

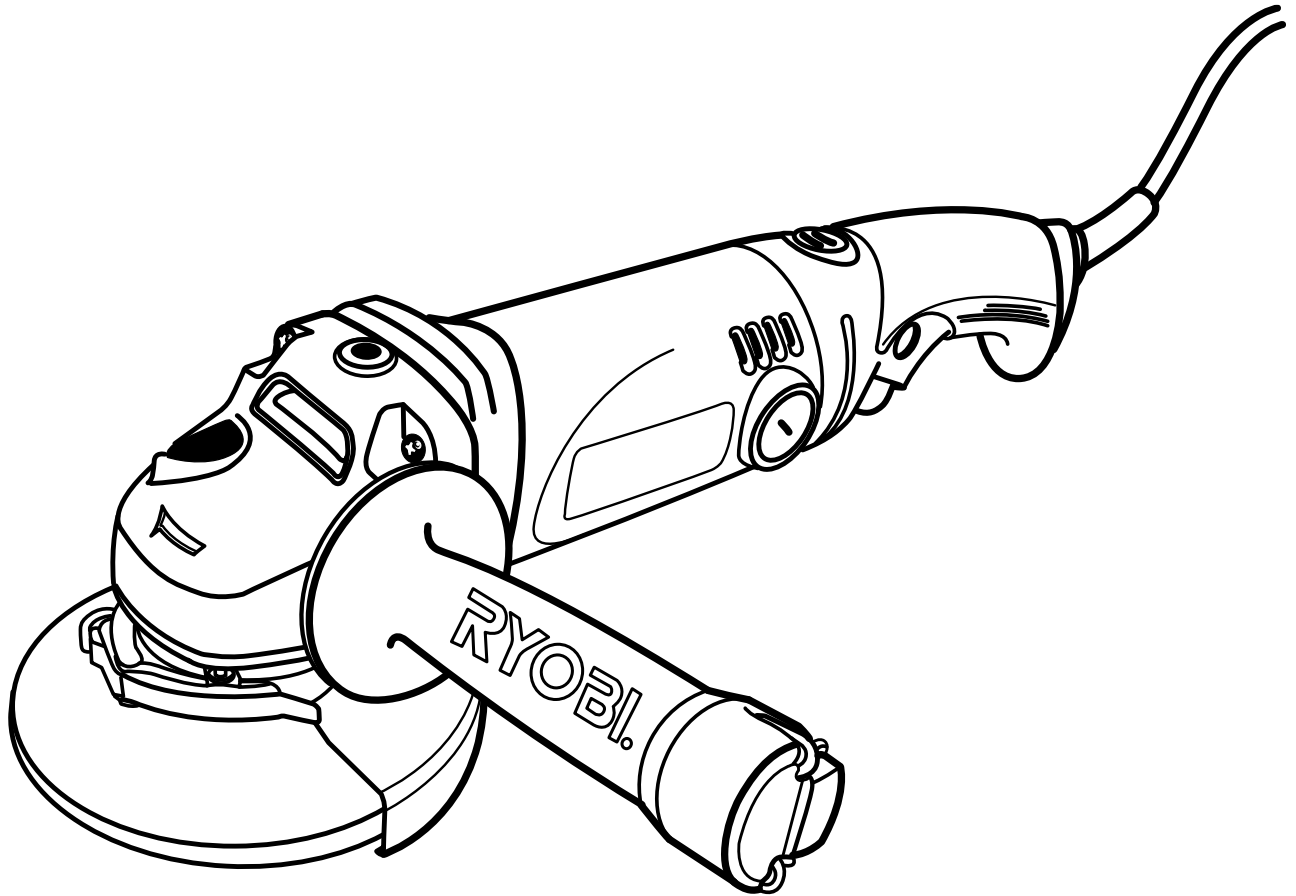


OPERATOR'S MANUAL

4-1/2 in. ANGLE GRINDER

DOUBLE INSULATED

AG452



Your angle grinder has been engineered and manufactured to our high standard for dependability, ease of operation, and operator safety. When properly cared for, it will give you years of rugged, trouble-free performance.

WARNING: To reduce the risk of injury, the user must read and understand the operator's manual before using this product.

Thank you for your purchase.

SAVE THIS MANUAL FOR FUTURE REFERENCE

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INTRODUCTION

This tool has many features for making its use more pleasant and enjoyable. Safety, performance, and dependability have been given top priority in the design of this product making it easy to maintain and operate.

WARRANTY

RYOBI® POWER TOOL - LIMITED TWO YEAR WARRANTY AND 30 DAY EXCHANGE POLICY

One World Technologies, Inc., warrants its RYOBI® power tools with the following conditions:

30-DAY EXCHANGE POLICY: During the first 30 days after date of purchase, you may either request service under this warranty or you may exchange any RYOBI® power tool which does not work properly due to defective workmanship or materials by returning the power tool to the dealer from which it was purchased. To receive a replacement power tool or requested warranty service, you must present proof of purchase and return all original equipment packaged with the original product. The replacement power tool will be covered by the limited warranty for the balance of the two year period from the date of the original purchase.

WHAT THIS WARRANTY COVERS: This warranty covers all defects in workmanship or materials in your RYOBI® power tool for a period of two years from the date of purchase. With the exception of batteries, power tool accessories are warranted for ninety (90) days. Batteries are warranted for two years.

HOW TO GET SERVICE: Just return the power tool, properly packaged and postage prepaid, to an Authorized Service Center. You can obtain the location of the Service Center nearest you by contacting a service representative at One World Technologies, Inc., P.O. Box 1207, Anderson, SC 29622-1207, by calling 1-800-525-2579 or by logging on to www.ryobitools.com. When you request warranty service, you must also present proof of purchase documentation, which includes the date of purchase (for example, a bill of sale). We will repair any faulty workmanship, and either repair or replace any defective part, at our option. We will do so without any charge to you. We will complete the work in a reasonable time, but, in any case, within ninety (90) days or less.

WHAT'S NOT COVERED: This warranty applies only to the original purchaser at retail and may not be transferred. This warranty only covers defects arising under normal usage and does not cover any malfunction, failure or defects resulting from misuse, abuse, neglect, alteration, modification or repairs by other than Authorized Service Centers. One World Technologies, Inc. makes no warranties, representations or promises as to the quality or performance of its power tools other than those specifically stated in this warranty.

ADDITIONAL LIMITATIONS: Any implied warranties granted under state law, including warranties of merchantability or fitness for a particular purpose, are limited to two years from the date of purchase. One World Technologies, Inc. is not responsible for direct, indirect, or incidental damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

GENERAL SAFETY RULES



WARNING:


Read and understand all instructions. Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

WORK AREA

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

ELECTRICAL SAFETY

- **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation  eliminates the need for the three-wire grounded power cord and grounded power supply system.
- **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away from heat, oil, sharp edges, or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.
- **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

PERSONAL SAFETY

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.

- **Avoid accidental starting. Be sure switch is off before plugging in.** Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.
- **Remove adjusting keys or wrenches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the tool in unexpected situations.
- **Use safety equipment. Always wear eye protection.** Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.
- **Do not wear loose clothing or jewelry. Contain long hair.** Loose clothes, jewelry, or long hair can be drawn into air vents.
- **Do not use on a ladder or unstable support.** Stable footing on a solid surface enables better control of the tool in unexpected situations.

TOOL USE AND CARE

- **Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Do not force tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
- **Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
- **Store idle tools out of the reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
- **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with sharp cutting edges are less likely to bind and are easier to control.
- **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
- **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool, may become hazardous when used on another tool.
- **Keep the tool and its handle dry, clean and free from oil and grease.** Always use a clean cloth when cleaning. Never use brake fluids, gasoline, petroleum-based products, or any strong solvents to clean your tool. Following this rule will reduce the risk of loss of control and deterioration of the enclosure plastic.

GENERAL SAFETY RULES

SERVICE











- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel may result in a risk of injury.
- **When servicing a tool, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance Instructions may create a risk of shock or injury.

SPECIFIC SAFETY RULES

- **Always use proper guard with grinding wheel.** A guard protects operator from broken wheel fragments.
- **Accessories must be rated for at least the speed recommended on the tool warning label.** Wheels and other accessories running over rated speed can fly apart and cause injury.
- **Hold tool by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a “live” wire will make exposed metal parts of the cutting tool “live” and shock the operator.
- **Use side handles supplied with the tool.** Loss of control can cause personal injury.
- **Know your power tool. Read operator’s manual carefully. Learn its applications and limitations, as well as the specific potential hazards related to this tool.** Following this rule will reduce the risk of electric shock, fire, or serious injury.
- **Always wear safety glasses. Everyday eyeglasses have only impact-resistant lenses; they are NOT safety glasses.** Following this rule will reduce the risk of serious personal injury.
- **Protect your lungs. Wear a face or dust mask if the operation is dusty.** Following this rule will reduce the risk of serious personal injury.
- **Protect your hearing. Wear hearing protection during extended periods of operation.** Following this rule will reduce the risk of serious personal injury.
- **Inspect tool cords periodically and, if damaged, have repaired at your nearest Authorized Service Center. Constantly stay aware of cord location.** Following this rule will reduce the risk of electric shock or fire.
- **Check damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center.** Following this rule will reduce the risk of shock, fire, or serious injury.
- **Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. A wire gauge size (A.W.G.) of at least 14 is recommended for an extension cord 50 feet or less in length. A cord exceeding 100 feet is not recommended. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.** An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.
- **Inspect for and remove all nails from lumber before using this tool.** Following this rule will reduce the risk of serious personal injury.
- **If the power supply cord is damaged, it must be replaced only by the manufacturer or by an authorized service center to avoid risk.**
- **Save these instructions.** Refer to them frequently and use them to instruct others who may use this tool. If you loan someone this tool, loan them these instructions also.




SYMBOLS

Some of the following symbols may be used on this tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

SYMBOL	NAME	DESIGNATION/EXPLANATION
V	Volts	Voltage
A	Amperes	Current
Hz	Hertz	Frequency (cycles per second)
W	Watt	Power
min	Minutes	Time
~	Alternating Current	Type of current
≡	Direct Current	Type or a characteristic of current
n_0	No Load Speed	Rotational speed, at no load
	Class II Construction	Double-insulated construction
.../min	Per Minute	Revolutions, strokes, surface speed, orbits etc., per minute
	Wet Conditions Alert	Do not expose to rain or use in damp locations.
	Read The Operator's Manual	To reduce the risk of injury, user must read and understand operator's manual before using this product.
	Eye Protection	Always wear safety goggles or safety glasses with side shields and, as necessary, a full face shield when operating this product.
	Safety Alert	Precautions that involve your safety.
	No Hands Symbol	Failure to keep your hands away from the blade will result in serious personal injury.
	No Hands Symbol	Failure to keep your hands away from the blade will result in serious personal injury.
	No Hands Symbol	Failure to keep your hands away from the blade will result in serious personal injury.
	No Hands Symbol	Failure to keep your hands away from the blade will result in serious personal injury.
	Hot Surface	To reduce the risk of injury or damage, avoid contact with any hot surface.

SYMBOLS

The following signal words and meanings are intended to explain the levels of risk associated with this product.

SYMBOL	SIGNAL	MEANING
	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.
	CAUTION:	(Without Safety Alert Symbol) Indicates a situation that may result in property damage.

SERVICE

Servicing requires extreme care and knowledge and should be performed only by a qualified service technician. For service we suggest you return the product to the nearest **AUTHORIZED SERVICE CENTER** for repair. When servicing, use only identical replacement parts.



WARNING:

To avoid serious personal injury, do not attempt to use this product until you read thoroughly and understand completely the operator's manual. If you do not understand the warnings and instructions in the operator's manual, do not use this product. Call Ryobi customer service for assistance.



WARNING:



The operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning power tool operation, always wear safety goggles or safety glasses with side shields and, when needed, a full face shield. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always use eye protection which is marked to comply with ANSI Z87.1.

SAVE THESE INSTRUCTIONS

ELECTRICAL

DOUBLE INSULATION

Double insulation is a concept in safety in electric power tools, which eliminates the need for the usual three-wire grounded power cord. All exposed metal parts are isolated from the internal metal motor components with protecting insulation. Double insulated tools do not need to be grounded.

WARNING:

The double insulated system is intended to protect the user from shock resulting from a break in the tool's internal insulation. Observe all normal safety precautions to avoid electrical shock.

NOTE: Servicing of a tool with double insulation requires extreme care and knowledge of the system and should be performed only by a qualified service technician. For service, we suggest you return the tool to your nearest authorized service center for repair. Always use original factory replacement parts when servicing.

ELECTRICAL CONNECTION

This tool has a precision-built electric motor. It should be connected to a **power supply that is 120 volts, 60 Hz, AC only (normal household current)**. Do not operate this tool on direct current (DC). A substantial voltage drop will cause a loss of power and the motor will overheat. If the tool does not operate when plugged into an outlet, double-check the power supply.

EXTENSION CORDS

When using a power tool at a considerable distance from a power source, be sure to use an extension cord that has the capacity to handle the current the tool will draw. An undersized cord will cause a drop in line voltage, resulting in overheating and loss of power. Use the chart to determine the minimum wire size required in an extension cord. Only round jacketed cords listed by Underwriter's Laboratories (UL) should be used.

When working outdoors with a tool, use an extension cord that is designed for outside use. This type of cord is designated with "WA" on the cord's jacket.

Before using any extension cord, inspect it for loose or exposed wires and cut or worn insulation.

**Ampere rating (on tool data plate)

Cord Length	Wire Size (A.W.G.)					
	0-2.0	2.1-3.4	3.5-5.0	5.1-7.0	7.1-12.0	12.1-16.0
25'	16	16	16	16	14	14
50'	16	16	16	14	14	12
100'	16	16	14	12	10	—

**Used on 12 gauge - 20 amp circuit.

NOTE: AWG = American Wire Gauge

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. Failure to do so can result in serious personal injury.

WARNING:

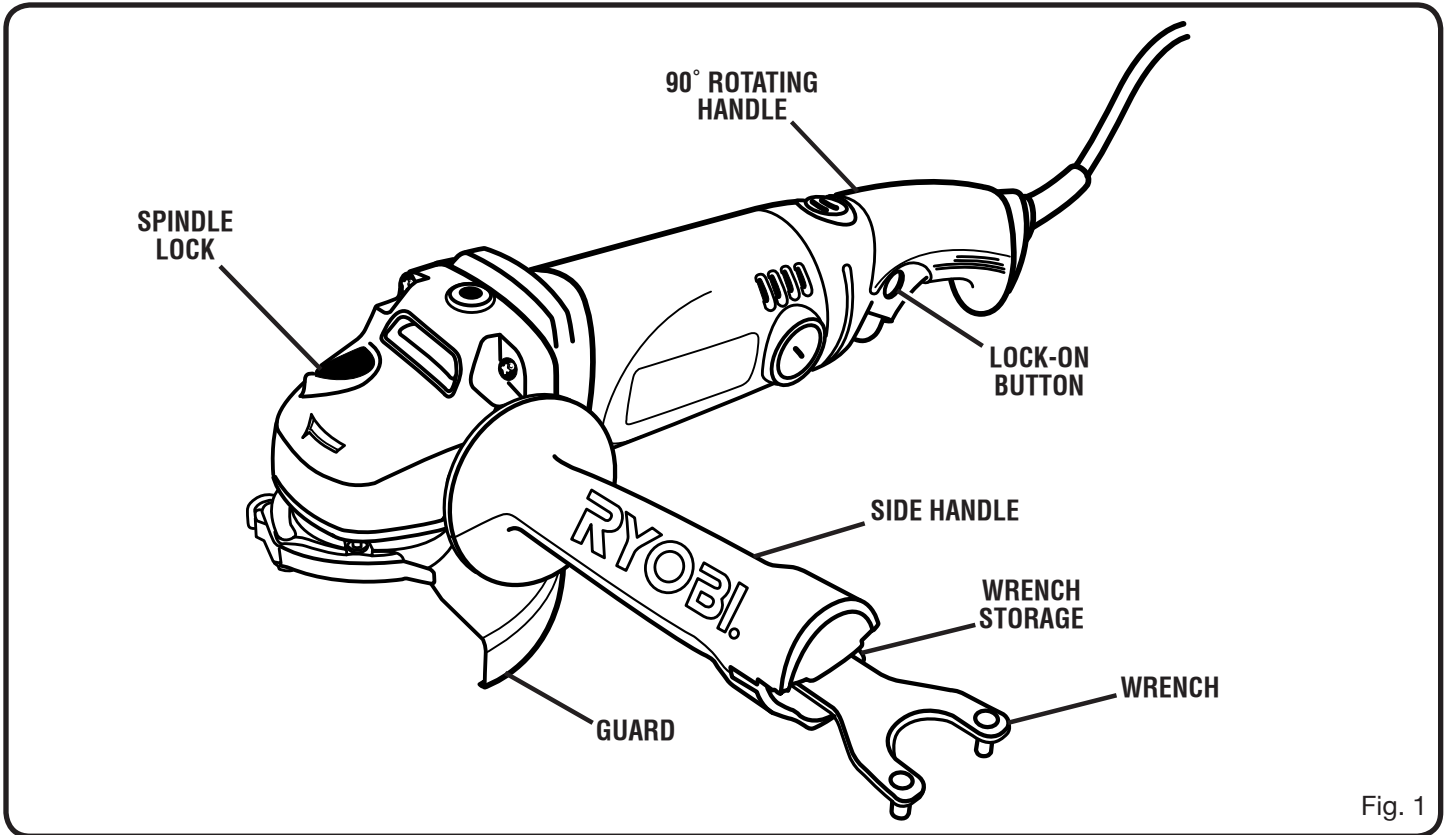
Check extension cords before each use. If damaged replace immediately. Never use tool with a damaged cord since touching the damaged area could cause electrical shock resulting in serious injury.

FEATURES

PRODUCT SPECIFICATIONS

Wheel Size..... 4 1/2 in.
Cord Length 10 ft.
Arbor Size..... 5/8 in. x 11 UNC

No Load Speed 11,000 r/min. (RPM)
Input 120 V, 60 Hz, AC only, 5.5 Amps
Net Weight..... 5 lbs.



KNOW YOUR ANGLE GRINDER

See Figure 1.

The safe use of this product requires an understanding of the information on the tool and in this operator's manual as well as a knowledge of the project you are attempting. Before use of this product, familiarize yourself with all operating features and safety rules.

LOCK-ON BUTTON

The lock-on button is convenient for continuous grinding for extended periods of time.

SIDE HANDLE

The side handle can be installed on the top, left, or right side of the grinder, depending on operator preference, for stabilization and must be used during all operations. In addition to maintaining safe control during use, the side handle also provides convenient ease of operation for the operator.

SPINDLE LOCK

The spindle lock keeps the spindle from turning while installing and removing wheels and disks.

WRENCH STORAGE

The wrench can be easily stored in the side handle when not in use.

90° ROTATING HANDLE

The handle rotates 90° to the left or right for ease of use.

ASSEMBLY

UNPACKING

This product requires assembly.

- Carefully remove the tool and any accessories from the box. Make sure that all items listed in the packing list are included.
- Inspect the tool carefully to make sure no breakage or damage occurred during shipping.
- Do not discard the packing material until you have carefully inspected and satisfactorily operated the tool.
- If any parts are damaged or missing, please call 1-800-525-2579 for assistance.

PACKING LIST

Angle Grinder

Wrench

Disc Flange

Flange Nut

Side Handle

Grinding Wheel

Wire Wheel

Abrasive Mop Disc

Case

Operator's Manual

⚠ WARNING:

Thoroughly inspect a new grinding wheel before you install it on the grinder.

- Tap lightly around the wheel using a wooden hammer.
- Listen carefully to the resulting sounds. Places with fissures or cracks will result in a different sound.

Do not use a wheel containing fissures or cracks.

When you install a new grinding wheel, carry out a no load revolution test of approximately one minute with the grinding wheel facing a safe direction, i.e., away from people or objects.

⚠ WARNING:

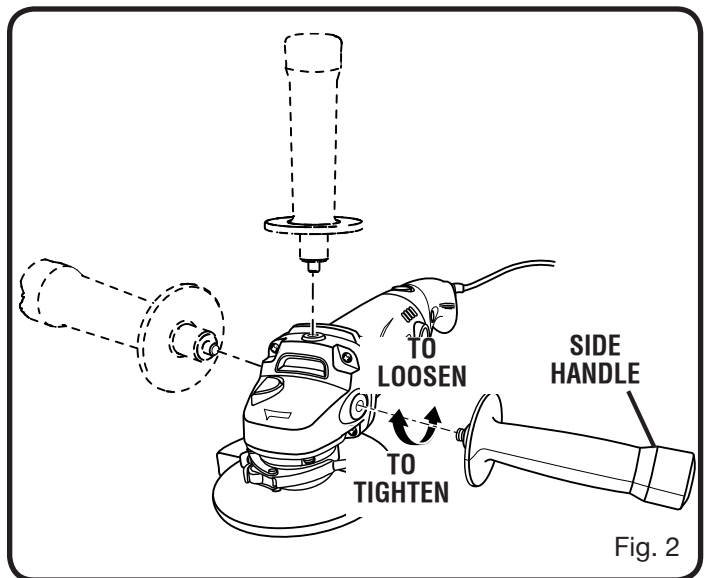
The side handle must always be used to help prevent loss of control and possible serious injury.

⚠ WARNING:

If any parts are damaged or missing do not operate this tool until the parts are replaced. Failure to heed this warning could result in serious personal injury.

⚠ WARNING:

Do not attempt to modify this tool or create accessories not recommended for use with this tool. Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious personal injury.



⚠ WARNING:

Do not connect to power supply until assembly is complete. Failure to comply could result in accidental starting and possible serious personal injury.

INSTALLING THE SIDE HANDLE

See Figure 2.

- Unplug the angle grinder.
- Insert the side handle into the desired operating position.
- Securely tighten by turning the side handle clockwise.

NOTE: The handle can be installed on the top, left, or right side of the grinder, depending on operator preference.

OPERATION

WARNING:

Do not allow familiarity with tools to make you careless. Remember that a careless fraction of a second is sufficient to inflict serious injury.

WARNING:

Always wear safety goggles or safety glasses with side shields when operating power tools. Failure to do so could result in objects being thrown into your eyes resulting in possible serious injury.

WARNING:

Do not use any attachments or accessories not recommended by the manufacturer of this tool. The use of attachments or accessories not recommended can result in serious personal injury.

DANGER:

Never attach a wood cutting or carving blade of any type to this angle grinder. It is only designed for grinding and sanding. Use for any other purpose is not recommended and creates a hazard, which will result in serious injury.

DANGER:

Never use your grinder with the guard removed. It has been designed for use only with the guard installed. Attempting to use grinder with guard removed will result in loose particles being thrown against the operator resulting in serious personal injury.

DANGER:

Use **ONLY** Type 27 depressed center wheels (such as the one provided with this product). **NEVER** attach a Type 1 straight or cut-off wheel to this angle grinder. This product is only designed for grinding and sanding. Use for any other purpose is not recommended and creates a hazard, which will result in serious injury.

TYPE 27 – OK TO USE



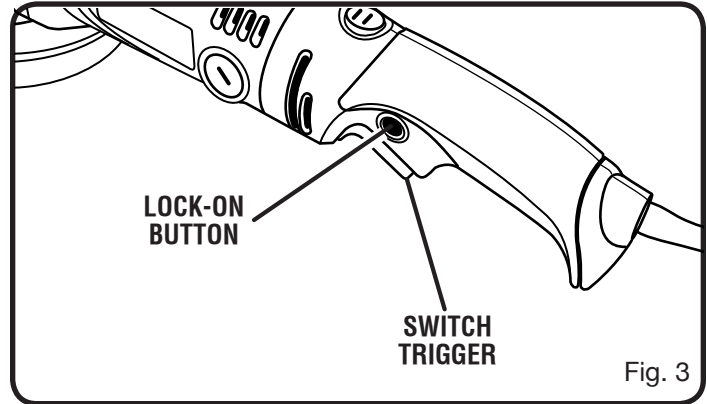
TYPE 1 – DO NOT USE



APPLICATIONS

You may use this tool for the purposes listed below:

- Grinding metals
- Sanding wood or metal surfaces
- Wire brushing rusted or painted surfaces



SWITCH TRIGGER

See Figure 3.

To turn the angle grinder **ON**, depress the switch trigger. To turn it **OFF**, release the switch trigger.

LOCK-ON BUTTON

See Figure 3.

The angle grinder is equipped with a lock-on feature, which is convenient for continuous grinding/sanding for extended periods of time.

To lock-on:

- Depress the switch trigger.
- Push in and hold the lock-on button, located on the side of the handle.
- Release the switch trigger.
- Release the lock-on button and the angle grinder will continue running.
- To release the lock, depress and release the switch trigger.

If the lock-on feature is engaged during use and the angle grinder becomes disconnected from the power supply, disengage the lock-on feature immediately.

CAUTION:

Never cover air vents. They must always be open for proper motor cooling.

INSTALLING ACCESSORY WHEELS

See Figures 4 - 6.

- Unplug the angle grinder.
- Depress and hold spindle lock button and rotate flange nut with provided wrench until spindle locks.
NOTE: To prevent damage to the spindle or spindle lock, always allow motor to come to a complete stop before engaging spindle lock.
- Loosen and remove flange nut from spindle. **Do not** remove disc flange.
- Make sure flats on the bottom of disc flange are engaged with flats on spindle.
- Place the accessory wheel over the spindle.

OPERATION

WARNING:

Always install grinding wheel and abrasive mop disc with the depressed center against the disc flange as shown below. Failure to do so will cause the grinding wheel to crack when tightening the nut. This could result in serious personal injury because of loose particles breaking off and being thrown from the angle grinder. Do not overtighten.

- To install grinding wheel and wire wheel brush, thread the nut on the spindle with the flat side of flange nut facing up. Fit raised, small diameter portion of the nut into the hole in the wheel and finger tighten. *See figures 4 and 5.*
- To install abrasive mop disc, thread the flange nut on the spindle with the flat side of nut facing down. Finger tighten. *See figure 6.*
- Depress and hold the spindle lock button and rotate the wheel clockwise until the spindle locks in position.
- Securely tighten the flange nut with the wrench provided. Do not overtighten.

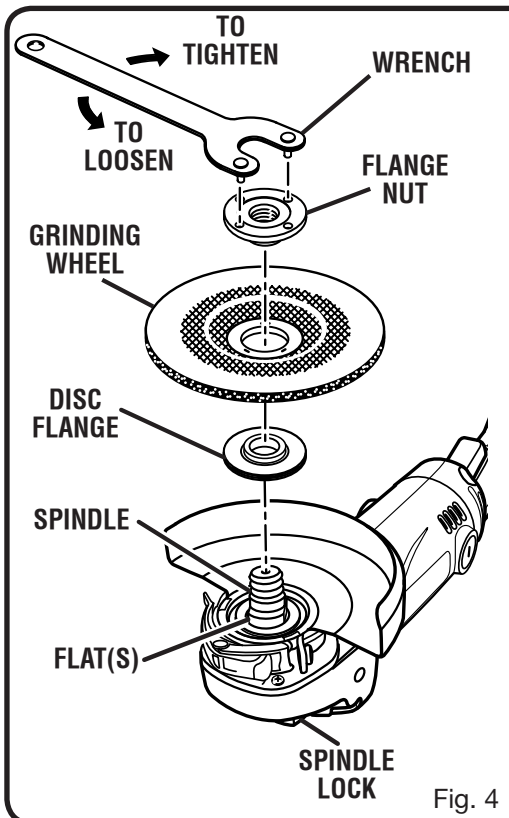


Fig. 4

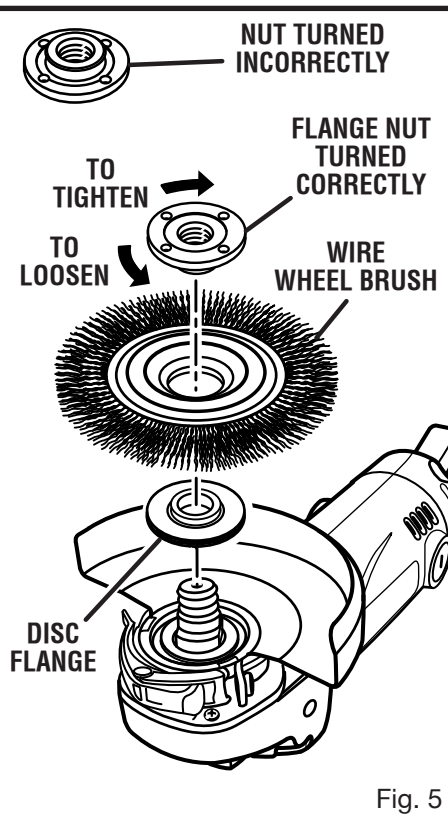


Fig. 5

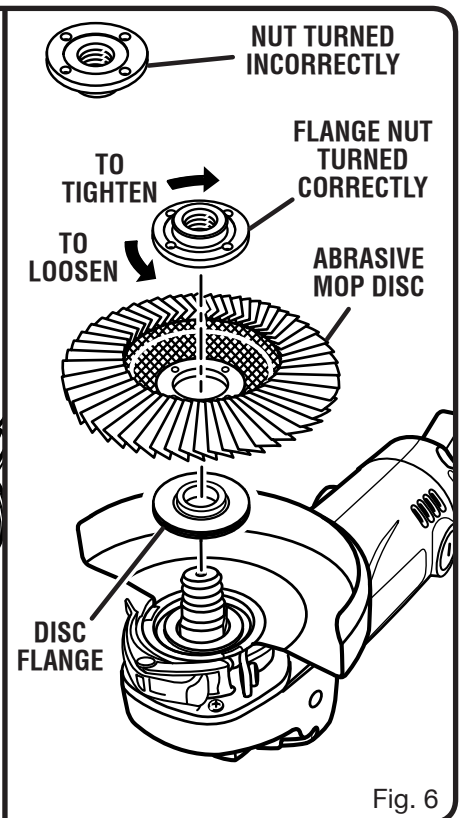


Fig. 6

GRINDING, SANDING, BRUSHING

See Figure 7.

- Always carefully select and use grinding wheels that are recommended for the material to be ground.
- Make sure the minimum operating speed of any accessory wheel selected is not less than 11,000 RPM.
- The grinding wheel provided with the angle grinder is suitable for grinding welds, preparing surfaces to be welded, grinding structural steel, and grinding stainless steel.
- The wire wheel brush is suitable for removing paint or rust from metal surfaces.
- The abrasive mop disc is suitable for sanding flat metal or wood surfaces.
- Secure all work before beginning any operation.
- Secure small workpieces in a vise or clamp to a workbench.
- The key to efficient operation is controlling the pressure and surface contact between the grinding wheel and workpiece.
- Flat surfaces are ground at an acute angle, normally between 5° and 15°.
- For maximum control, hold the angle grinder in front and away from you with both hands, keeping the grinding wheel clear of the workpiece.
- Start the angle grinder and let the motor and grinding wheel build up to full speed.
- Gradually lower angle grinder until the grinding wheel contacts the workpiece.
- For best results keep the angle grinder tilted at an angle from 5° to 15° and continuously moving at a steady, consistent pace.

OPERATION

- Move the angle grinder back and forth or up and down over the work area.
- Keep the angle grinder moving so that an excessive amount of material is not removed from one area.
- If the angle grinder is held in one spot too long, it will gouge and cut grooves in the workpiece.
- If the angle grinder is held at too sharp an angle, it will also gouge the workpiece because of concentration of pressure on a small area.
- Use just enough pressure to keep the angle grinder from chattering or bouncing. Heavy pressure will decrease its speed and put a strain on the motor.
- Normally the weight of the tool alone is adequate for most grinding jobs.
- Use light pressure when grinding jagged edges or loose bolts where there is the potential for the angle grinder to snag on the metal edge.
- Lift the angle grinder away from the workpiece before turning the angle grinder off.

WARNING:

Wire wheel brush bristles will bend during use and show their direction of rotation. When reusing the wire wheel brush, always mount it to rotate in the same direction as in prior use. Failure to heed this warning can result in bristle breaking and extreme vibration of the wire wheel brush that could result in serious personal injury.

90° ROTATING HANDLE

See Figure 8.

The handle on the angle grinder can rotate 90° to the left or the right for ease of operation.

To adjust the 90° rotating handle:

- Press and hold handle lock button.
- Rotate the handle to the desired position and release the handle lock button.

NOTE: Make sure the handle lock button on the 90° rotating handle clicks and locks into place when changing handle positions.

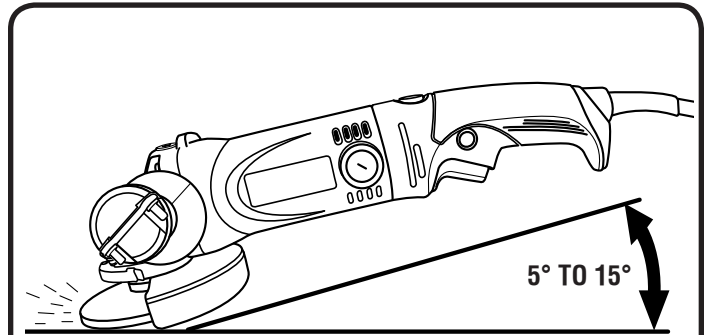


Fig. 7

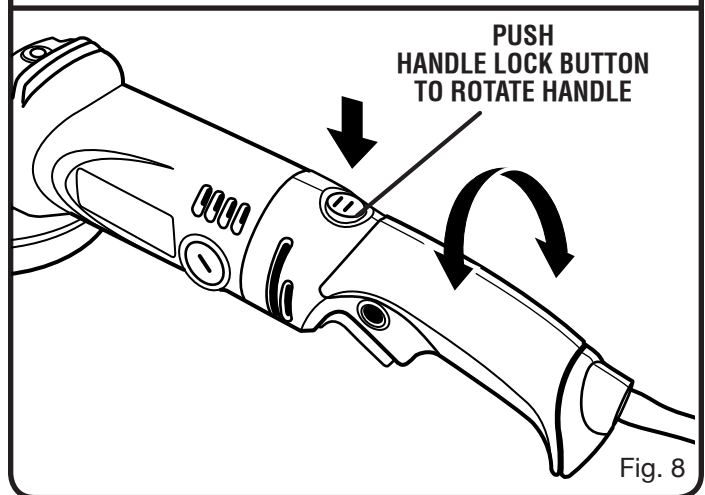


Fig. 8

ADJUSTMENTS

⚠ WARNING:

Before performing any adjustment, make sure the tool is unplugged from the power supply and the switch is in the OFF (O) position. Failure to heed this warning could result in serious personal injury.

GUARD ADJUSTMENT

See Figure 9 - 11.

Never use the angle grinder without the guard in place and properly adjusted.

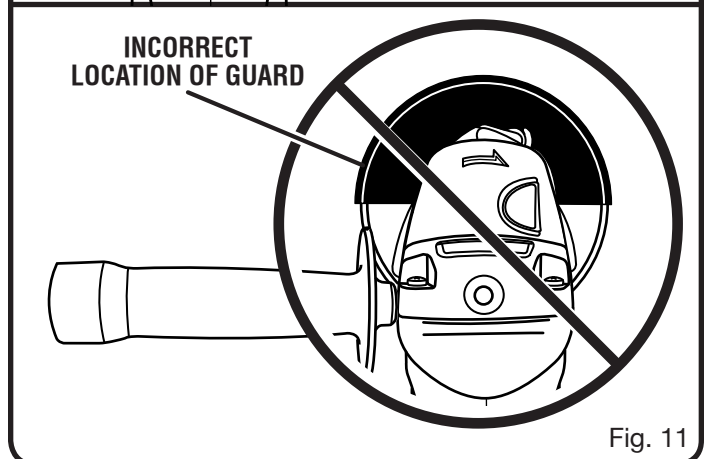
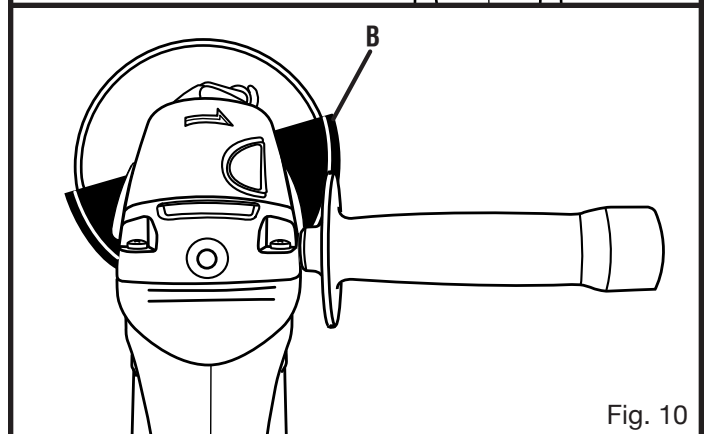
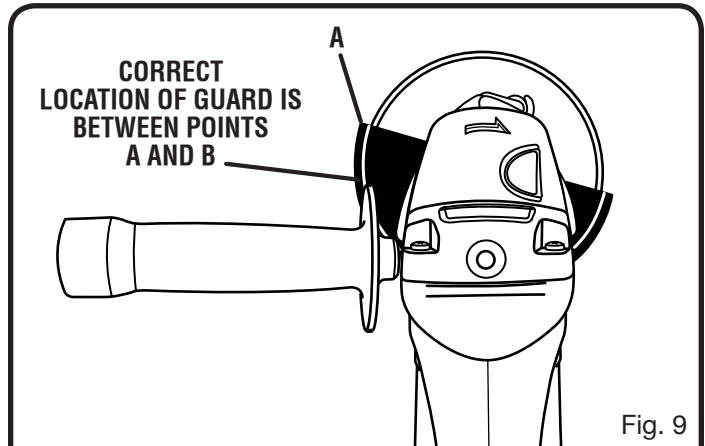
- Unplug the angle grinder.
- Using the wrench provided, loosen and remove nut, accessory wheel, and disc flange from spindle if necessary.
- Unlock the guard clamp lever.
- Rotate the guard to its correct position as shown in figures 9 and 10.
- Lock the guard clamp lever.
- Retighten clamp screw securely if needed.

⚠ WARNING:

Never place the guard so that it is on front of the angle grinder as shown in figure 11. This could result in serious injury because sparks and loose particles thrown from the grinding wheel would be directed toward the operator. Always place the guard in the correct location as shown in figures 9 and 10.

⚠ DANGER:

Never use your grinder with the guard removed. It has been designed for use only with the guard installed. Attempting to use grinder with guard removed will result in loose particles being thrown against the operator resulting in serious personal injury.



MAINTENANCE

⚠ WARNING:

When servicing, use only identical replacement parts. Use of any other parts may create a hazard or cause product damage.

⚠ WARNING:

Always wear safety goggles or safety glasses with side shields during power tool operation or when blowing dust. If operation is dusty, also wear a dust mask.

GENERAL MAINTENANCE

Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, oil, grease, etc.

⚠ WARNING:

Do not at any time let brake fluids, gasoline, petroleum-based products, penetrating oils, etc., come in contact with plastic parts. Chemicals can damage, weaken or destroy plastic which may result in serious personal injury.

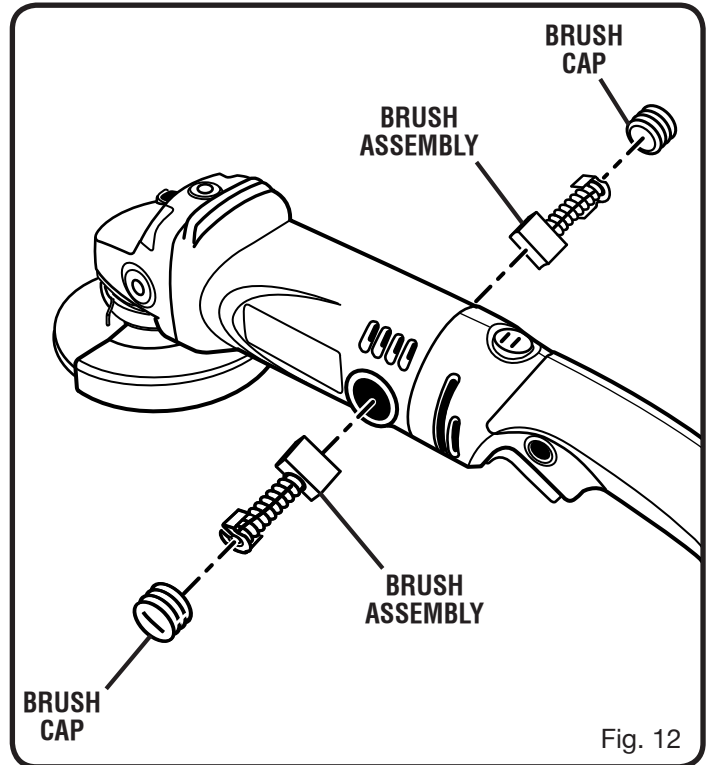
Electric tools used on fiberglass material, wallboard, spackling compounds, or plaster are subject to accelerated wear and possible premature failure because the fiberglass chips and grindings are highly abrasive to bearings, brushes, commutators, etc. Consequently, we do not recommend using this tool for extended work on these types of materials. However, if you do work with any of these materials, it is extremely important to clean the tool using compressed air.

LUBRICATION

All of the bearings in this tool are lubricated with a sufficient amount of high grade lubricant for the life of the unit under normal operating conditions. Therefore, no further lubrication is required.

⚠ WARNING:

To prevent accidental starting that could cause possible serious personal injury, turn off the tool, and unplug the angle grinder before performing any maintenance or adjustment.



BRUSH ASSEMBLIES

See Figure 12.

The angle grinder has externally accessible brush assemblies that should periodically be checked for wear.

To replace brushes:

- Unplug the angle grinder.
- Remove brush cap with a screwdriver. Brush assembly is spring loaded and will pop out when you remove brush cap.
- Remove brush assembly (brush and spring).
- Check for wear. If worn, always replace in pairs. Do not replace one side without replacing the other.
- Reassemble using new brush assemblies. Make sure curvature of brush matches curvature of motor and that brush moves freely in brush tube.
- Make sure brush cap is oriented correctly (straight) and replace.
- Tighten brush cap securely. Do not overtighten.

MAINTENANCE

GUARD REPLACEMENT

See Figure 13.

After extended use, the guard may become worn and need adjustment or replacing. Or, if you drop the angle grinder and damage the guard, it may be necessary to replace it.

To replace the guard:

- Unplug the angle grinder.
- Depress spindle lock button and rotate nut with provided wrench until spindle locks.
- Using the wrench provided, loosen and remove nut, grinding or accessory wheel, and disc flange from spindle if necessary.

NOTE: To prevent damage to the spindle or spindle lock, always allow motor to come to a complete stop before engaging spindle lock.

- Unlock the guard clamp lever.
- Remove the guard.
- Place the new guard on the shoulder of the bearing cap, aligning the arrow with the slot on the bottom of the angle grinder.

NOTE: If the new guard will not fit, loosen the clamp screw until it will slide over the bearing cap. Be sure the tabs on the guard are seated in the groove in the bearing cap.

- Rotate guard to the correct position as shown in figures 9 and 10.
- Lock the guard clamp lever.
- Tighten clamp screw securely if needed.

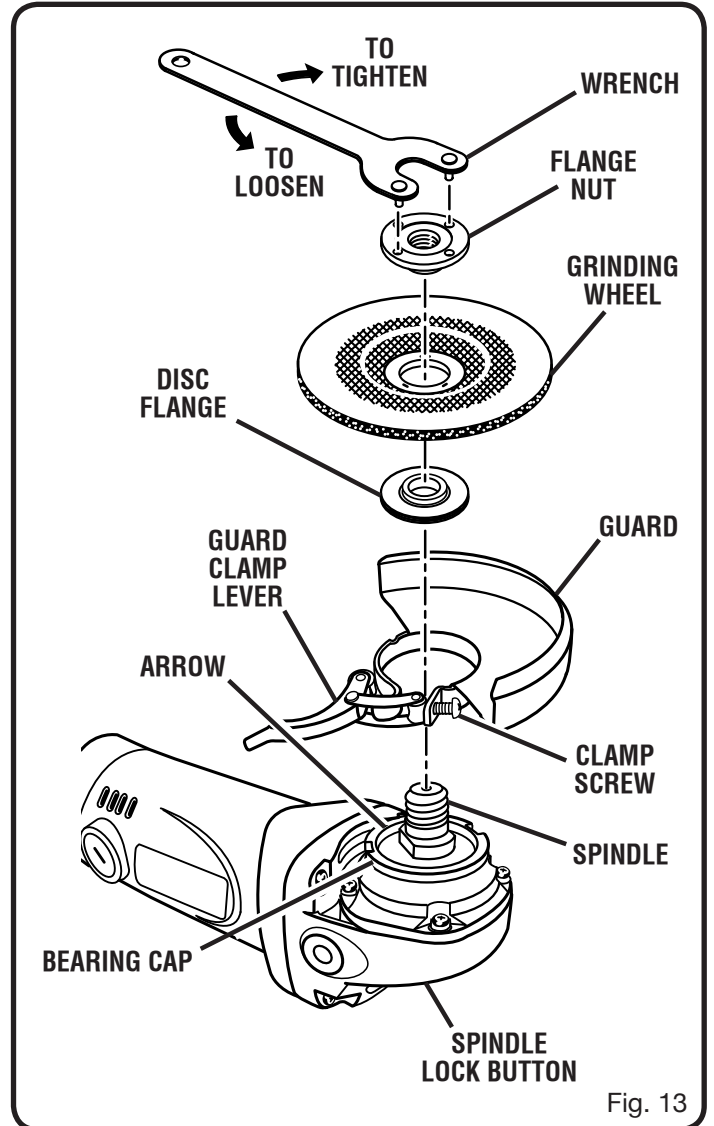


Fig. 13



OPERATOR'S MANUAL

4-1/2 in. ANGLE GRINDER

DOUBLE INSULATED

AG452

⚠ WARNING:

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- 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.

• SERVICE

Now that you have purchased your tool, should a need ever exist for repair parts or service, simply contact your nearest Authorized Service Center. Be sure to provide all pertinent facts when you call or visit. Please call 1-800-525-2579 for your nearest Authorized Service Center. You can also check our web site at www.ryobitools.com for a complete list of Authorized Service Centers.

• MODEL NO. AND SERIAL NO.

The model number of this tool will be found on a plate attached to the motor housing. Please record the model number and serial number in the space provided below.
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• HOW TO ORDER REPAIR PARTS

When ordering repair parts, always give the following information:

- MODEL NUMBER AG452
- SERIAL NUMBER _____

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