

Keep children and pets away from plastic bags or packing materials shipped with this machine. Discard immediately.

Needed for Setup

The following are needed to complete the setup process, but are not included with your machine.

Description	Qty
• Additional People	1
• Safety Glasses	1 Per Person
• Cleaner/Degreaser (**Page 13**)	As Needed
• Disposable Shop Rags	As Needed
• Forklift or Hoist (rated for at least 1000 lbs.)	1
• Lifting Chain & Safety Hook (rated for at least 1000 lbs. each)	1 Each
• Precision Level	1

Inventory

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

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

- Surface Grinder Unit
- Stand Assembly
- Sliding Table
- Splash Guard and Mounting Hardware
- Toolbox
- Handwheel Spokes (3)
- Handwheel Handles (2)
- Leveling Pads
- Dressing Diamond w/Mount
- Balancing Arbor
- Slotted Wrench
- Pin Wrench
- Screwdrivers (2)
- Adjustable Wrench
- Wrench 17 x 19mm Open-Ends
- Hex Wrenches 3, 4, & 5mm
- Grinding Wheel

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:
- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

⚠WARNING

Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. Avoid using these products to clean machinery.

⚠CAUTION

Many cleaning solvents are toxic if inhaled. Only work in a well-ventilated area.

NOTICE

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

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from your machine during clean up.

Figure 5. T23692 Orange Power Degreaser.

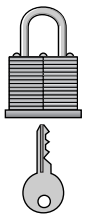
Site Considerations

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Space Allocation

Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**



⚠CAUTION

Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.

Physical Environment

The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave access to a means of disconnecting the power source or engaging a lockout/tagout device, if required.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

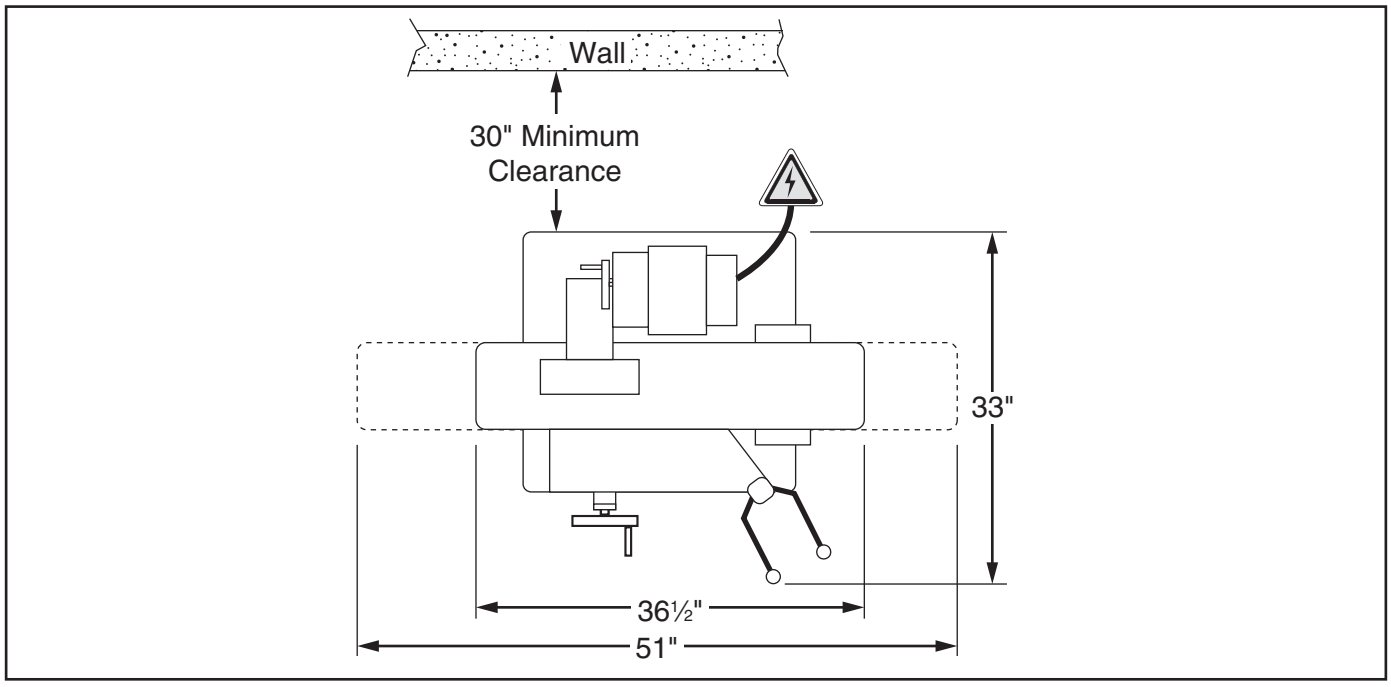


Figure 6. Minimum working clearances.

Lifting & Placing

⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a fork lift (or other lifting equipment) rated for weight of this machine.

Lifting

The majority of the weight of the surface grinder is the grinding head. Take great care when lifting this unit from the crate and moving it into position on the stand. Remove the table from the crate first and set it aside until the grinding head is completely secured to the stand.

A lifting eye bolt (see **Figure 7**) on the top of the upper unit can be used with a chainfall or hoist to lift the unit into position. Do not push on the upright sliding mechanism or get it jammed in any way during movement. This can damage the ways or the cross feed screw if too much pressure is applied to the upright.

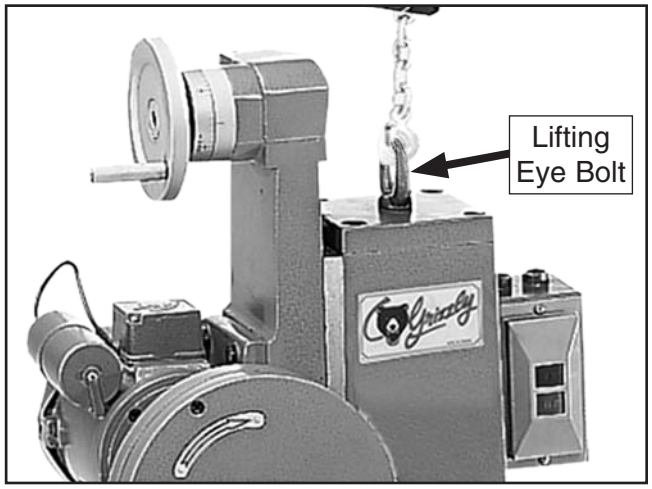


Figure 7. Lifting upper unit with chain hoist.

Mounting on Stand

Locate the stand as close to its final position as possible. Position the grinding head on the stand, lining up the four holes in the stand with the holes in the base of the head. Use four hex bolts, washers and nuts provided to secure the head to the stand.

Once the head is secured to the stand, loosen the bolt on the back of the upright. This allows the counterweight to move freely (it is locked into position for shipping purposes). This bolt can be completely removed or left in position should the weight need to be locked for future movement.

With the stand in its final location, adjust the leveling pads to bring the unit to a level position, making sure there are no wobbles or vibration in the assembly. In some cases, it may be useful to bolt the unit to the floor, or to put vibration isolation dampers underneath the stand to avoid vibration. The more solid the mounting of the unit is, the better the results that can be achieved in the grinding process.

Leveling

NOTICE

For accurate turning results and to prevent warping the cast iron ways, the table ways MUST be leveled from side to side and from front to back on both ends.

Recheck the ways 24 hours after installation, two weeks after that, and then annually to make sure they remain level.

Leveling machinery helps precision components, such as ways, remain straight and flat during the lifespan of the machine. Components on a machine that is not level may slowly twist due to the dynamic loads placed on the machine during operation.

Adjust the leveling pads or, if anchoring the machine to the floor, use shims between the stand and the floor to make sure the ways are level from side to side and from front to back on both ends.

For best results, use a precision level that is at least 12" long and sensitive enough to show a distinct movement when a 0.003" shim (approximately the thickness of one sheet of standard newspaper) is placed under one end of the level.

See the figure below for an example of a high precision level offered by Grizzly.

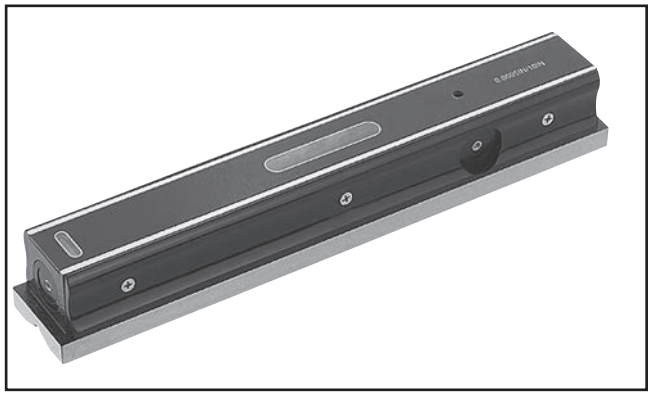


Figure 8. Model H2683 Master Machinist's Level.

Anchoring to Floor

Anchoring machinery to the floor prevents tipping or shifting and reduces vibration that may occur during operation, resulting in a machine that runs slightly quieter and feels more solid.

If the machine will be installed in a commercial or workplace setting, or if it is permanently connected (hardwired) to the power supply, local codes may require that it be anchored to the floor.

If not required by any local codes, fastening the machine to the floor is an optional step. If you choose not to do this with your machine, we recommend placing it on machine mounts, as these provide an easy method for leveling and they have vibration-absorbing pads.

Anchoring to Concrete Floors

Lag shield anchors with lag screws (see below) are a popular way to anchor machinery to a concrete floor, because the anchors sit flush with the floor surface, making it easy to unbolt and move the machine later, if needed. However, anytime local codes apply, you MUST follow the anchoring methodology specified by the code.

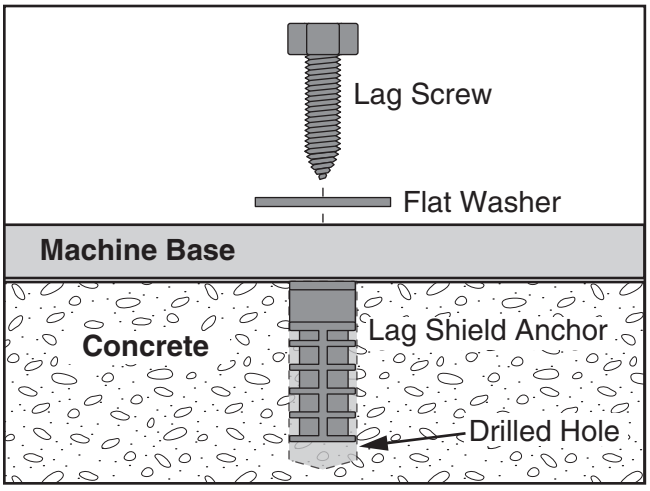


Figure 9. Popular method for anchoring machinery to a concrete floor.

Assembly

Table & Handwheels

Wipe the V-grooves of the table and the saddle down with ISO 32 oil (see **Page 25**. The table rests by its own weight on the ways and is oiled by the one-shot oiler.

Set the sliding table in position on the saddle. Make sure the gear on the underside of the table engages with the gear on the handwheel shaft.

Thread the handles into the Y- and Z-axis handwheels (see **Figure 10**).

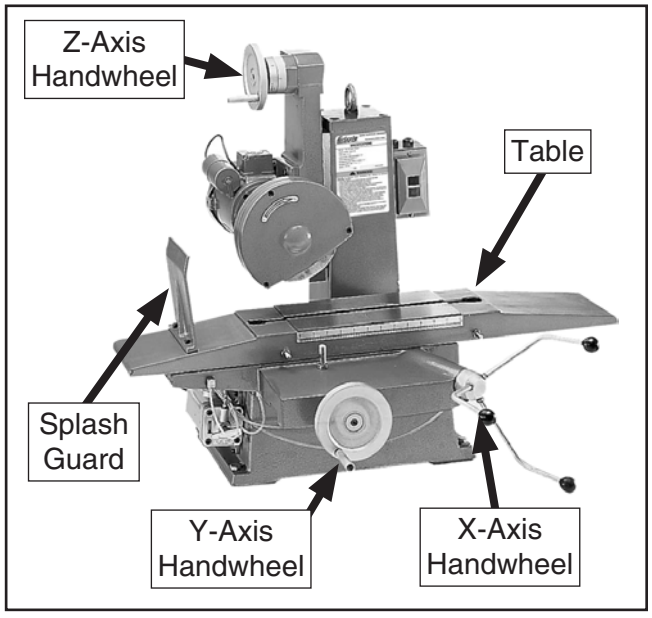


Figure 10. Table and handwheels.

Thread the three spokes onto the X-axis handwheel hub, and tighten the jam nuts. Turn the handwheel back and forth to make sure the table moves freely.

The table limit pins (see **Figure 11**) should be in position to stop the left and right movement of the table. Test these to make sure the travel is limited so there is no chance of moving the table too far in one direction.

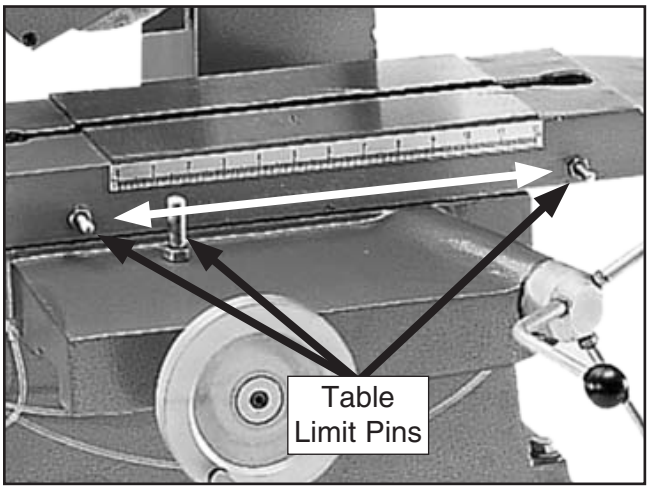


Figure 11. Table limit pins that safely limit table travel.

Splash Guard

Attach the splash guard to the left hand side of the table using the socket head cap screws provided. This guard helps to contain debris coming off the rotating wheel during the grinding operation.

Test Run

Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components function properly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

⚠WARNING

Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.

⚠WARNING

DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly setup machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.

To test run machine:

1. Clear all setup tools away from machine.

2. Connect machine to power supply.

3. Turn machine ***ON***. Verify motor operation, and then turn machine ***OFF***.

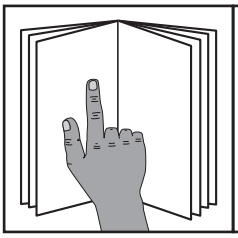
   The motor should run smoothly and without unusual problems or noises.

SECTION 4: OPERATIONS

Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is **not** intended to be an instructional guide. To learn more about specific operations, read this entire manual and seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

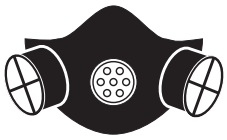


⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

⚠WARNING

To reduce risk of eye injury from flying chips or lung damage from breathing dust, always wear safety glasses and a respirator when operating this machine.



NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

To complete a typical operation, the operator does the following:

1. Examines the grinding wheel to make sure it is suitable for use.
2. Examines the workpiece to make sure it is properly prepared for grinding.
3. Uses the Z-axis handwheel to raise the grinding wheel assembly to provide clearance for mounting the workpiece.
4. Wipes the table surface clean to remove any debris that may interfere with the clamping process.
5. Uses a magnetic chuck to hold the workpiece to the table, then turns the Z-axis handwheel to lower the grinding wheel to just above the top surface of the workpiece.
6. Turns the grinder ***ON***, then stands aside while the wheel reaches full speed.
7. Performs the grinding operation.

   Note: *Because the method for performing each grinding operation varies, specific actions are not listed here.*
8. When the grinding operation is complete, turns the grinder ***OFF*** and allows the grinding wheel to come to a complete stop.
9. Removes the workpiece from the table.

Wheel Selection

Most grinding wheels from major manufacturers are marked in a somewhat uniform manner. Understanding these markings will help you understand the capabilities of various wheels. Always refer to the manufacturer's grinding recommendations when selecting a wheel for your project.

The grinding wheel you choose will depend on several factors related to the operation you plan to perform. The hardness of the material you will be grinding and the surface finish you desire are the two primary factors to consider when selecting a grinding wheel.

An example of the basic format for wheel numbering is shown below. The wheel in this example is a "36A60LV".

Prefix	Abrasive Type	Grit Size	Grade	Bond Type
36	A	60	L	V

The prefix is a manufacturer-specific designation and will vary depending on the manufacturer.

Use the charts below as a basic wheel selection outline for most grinding operations.

Abrasive Type

Abrasive Type	Application
A	**Aluminum Oxide.** For grinding common steel.
WA	**White Aluminum Oxide.** For grinding harder metals (heat treated steel, carbon steel, alloy steel, etc.).
H	For grinding high speed steel.
C	**Silicon Carbide.** For grinding cast iron and non-ferrous metals.
CG	**Ceramic Grain.** For extremely hard metals, such as tungsten carbide.

Grit Size

The ideal grit for an operation depends on a number of considerations. Use the table below to choose a grit suitable for your desired results.

	Results	
Operation Consideration	Coarse Grit (10–46)	Fine Grit (54–180)
Material Removal	Increased	Decreased
Surface Finish	Rough	Smooth
Workpiece Hardness	Soft	Hard
Width of Cut	Wide	Narrow

Grade

The grade of a wheel is an indicator of its hardness based on an alphabetical scale in which **A** is the softest and **Z** is the hardest.

	Wheel Hardness	
Operation Consideration	Soft A–M	Hard N–Z
Workpiece Hardness	Hard	Soft
Width of Cut	Wide	Narrow
Feed Rate	Slow	Fast
Wheel Speed	Fast	Slow

Bond Type

This refers to the type of bonding material used to hold the abrasive material. Most general purpose wheels will have a **V** indicating vitrified clay is used, providing a high strength and good porosity. The other most common is **B** for resin where synthetic resins are used. These are used to grind cemented carbide and ceramic materials.

Wheel Inspection

Do not assume that a wheel is in sound condition just because it is new—damage can often occur during shipping, with age, with prolonged exposure to moisture, or because of improper storage.

To inspect a wheel for damage:

1. Remove the wheel and look for any cracks, chips, nicks or dents in the surface of the wheel. If you see any of these, DO NOT attempt to use the wheel.

2. Do a ring test. This test will give you an indication of any internal damage that may not be obvious during a visual inspection.

3. Inspect the paper washers on both sides of the grinding wheel (see **Figure 12**).

   These washers are cushions between the wheel sleeve washer and the grinding wheel. Without the paper washers, cracks can be spawned from the center of the wheel when the spindle nut is tightened. Over time, these cracks can radiate outward and the wheel may explode during operation, possibly causing injury.

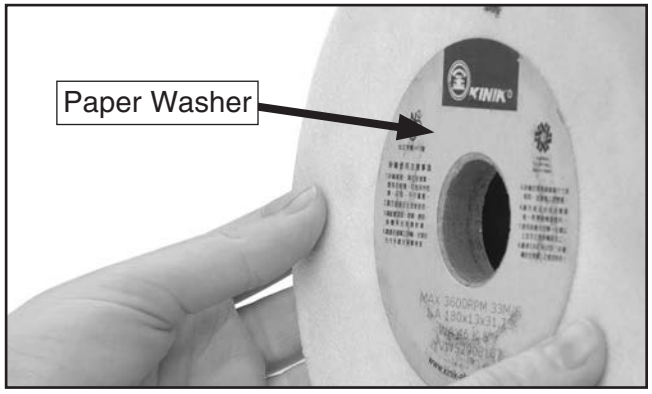


Figure 12. Important wheel paper washer.

Note: *If you need to replace or install new paper washers, replacements can be cut out of any thick construction paper or card stock. Regular notebook paper or paper from a copy machine is not acceptable, as it is too thin to provide the required cushion. Be sure to transfer any RPM limitations and wheel type information.*

Ring Test

This test will give you an indication of any internal damage that may not be obvious during a visual inspection.

To perform a ring test:

1. Make sure the wheel that you test is clean and dry; otherwise, you may get false results.

2. Hang the wheel in the air with a piece of cord or string looped through the hole in the center, as shown in **Figure 13**.

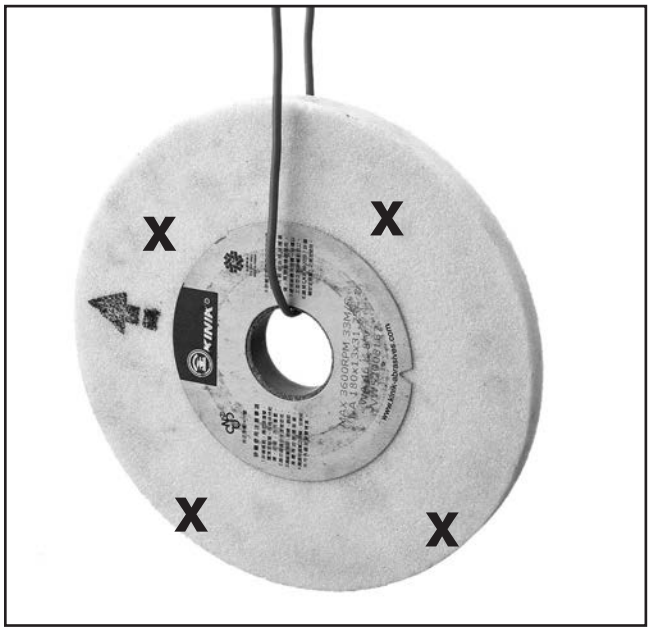


Figure 13. Ring test setup.

3. At the locations shown with an **X** in **Figure 13**, gently tap the wheel with a light non-metallic device such as the handle of a screwdriver or a wooden mallet.

   An undamaged wheel will emit a clear metallic ring or “ping” sound in each of these spots. A damaged wheel will respond with a dull thud that has no clear tone. If you determine from the ring test that the wheel is damaged, DO NOT use it!

Wheel Balancing

The wheel and sleeve assembly must be balanced before mounting onto the grinder. Generally the wheel itself will be balanced by the manufacturer. The wheel sleeve has balance weights positioned in a groove which can be moved to accomplish final balance of the assembly (see **Figure 14** on the previous page).

To balance the wheel and sleeve assembly:

1. Mount the wheel on the sleeve assembly, as instructed in the **Mounting Wheel** section on the previous page.

2. Position the weights so they are evenly spaced around the groove.

3. Mount the wheel on the balance arbor, which has a taper the same as the machine spindle. Tighten the nut on the arbor to lock the wheel in place.

4. Place the arbor across two parallel, level bars so the wheel is freely suspended. The wheel will turn until the heaviest side is down. Mark the heavy side with chalk.

5. Loosen the set screw on one of the balance weights opposite the chalk mark, and move it so it is 180˚ opposite the chalk mark.

6. Place the assembly back on the bars and observe whether one side is still heavy. It may be necessary to repeat **Steps 4–5** several times until the wheel is balanced. When the arbor does not roll across the bars at all, then the wheel is in balance.

7. Remove the wheel from the balance arbor.

8. Make sure the balance weight set screws are firmly secured.

9. Install wheel in the grinder.

Mounting Wheel

Before mounting a grinding wheel, perform the following procedures:

- Wheel Inspection (**Page 21**)
- Ring Test (**Page 21**)
- Wheel Balancing (**This Page**)

Do not use a wheel that is suspected of having cracks, or if you can see chips, nicks, or dents in the wheel surface. These conditions can lead to wheel failure where the wheel flies apart at operating speed. Always be sure to use a wheel that is rated for operating at speeds of at least 3450 RPM.

To mount the wheel:

1. DISCONNECT MACHINE FROM POWER!

2. Remove the splash guard by unscrewing the three cap screws holding it in place.

3. With the pin wrench engaged in the two holes on the face of the wheel sleeve washer (see **Figure 14**), hold the spindle in position.

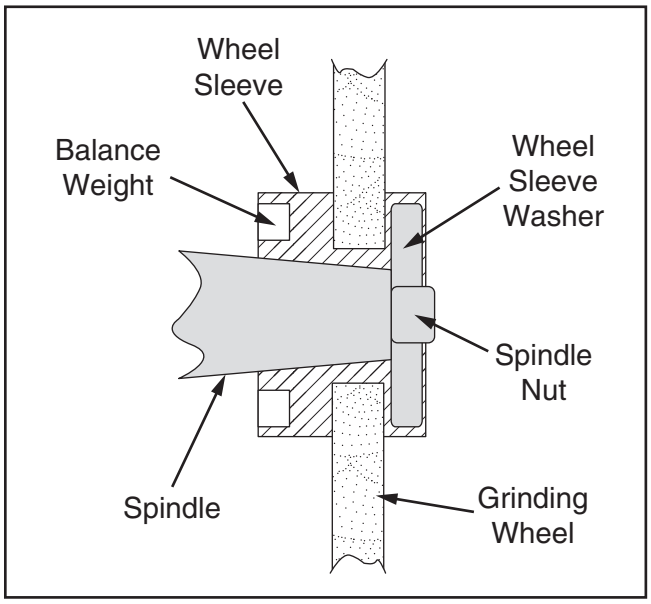


Figure 14. Cross section of wheel assembly.

4. Use the adjustable wrench on the spindle nut to loosen it, keeping in mind that this is a left-hand thread.

5. Slide the wheel off the spindle taper.

   Note: *If the wheel does not easily pull off the taper, tap only the end of the **spindle** lightly with a wooden or rubber mallet to loosen the wheel.*

6. Remove the wheel sleeve from the back side of the wheel.

7. Insert the wheel sleeve into the bore of the new wheel from the back.

   Important: *Most wheels will have a paper disc on each side, this helps to equalize the clamping pressure. Do not remove these discs!*

   The wheel sleeve should fit snugly into the bore of the wheel. If it is too loose, do not attempt to fill the gap with any other types of material—this will prevent the wheel from maintaining proper balance when rotating. If it is too tight, do not attempt to force the wheel onto the sleeve, as it may crack the wheel.

8. Thread the wheel sleeve washer onto the opposite side of the wheel. Tighten it enough to get a good seat on the sleeves against the paper discs, which helps to assure the wheel will not slip in operation.

   Note: *Do not over-tighten, however, as this can cause stress on the wheel.*

9. Make sure the wheel sleeve bore and the spindle taper are clean and free of any foreign material, dents or nicks, then slide the assembled wheel onto the spindle taper.

10. Use the pin wrench to hold the wheel sleeve washer, then use the adjustable wrench to tighten the nut. Do not overtighten.

11. Replace the splash guard and secure with three cap screws.

12. Run the wheel at full speed for at least one minute before doing any grinding. If there is a structural problem with the wheel, it will generally occur during the initial run up.

Wheel Dressing

Superior grinding results can only be achieved with a properly balanced and dressed wheel. Do not assume that a wheel will run true on the spindle if it is new or has not been separated from the hub.

Dressing the wheel correctly will save you from wasting grinding abrasive and shattering the dressing tool diamond. Additionally, with a properly balanced and dressed wheel you can rest assured that if you have finish problems, the grinding wheel is not the culprit.

Depending on the finish required, varying degrees of roughness can be obtained. For example: A fast dressing at a depth of 0.03mm will prepare a wheel surface for rough cuts; or a slow dressing with multiple light passes of the diamond at a depth of 0.01mm will prepare the same wheel for finish cuts.

Positioning is critical for the dressing tool so you will not shatter the diamond or have poor dressing results. The dressing tool must be positioned in the trailing zone of the wheel, as shown in **Figure 15**, for best results and safe use. If the tool is positioned on the leading side of the wheel, the diamond will be shattered or even grabbed by the wheel and drawn under the grinding wheel, causing severe damage or injury to the operator or bystanders.

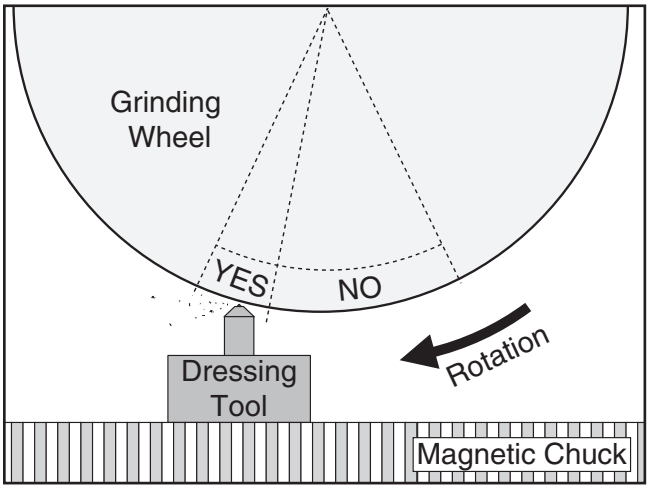


Figure 15. Wheel dressing setup.

Magnetic Chuck

The Model G5963 is designed to be used with a magnetic chuck. A magnetic chuck secures workpieces to the table without the use of clamps. With proper attention to preparation of both the workpiece and the magnetic chuck, a magnetic chuck will provide ample clamping force on most magnetic metals.

The table is equipped with a T-slot for securing your magnetic chuck. Refer to your magnetic chuck manufacturer's instruction manual for proper chuck preparation and mounting techniques.

Grinder Operation

Grinding with a surface grinder is a delicate process that takes practice, skill, and knowledge. In addition to this, the method used for any one procedure will depend on a number of factors, including, but not limited to the material being ground, the grinding wheel being used, the quality and calibration of measuring tools, and the finish that is desired.

For these reasons, specific techniques are not outlined in this manual. We recommend that you consult books, trade magazines, metalworking experts, and other reliable resources for techniques pertaining to the specific tasks you wish to perform.

The information that follows serves as a general outline to help familiarize you with the basic grinding technique.

Operation of the grinder is controlled through the movement of the three handwheels. The Z-axis handwheel controls the up and down movement of the grinding head. It is this axis that governs the amount of stock removal. Never attempt to remove too much material in one pass. The best results are be achieved with multiple light passes.

The X-axis handwheel rapidly moves the table from left to right. This allows the operator to move the workpiece back and forth underneath the grinding wheel.

The Y-axis handwheel controls the front-to-back movement of the table and is only to be used between X-axis passes to expose a new area of the workpiece to the grinding wheel

When grinding, sweep the table back and forth under the wheel in the longitudinal direction until no further sparks emerge from the workpiece, move the table in the cross direction to expose a new portion of the workpiece to the wheel, then take another sweep in the longitudinal direction. Repeat this process until the entire surface is ground.

SECTION 5: ACCESSORIES

⚠WARNING

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

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

T23964—Armor Plate with Moly-D Multi-Purpose Grease, 14.5 oz. (NLGI#2 Equivalent)
Armor Plate with Moly-D is a rich green moly grease that provides excellent stability and unsurpassed performance under a wide range of temperatures and operating conditions. Armor Plate grease is entirely unique due to the fact that the moly in it is solubilized, which provides superior performance to other greases containing the black solid form of molybdenum disulfide.

Figure 16. T23964 Armor Plate with Moly-D Multi-Purpose Grease

T23962—ISO 68 Moly-D Way Oil, 5 gal.
T23963—ISO 32 Moly-D Machine Oil, 5 gal.
Moly-D oils are some of the best we've found for maintaining the critical components of machinery because they tend to resist run-off and maintain their lubricity under a variety of conditions—as well as reduce chatter or slip. Buy in bulk and save with 5-gallon quantities.

Figure 17. ISO 68 and ISO 32 machine oil.

Friable Surface Grinding Wheels, Aluminum Oxide

Model	Size	Bore	Grit	Type
G7433	7" x ½"	1¼"	46	1
G7434	7" x ½"	1¼"	60	1

SB1296—6" x 12" Magnetic Chuck
High-quality South Bend® Magnetic Chuck made with pride and uncompromising quality.

Figure 18. SB1296 Magnetic Chuck.

H5618—Parallels for Magnetic Chuck
Use these parallels on your magnetic chuck for setups that normally require 1-2-3 blocks. They're great for trapping parts that are difficult to hold. Parallels measure 1" x 2" x 4". Sold in pairs.

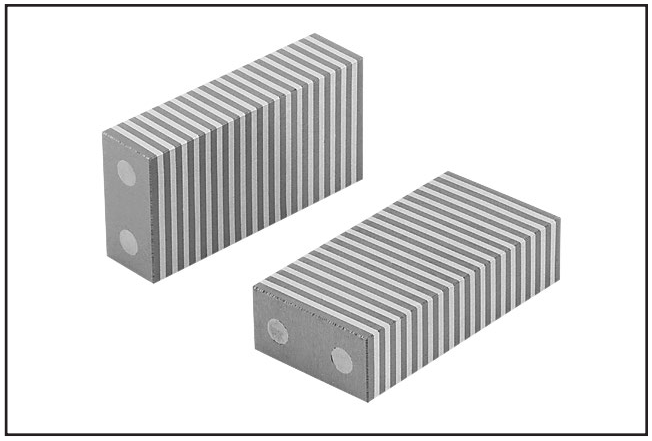


Figure 19. H5618 Parallels for Magnetic Chuck.

V-Block Sets for Magnetic Chuck
G5657—1⅞" x 2⅜" x 4¾"
H5619—1⅞" x 1⅞" x 2⅜"
For use with magnetic chucks, these V-block sets are precision ground and secure in any position. Strong magnetic force means there's not wasted time tooling with traditional clamps. Sold in pairs.

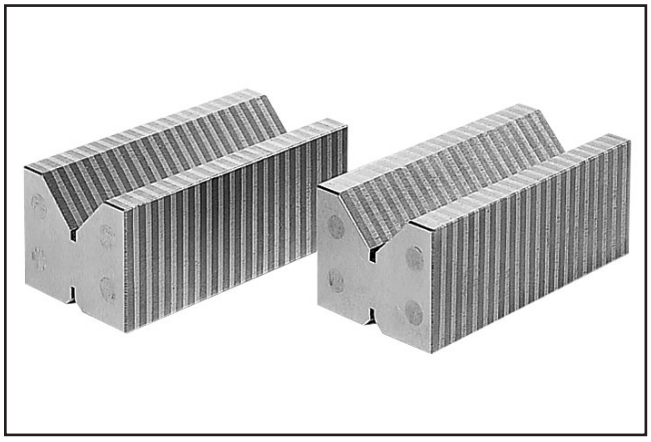


Figure 20. V-Block Sets for Magnetic Chuck.

H8140—7-Gallon Coolant Tank System
Add this complete 7-Gallon Tank System to any metal cutting machine for efficient cutting, reduced tool wear, and better finishes. Includes pump, switch, enclosed tank, coolant return hose, and flexible nozzle with magnetic base. Made in an ISO 9001 factory. Specifications: 1/16 HP, 110V pump motor; 3.17 GPM maximum flow; 47 lbs. net weight.

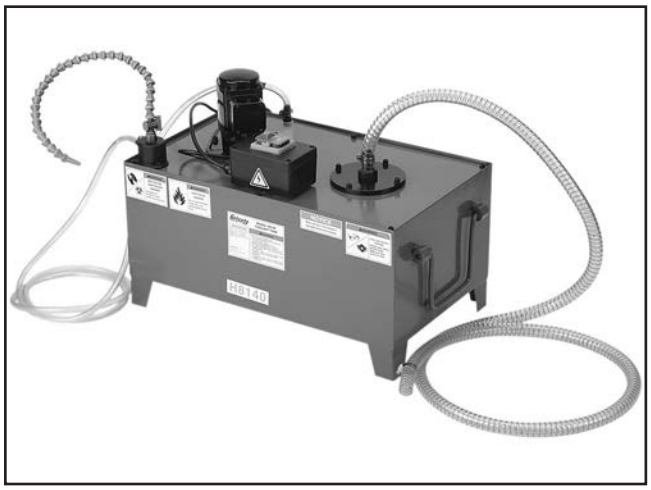
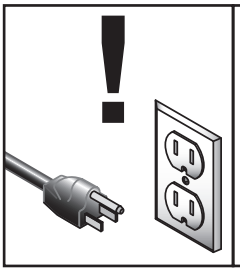


Figure 21. H8140 7-Gallon Coolant Tank System.

SECTION 6: MAINTENANCE



⚠WARNING

To reduce risk of shock or accidental startup, always disconnect machine from power before adjustments, maintenance, or service.

Schedule

To keep this machine in the best operating condition, make sure to complete the following maintenance items within the minimum intervals listed below.

Daily:
- Lubricate the table ways (see **Lubrication**).
- Check/correct loose mounting bolts.
- Check/replace damaged or cracked grinding wheel.
- Check/correct worn or damaged wires.
- Clean and protect machine.
- Correct any other unsafe condition.

Monthly:
- Lubricate machine (see **Lubrication)**.

Cleaning & Protecting

Typically, the easiest way to clean swarf from the ways and table is to use a wet/dry shop vacuum that is dedicated for this purpose only. The small chips leftover after vacuuming can be wiped up with a slightly oiled rag. Avoid using compressed air to blow off chips, as it may drive them deeper into moving surfaces and could cause sharp chips to fly into your face or hands.

Besides the ways, all other unpainted and machined surfaces should be wiped down daily to keep them rust-free and in top condition. Typically, a thin film of way oil is all that is necessary for protection (see **Page 25** for an offering from Grizzly).

Lubrication

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.

DISCONNECT MACHINE FROM POWER before performing any lubrication task!

Important: *Before adding lubricant, clean the debris and grime from components and the immediate area with mineral spirits, a brush, and shop rags to prevent contamination of the new lubricant.*

Table Ways

Remove the magnetic chuck from the table and the table from the machine. Clean the table surfaces and ways with mineral spirits and shop rags. Clean the old grease and grime from the rack and pinion with mineral spirits and a brush.

When dry, re-lubricate the rack and pinion with a medium coat of NLGI#2 grease or equivalent (see **Page 25** for an offering from Grizzly).

Replace the table and magnetic chuck, then use the one-shot oiler to re-lubricate the ways.

Note: *Fill the one-shot oiler reservoir with ISO 68 oil (Grizzly T23962).*

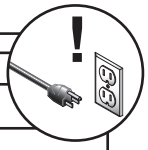
Z-Axis Gears

Remove the gear cover behind the Z-axis handwheel and clean the old grease and grime from the gears with mineral spirits and a brush. When dry, re-lubricate the gears with a medium coat of NLGI#2 grease or equivalent.

SECTION 7: SERVICE

Review the troubleshooting and procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support at (570) 546-9663.
Note: *Please gather the serial number and manufacture date of your machine before calling.*

Troubleshooting



Symptom	Possible Cause	Possible Solution
Motor will not start.	1. Power supply switched ***OFF***/has incorrect voltage. 2. Blown fuse/tripped circuit breaker at main panel. 3. Break or short in wiring; or loose connections. 4. ON/OFF switch at fault. 5. Motor connection wired incorrectly. 6. Motor at fault.	1. Switch power supply ***ON***/verify voltage. 2. Correct the cause of overload, then reset/replace fuse or breaker. 3. Trace/replace broken or corroded wires; fix loose connections. 4. Replace switch. 5. Wire motor correctly (**Page 31**). 6. Test for shorted windings, bad bearings, and repair or replace.
Machine has excessive vibration or noise.	1. Motor fan rubbing on fan cover. 2. Motor is loose. 3. Grinding wheel out of balance. 4. Motor bearings worn or damaged.	1. Fix/replace fan cover; replace loose or damaged fan. 2. Tighten any loose fasteners. 3. Inspect, ring test, balance, and dress grinding wheel. 4. Replace motor bearings or replace motor.
Machine stalls or slows when operating.	1. Motor is being overloaded. 2. Motor at fault.	1. Reduce depth of cut. 2. Test for shorted windings, bad bearings, and repair or replace.
Handwheel binds or is difficult to move.	1. Built-up grime/debris on ways. 2. Gears/rack and pinion are worn.	1. Clean ways and re-lubricate. 2. Replace gears/rack and pinion.
Vibration when grinding, poor surface finish, or incorrect final dimensions.	1. Grinding wheel is out-of-round, loaded up with material, or damaged. 2. Missing or torn grinding wheel paper washers. 3. Incorrect grinding wheel hardness or grit rating. 4. Improperly installed magnetic chuck. 5. Workpiece is loose. 6. Loose machine component. 7. Ways are out of lubrication or contaminants have loaded up on the ways. 8. Grinding wheel has varying densities, or is of poor quality. 9. Grinding operation requires coolant. 10. Coolant is incorrect or incorrectly mixed. 11. Motor or motor bearings at fault.	1. Inspect, ring test, dress, and balance grinding wheel. 2. Remove and replace paper washers, then inspect, ring test, balance, and dress grinding wheel. 3. Match wheel grade and grit rating with workpiece hardness. 4. Stone table and chuck surfaces, and remove all burrs and foreign material from mating surfaces, and reinstall the chuck. 5. Replace or repair chuck for poor holding power. 6. Inspect all machine connections, and tighten any loose fasteners. 7. Remove table, clean and re-lubricate the ways. 8. Replace grinding wheel with acceptable brand. 9. Install aftermarket coolant kit. 10. Refer to coolant manufacturer's workpiece verses coolant type recommendations and correct coolant. 11. Replace motor or replace bearings.

SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

⚠WARNING
Wiring Safety Instructions

SHOCK HAZARD. Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!

MODIFICATIONS. Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved aftermarket parts.

WIRE CONNECTIONS. All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.

CIRCUIT REQUIREMENTS. You MUST follow the requirements at the beginning of this manual when connecting your machine to a power source.

WIRE/COMPONENT DAMAGE. Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components.

MOTOR WIRING. The motor wiring shown in these diagrams is current at the time of printing but may not match your machine. If you find this to be the case, use the wiring diagram inside the motor junction box.

CAPACITORS/INVERTERS. Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

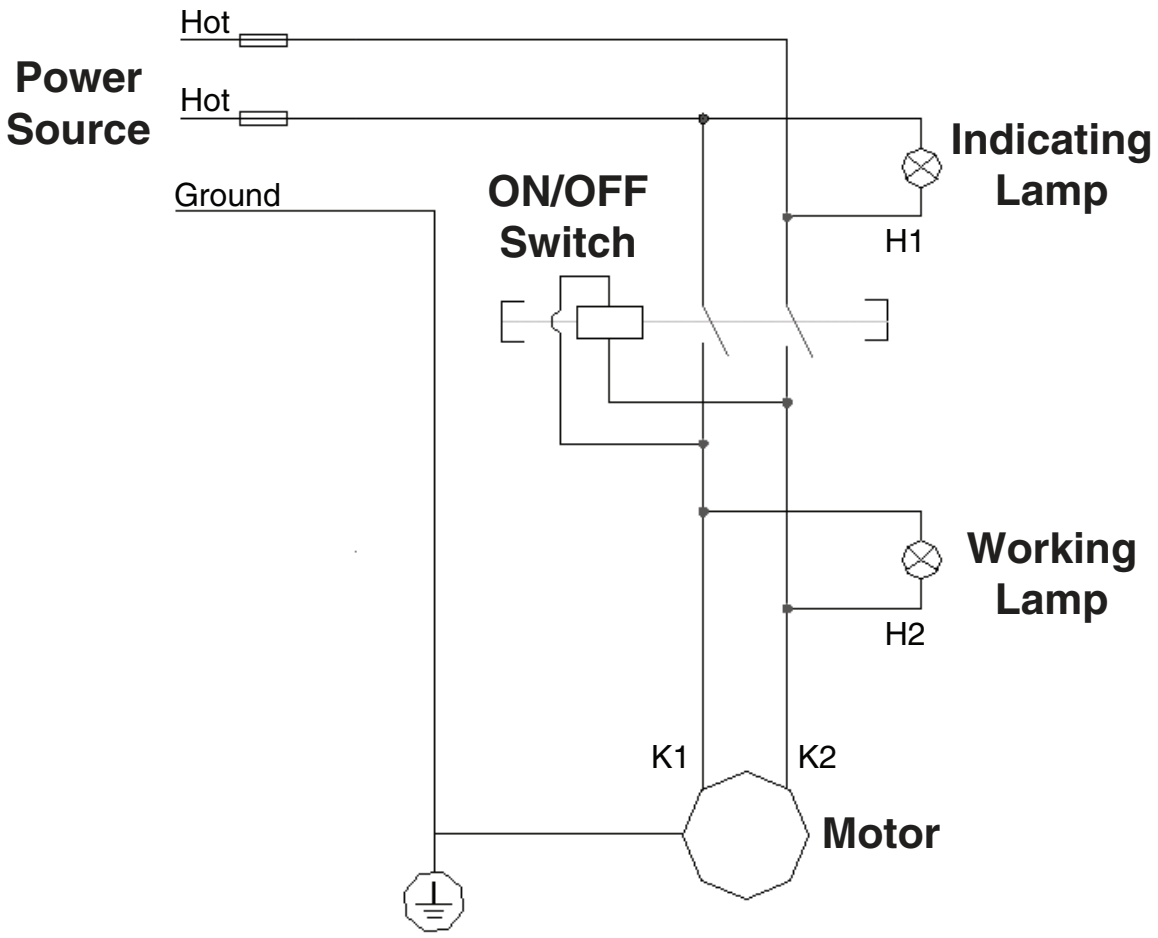
NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

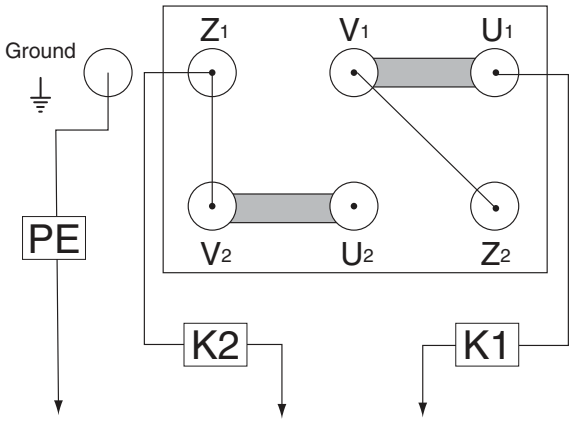
COLOR KEY

BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW GREEN	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	PURPLE	Pu		
RED	Rd	ORANGE	Or	PINK	Pk	TURQUOISE	Tu

Wiring Diagram

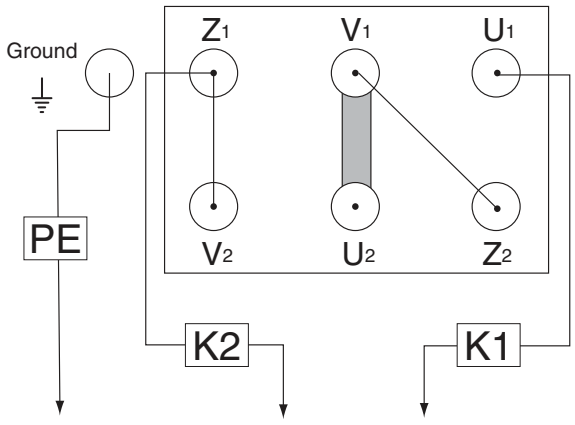


115 Volt Motor



To ON/OFF Switch

230 Volt Motor

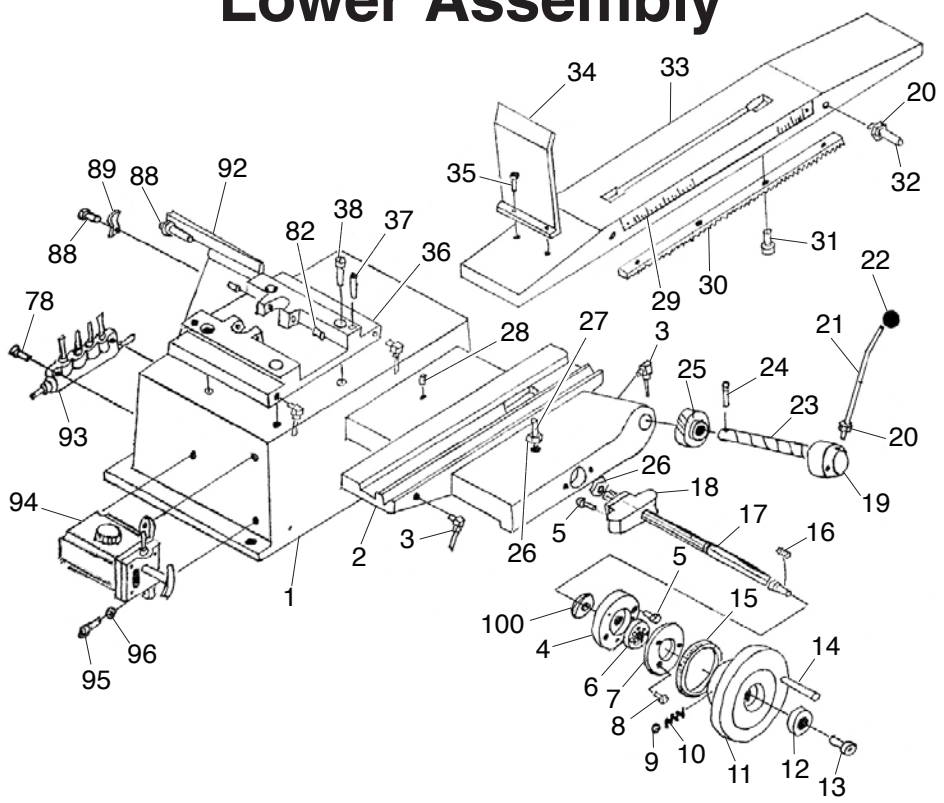


ON/OFF Switch

READ ELECTRICAL SAFETY ON PAGE 30!

SECTION 9: PARTS

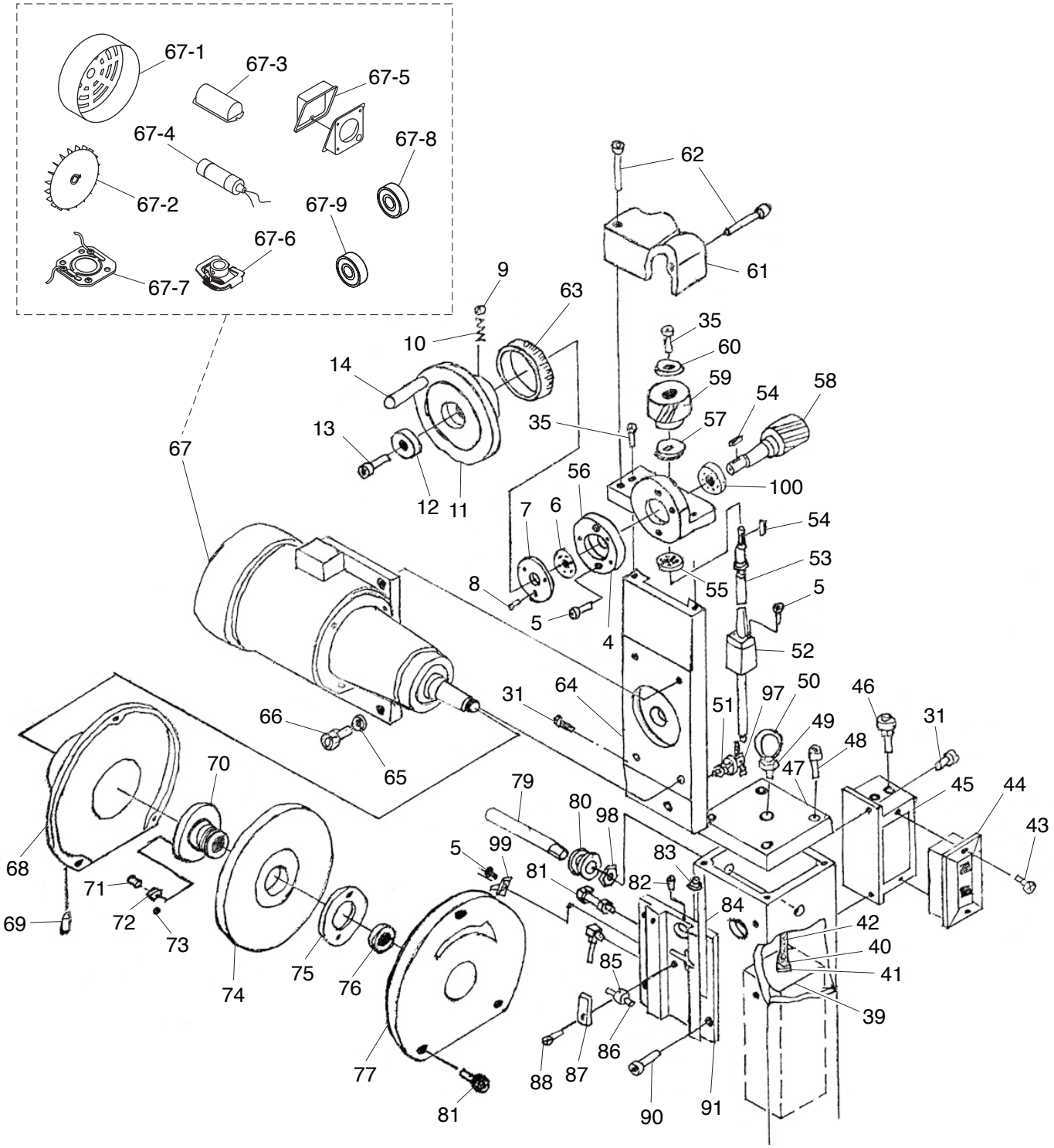
Lower Assembly



REF	PART #	DESCRIPTION
1	P5963001	BASE
2	P5963002	SADDLE
3	P5963003	OIL PIPE ELBOW
4	P5963004	BEARING BLOCK
5	P5963005	CAP SCREW M5-.8 X 16
6	P5963006	BALL BEARING 6202ZZ
7	P5963007	LOCK PLATE 28.5
8	P5963008	PHLP HD SCR M5-.8 X 10
9	P5963009	STEEL BALL 6MM
10	P5963010	COMPRESSION SPRING 6.7 X 9
11	P5963011	HANDWHEEL
12	P5963012	HANDWHEEL FLAT WASHER 6MM
13	P5963013	CAP SCREW M6-1 X 16
14	P5963014	HANDWHEEL HANDLE
15	P5963015	GRADUATED DIAL
16	P5963016	KEY 4 X 4 X 16
17	P5963017	CROSS FEED LEADSCREW 5/8-10 X 34
18	P5963018	CROSS FEED LEADSCREW NUT 5/8-10
19	P5963019	LONGITUDINAL HANDWHEEL HUB
20	P5963020	HEX NUT M8-1.25
21	P5963021	LONGITUDINAL HANDWHEEL SPOKE
22	P5963022	SPOKE KNOB
23	P5963023	LONGITUDINAL LEADSCREW
24	P5963024	TAPERED PIN 5 X 30
25	P5963025	CROSS FEED HELICAL GEAR

REF	PART #	DESCRIPTION
26	P5963026	HEX NUT M10-1.25
27	P5963027	TABLE STOP PIN
28	P5963028	BALL OILER 8MM TAP-IN
29	P5963029	LONGITUDINAL SCALE
30	P5963030	TABLE RACK
31	P5963031	CAP SCREW M6-1 X 12
32	P5963032	TABLE LIMIT PIN
33	P5963033	SLIDING TABLE
34	P5963034	CHIP GUARD
35	P5963035	CAP SCREW M6-1 X 20
36	P5963036	SADDLE BASE
37	P5963037	TAPERED PIN 6 X 40
38	P5963038	CAP SCREW M10-1.25 X 35
78	P5963078	SET SCREW M6-1 X 25
82	P5963082	HEX BOLT M8-1.25 X 20 CUP-PT
88	P5963088	PHLP HD SCR M5-.8 X 8
89	P5963089	OIL PIPE CLAMP
92	P5963092	SADDLE GIB
93	P5963093	OIL MANIFOLD
94	P5963094	ONE-SHOT OILER 8CC
95	P5963095	CAP SCREW M6-1 X 16
96	P5963096	LOCK WASHER 6MM
100	P5963100	THRUST BEARING 51102
103	P5963103	STAND ASSEMBLY (NOT SHOWN)

Upper Assembly



Please Note: *We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call* ***(800) 523-4777*** *or visit our online parts store at* ***www.grizzly.com*** *to check for availability.*

Upper Assembly

REF	PART #	DESCRIPTION
39	P5963039	ELEVATION COUNTERWEIGHT
40	P5963040	EYE BOLT M16-2 X 56
41	P5963041	CABLE CLIP
42	P5963042	STEEL CABLE 3MM
43	P5963043	PHLP HD SCR M5-.8 X 6
44	P5963044	ON/OFF SWITCH KEDU KJD12 220-240V
45	P5963045	SWITCH BOX
46	P5963046	INDICATOR LIGHT
47	P5963047	COLUMN TOP COVER
48	P5963048	CAP SCREW M10-1.25 X 25
49	P5963049	HEX NUT M16-2
50	P5963050	EYE BOLT M16-2 X 28
51	P5963051	ADJUSTMENT SCREW M8-1.25 X 34
52	P5963052	ELEVATION LEADSCREW NUT 1/2-10 X 51
53	P5963053	ELEVATION LEADSCREW 1/2-10 X 318
54	P5963054	KEY 4 X 4 X 20
55	P5963055	BALL BEARING 6209ZZ
56	P5963056	WORM SHAFT BRACKET
57	P5963057	THRUST BEARING 51102
58	P5963058	WORM SHAFT
59	P5963059	BEVEL GEAR
60	P5963060	GEAR FLAT WASHER 6MM
61	P5963061	GEAR COVER
62	P5963062	CAP SCREW M6-1 X 55
63	P5963063	GRADUATED DIAL
64	P5963064	SLIDE BASE
65	P5963065	FLAT WASHER 10MM
66	P5963066	HEX BOLT M10-1.5 X 35
67	P5963067	MOTOR 3/4HP 115V/230V 1-PH
67-1	P5963067-1	MOTOR FAN COVER
67-2	P5963067-2	MOTOR FAN

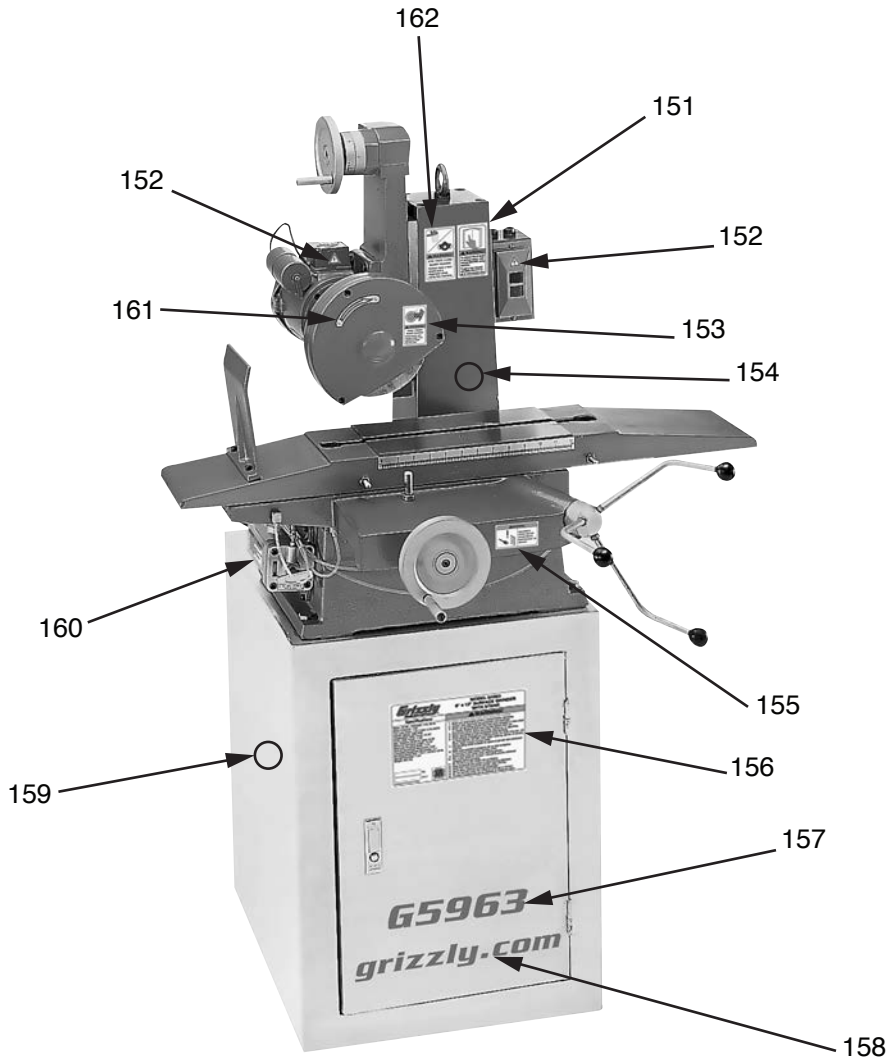
REF	PART #	DESCRIPTION
67-3	P5963067-3	CAPACITOR COVER
67-4	P5963067-4	R CAPACITOR 40M 300V
67-5	P5963067-5	MOTOR JUNCTION BOX
67-6	P5963067-6	CENTRIFUGAL SWITCH
67-7	P5963067-7	CONTACT PLATE
67-8	P5963067-8	FRONT MOTOR BEARING
67-9	P5963067-9	REAR MOTOR BEARING
68	P5963068	REAR WHEEL COVER
69	P5963069	HEX BOLT M8-1.25 X 10 CUP-PT
70	P5963070	WHEEL SLEEVE
71	P5963071	SET SCREW M6-1 X 6
72	P5963072	BALANCE WEIGHT
73	P5963073	STEEL BALL 4MM
74	P5963074	GRINDING WHEEL 7"D X 1/2"W X 1-1/4"B
75	P5963075	WHEEL SLEEVE WASHER
76	P5963076	SPINDLE NUT M16-1.5
77	P5963077	WHEEL GUARD
79	P5963079	PULLEY SHAFT
80	P5963080	UPPER ELEVATION PULLEY
81	P5963081	HEX BOLT M8-1.25 X 60
83	P5963083	GIB SCREW M8-1.25 X 45
84	P5963084	ELEVATION GIB
85	P5963085	LOWER ELEVATION PULLEY
86	P5963086	ROLL PIN 6 X 45
87	P5963087	LOCKING TAB
90	P5963090	CAP SCREW M10-1.25 X 14
91	P5963091	ELEVATION CARRIAGE
97	P5963097	CAP SCREW M5-.8 X 10
98	P5963098	HEX NUT M12-1.75
99	P5963099	LIMIT TAB

Accessories

REF	PART #	DESCRIPTION
101	P5963101	DRESSING DIAMOND W/MOUNT
102	P5963102	ADJUSTABLE WRENCH
120	P5963120	LEVELING PADS
122	P5963122	TOOL BOX
123	P5963123	HEX WRENCH 5MM
124	P5963124	HEX WRENCH 4MM

REF	PART #	DESCRIPTION
125	P5963125	HEX WRENCH 3MM
127	P5963127	PIN WRENCH
128	P5963128	SCREWDRIVER FLAT #2
129	P5963129	SCREWDRIVER PHILLIPS #2
130	P5963130	MANDREL

Machine Labels



REF	PART #	DESCRIPTION
151	P5963151	READ MANUAL LABEL
152	P5963152	ELECTRICITY LABEL
153	P5963153	GRINDING WHEEL HAZARD LABEL
154	P5963154	GRIZZLY GREEN TOUCH-UP PAINT
155	P5963155	DISCONNECT POWER WARNING LABEL
156	P5963156	MACHINE ID LABEL

REF	PART #	DESCRIPTION
157	P5963157	MODEL NUMBER LABEL
158	P5963158	GRIZZLY.COM LABEL, GREEN
159	P5963159	GRIZZLY PUTTY TOUCH-UP PAINT
160	P5963160	ONE-SHOT OILER LABEL
161	P5963161	WHEEL DIRECTION LABEL
162	P5963162	FACE SHIELD/RESPIRATOR LABEL

⚠WARNING

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine MUST replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or www.grizzly.com.

Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____

Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?

____ Advertisement ____ Friend ____ Catalog
____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinetmaker & FDM
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____Yes _____No

8. Would you recommend Grizzly Industrial to a friend? _____Yes _____No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____Yes _____No

10. Comments: _____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
Stamp
Here

GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069

FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY & RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We 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, contact us by mail or phone and give us all the details. We will then issue you a "Return Number,'' which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.