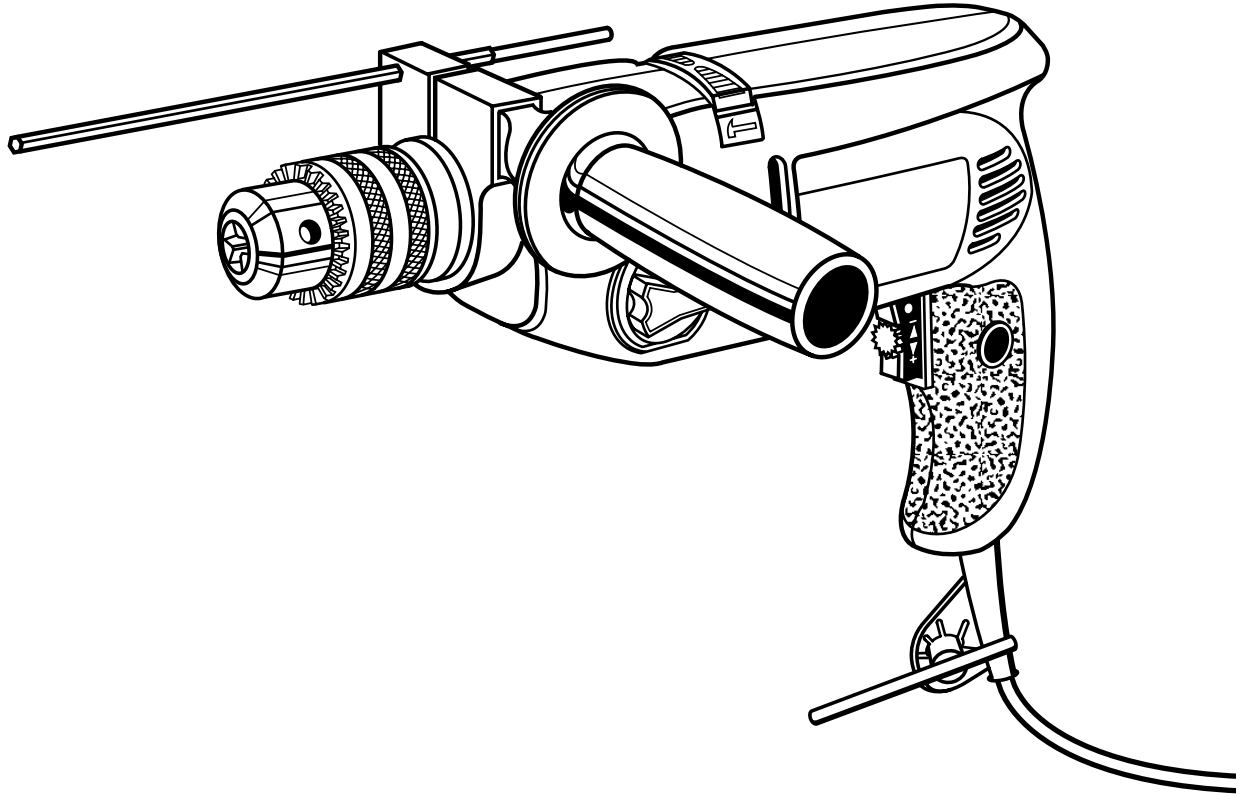




OPERATOR'S MANUAL

HD501 - 1/2 in. (13 mm) Hammer Drill

DOUBLE INSULATED



SPECIFICATIONS:	
Chuck Capacity	1/16 in. (1.5 mm) - 1/2 in. (13 mm)
Rating	120 volts, 60Hz, AC only, 5.5 Amperes
No Load Speed	0 - 1,000 & 0 - 3,000 RPM
Hammer Speed	0 - 48,000 BPM
Switch	Adjustable Variable Speed/Reversible

THANK YOU FOR BUYING A RYOBI HAMMER DRILL.

Your new hammer drill has been engineered and manufactured to Ryobi's high standard for dependability, ease of operation, and operator safety. Properly cared for, it will give you years of rugged, trouble-free performance.

CAUTION: Carefully read through this entire operator's manual before using your new hammer drill.

Pay close attention to the Rules for Safe Operation, Warnings, and Cautions. If you use your hammer drill properly and only for what it is intended, you will enjoy years of safe, reliable service.

Please fill out and return the Warranty Registration Card so we can be of future service to you.

Thank you again for buying Ryobi tools.

SAVE THIS MANUAL FOR FUTURE REFERENCE

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INTRODUCTION

DOUBLE INSULATION

Your Ryobi power tool is double insulated. This means you are separated from the tool's electrical system by two complete sets of electrical insulation. This extra layer of insulation is intended to protect the user from electrical shock due to a break in the wiring insulation. 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 wiring. Observe all normal safety precautions related to avoiding electrical shock.

IMPORTANT

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 **RYOBI AUTHORIZED SERVICE CENTER** for repair. When servicing use only identical Ryobi replacement parts.



WARNING:

Do not attempt to operate this tool until you have read thoroughly and understand completely all instructions, safety rules, etc. contained in this manual. Failure to comply can result in accidents involving fire, electric shock, or serious personal injury. Save operator's manual and review frequently for continuing safe operation, and instructing others who may use this tool.



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 tool operation, always wear safety goggles or safety glasses with side shields and a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always wear eye protection which is marked to comply with ANSI Z87.1.



Look for this symbol to point out important safety precautions. It means attention!!! Your safety is involved.

RULES FOR SAFE OPERATION

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and the explanations with them, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

SYMBOL	MEANING
	SAFETY ALERT SYMBOL: Indicates danger, warning, or caution. May be used in conjunction with other symbols or pictographs.
	DANGER: Failure to obey a safety warning will result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.
	WARNING: Failure to obey a safety warning can result in serious injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.
	CAUTION: Failure to obey a safety warning may result in property damage or personal injury to yourself or to others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.
NOTE:	Advises you of information or instructions vital to the operation or maintenance of the equipment.

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NOTE:

Advises you of information or instructions vital to the operation or maintenance of the equipment.

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.

GENERAL SAFETY RULES

- **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, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.
- **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce risk of starting the tool accidentally.
- **Store idle tools out of 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.

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.

Service

- **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could 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 electric shock or injury.

SPECIFIC SAFETY RULES

Specific Safety Rules for Hammer Drills

- **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 tool "live" and shock the operator.

Additional Rules for Safe Operation

- **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 with side shields.** Everyday eyeglasses have only impact resistant lenses; they are **NOT** safety glasses.
- **Protect your lungs.** Wear a face or dust mask if the operation is dusty.
- **Protect your hearing.** Wear hearing protection during extended periods of operation.
- **Inspect tool cords periodically** and if damaged, have repaired at your nearest authorized service center. Stay constantly aware of cord location.

- **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 electric shock, fire, or serious injury.
- **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.
- **Do not abuse cord. Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.** Following this rule will reduce the risk of electric shock or fire.
- **Inspect for and remove all foreign objects from workpiece before cutting.** Following this rule will reduce the risk of serious personal injury.

SPECIFIC SAFETY RULES

- **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 gage size (A.W.G.) of at least **12** is recommended for an extension cord 100 feet or less in length. A cord exceeding 100 feet is not recommended. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.
- **Drugs, Alcohol, Medication.** Do not operate tool while under the influence of drugs, alcohol, or any medication. Following this rule will reduce the risk of electric shock, fire, or serious injury.
- **Keep hands away from drilling area.** Following this rule will reduce the risk of serious personal injury.
- **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.



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.

SAVE THESE INSTRUCTIONS

SYMBOLS

Important: Some of the following symbols may be used on your 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 or a characteristic of current
n_0	No Load Speed	Strokes, at no load
	Class II Construction	Designates Double Insulated Construction tools
.../min	Revolutions or Reciprocation Per Minute	Revolutions, strokes, surface speed, orbits etc. per minute
	Safety Alert Symbol	Indicates danger, warning or caution. It means attention!!! Your safety is involved.

ELECTRICAL

EXTENSION CORDS

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

Length of Extension Cord	Wire Size (A.W.G.)
--------------------------	--------------------

Up to 25 feet	16
26 to 50 feet	14
51 to 100 feet	12

When working with the tool outdoors, use an extension cord that is designed for outside use. This is indicated by the letters **WA** on the cord's jacket.

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

ELECTRICAL CONNECTION

Your hammer drill has a precision built electric motor. It should be connected to a **power supply that is 120 volts, 60Hz, 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 over heat. If your tool does not operate when plugged into an outlet, double-check the power supply.



CAUTION:

Keep the cord away from the work area and position the cord so that it may not get caught on materials or other objects during drilling.

UNPACKING

Your hammer drill has been shipped completely assembled and ready for use. Inspect it carefully to make sure no breakage or damage has occurred during shipping.

If any parts are damaged or missing, call 1-800-525-2579 to obtain replacement parts before attempting to operate tool. An operator's manual and warranty registration are also included.

PACKING LIST

Hammer Drill with Auxiliary Handle Assembly
Carrying Case
Operator's Manual
Warranty Registration Card



WARNING:

If any parts are missing do not operate your hammer drill until the missing parts are replaced. Failure to do so could result in possible serious injury.

FEATURES

KNOW YOUR HAMMER DRILL

See Figure 1.

Before attempting to use your hammer drill, familiarize yourself with all operating features and safety requirements.



WARNING:

Do not allow familiarity with your hammer drill to make you careless. Remember that a careless fraction of second is sufficient to inflict severe injury.

APPLICATIONS

(Use only for the purposes listed below)

- Hammer drilling in concrete and masonry.
- Drilling in wood.
- Drilling in ceramics, plastics, fiberglass, and laminates.
- Drilling in both hard and soft metals.
- Using driving accessories, such as driving screws with screwdriver bits.
- Mixing paints.

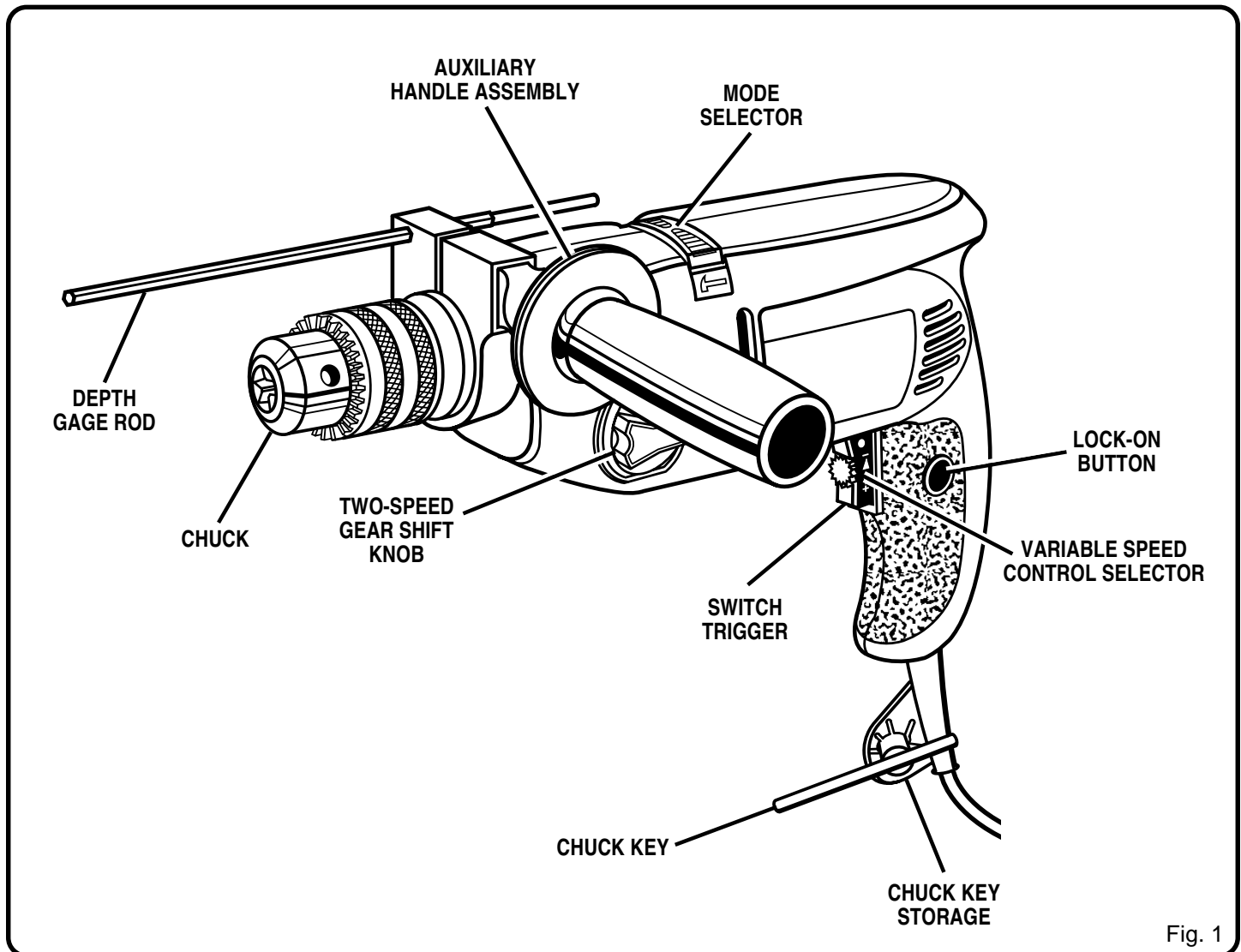


Fig. 1

OPERATION

SWITCH

See Figure 2.

To turn your hammer drill **ON**, depress the switch trigger. Release switch trigger to turn your hammer drill **OFF**.

LOCK-ON BUTTON

See Figure 2.

Your hammer drill is equipped with a "lock-on" feature, which is convenient when continuous drilling for extended periods of time is required. To lock-on, depress the switch trigger, push in and hold the lock-on button located on the side of the handle, then release switch trigger. Release lock-on button and your drill will continue running. To release the lock, depress the switch trigger and release it.

If you have the "lock-on" feature engaged during use and your drill becomes disconnected from power supply, disengage the "lock-on" feature immediately.



WARNING:

Before connecting your hammer drill to power supply source, always check to be sure it is not in "lock-on" position (depress and release switch trigger). Failure to do so could result in accidental starting of your drill resulting in possible serious injury. Also, do not lock the trigger on jobs where your drill may need to be stopped suddenly.

REVERSIBLE

See Figure 3.

Your hammer drill has the feature of being reversible in the drill mode. The direction of chuck rotation is controlled by a lever located above the switch trigger. With your drill held in normal operating position, the direction of rotation lever should be positioned to the left of the switch for drilling operation. The direction of rotation is reversed when the lever is to the right of the switch.

The design of the switch will not permit changing the direction of rotation while the drill is running. Release the switch trigger and allow the drill to stop before changing its direction.

NOTE: Your hammer drill will not run unless switch lever is pushed fully to the left or right.



CAUTION:

Your hammer drill has not been designed for reverse hammering. Failure to obey this warning may result in property damage.

CHUCK KEY

See Figure 4.

A chuck key has been provided for use when installing or removing bits. It is also used when removing the chuck. (See chuck removal section).

CHUCK KEY STORAGE

See Figure 4.

When not in use, the chuck key can be placed in the storage on the cord.

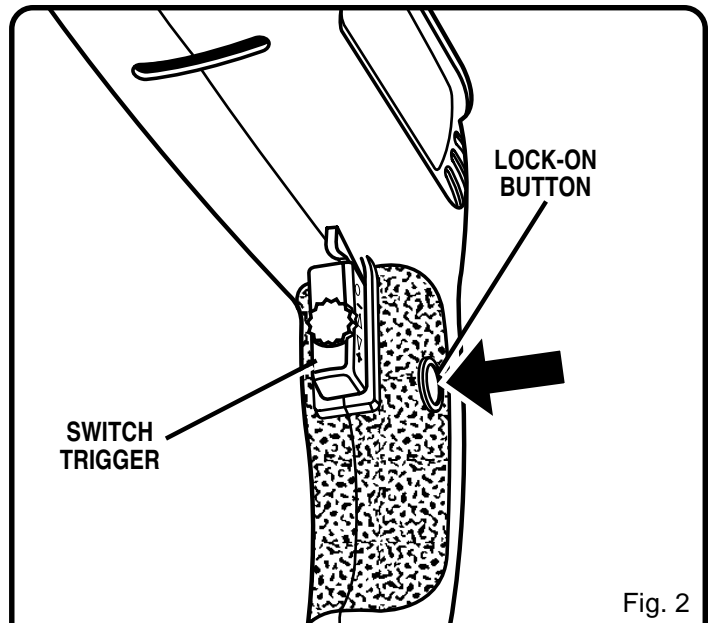


Fig. 2

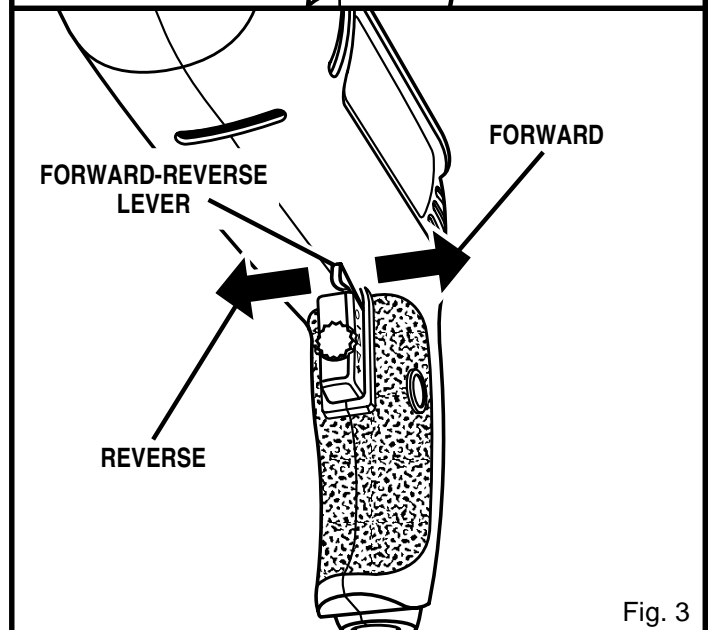


Fig. 3

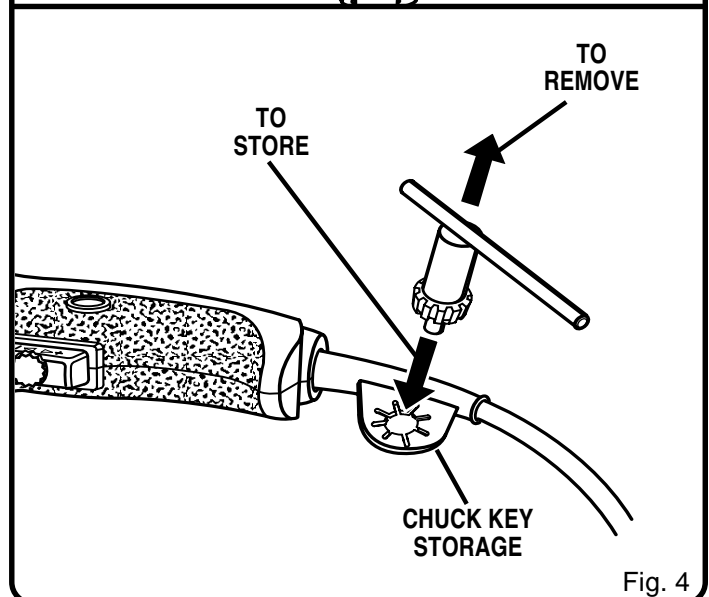


Fig. 4

OPERATION

VARIABLE SPEED

See Figure 5.

Your hammer drill has a variable speed control selector designed to allow operator control and adjustment of speed and torque limits. Speed and torque can be increased or decreased by rotating the variable speed control selector in the direction of the arrows shown in figure 5.

NOTE: Hold your hammer drill in normal operating position and turn the variable speed control selector counterclockwise to increase the speed and torque of your hammer drill. Turn clockwise to decrease the speed and torque of your hammer drill.

If you desire to lock the switch on at a given speed, depress the switch trigger, push in and hold the lock-on button, and release the switch trigger. Next, adjust the variable speed control selector until the desired speed is reached.

NOTE: If the variable speed control selector is fully turned in the clockwise direction (zero setting) your drill may not run. If you desire not to use the variable speed control selector, turn it in the full counterclockwise direction. This will allow the speed of your drill to be fully controlled by the amount of switch trigger depression.

Avoid running your hammer drill at low speeds for extended periods of time. Running at low speeds under constant usage may cause your drill to become overheated. If this occurs, cool your drill by running it without a load and at full speed.

The following guidelines may be used in determining correct speed for various applications:

LOW speed is ideal when minimum speed and power is required. For example: starting holes without center punching, driving screws, mixing paint, and drilling in ceramics.

MEDIUM speed is suitable for drilling hard metals, plastics, and laminates.

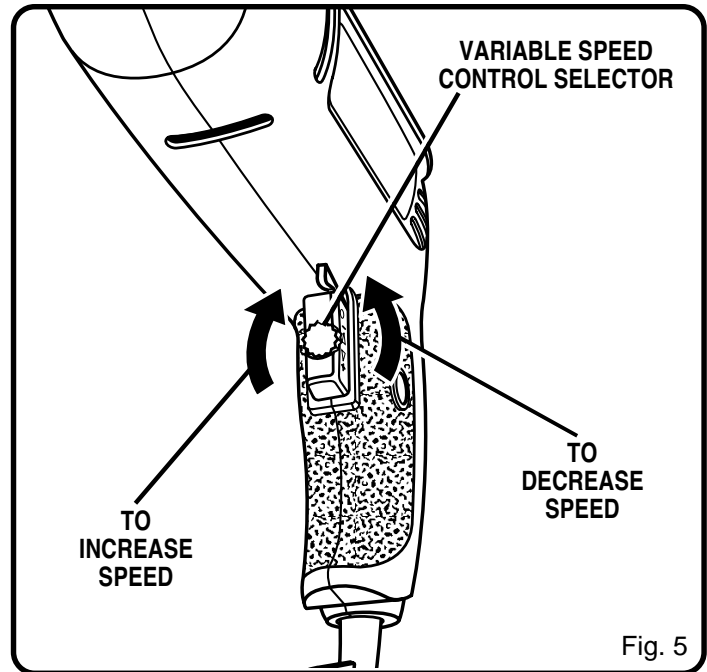
HIGH speed produces best results when maximum power is required. For example: drilling in wood, soft metals such as aluminum, brass, and copper, and when using driving accessories.

AUXILIARY HANDLE ASSEMBLY

See Figure 6.

An auxiliary handle assembly has been installed on your hammer drill. For ease of operation, this auxiliary handle assembly may be used in either the left-hand or right-hand position.

- To adjust, loosen the auxiliary handle assembly by turning the handle counterclockwise.
- Rotate auxiliary handle assembly to desired operating position.
- Securely tighten by turning the auxiliary handle clockwise.



OPERATION

USING DEPTH GAGE ROD

See Figure 6.

A depth gage rod has been installed on your hammer drill to assist you in controlling the depth of drilled holes.

- Adjust depth gage rod so that the drill bit extends beyond the end of the rod to the required drilling depth.
- Securely tighten auxiliary handle. This secures depth gage rod at desired depth of cut. It also secures auxiliary handle assembly.

When drilling holes with the depth gage rod installed, the desired hole depth has been reached when the end of the rod comes in contact with the surface of the material being drilled.

TO ADJUST DRILLING MODE

See Figure 7.

To adjust for type of drilling, slide mode selector on top of motor housing left to hammer mode or right to drilling mode. For your convenience a hammer symbol and drill bit symbol have been molded into motor housing.



CAUTION:

Your hammer drill has not been designed for reverse hammering. Failure to obey this warning may result in property damage.

We recommend that you use carbide-tipped bits and select hammer mode when drilling in hard materials such as brick, tile, concrete, etc.

We recommend that you select normal drill mode when drilling with twist drills, hole saws, etc. in soft materials.

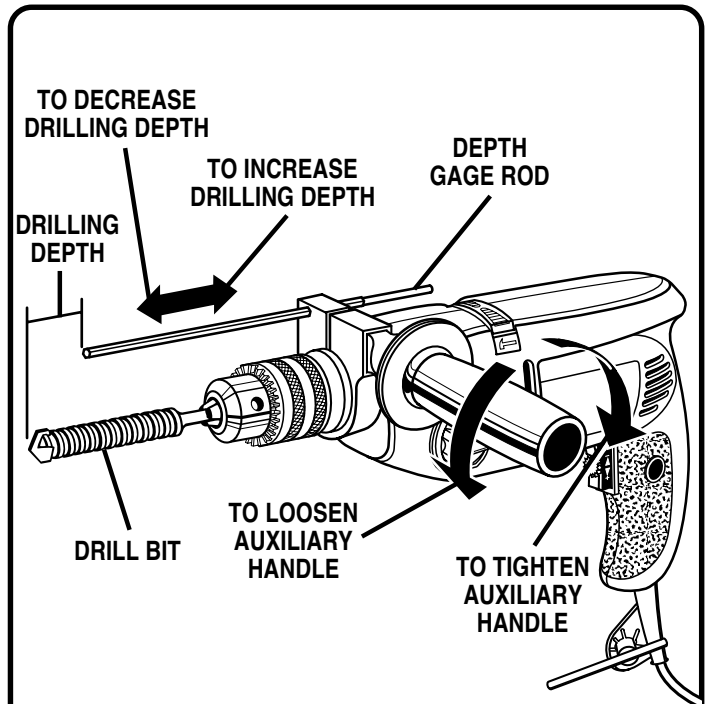


Fig. 6

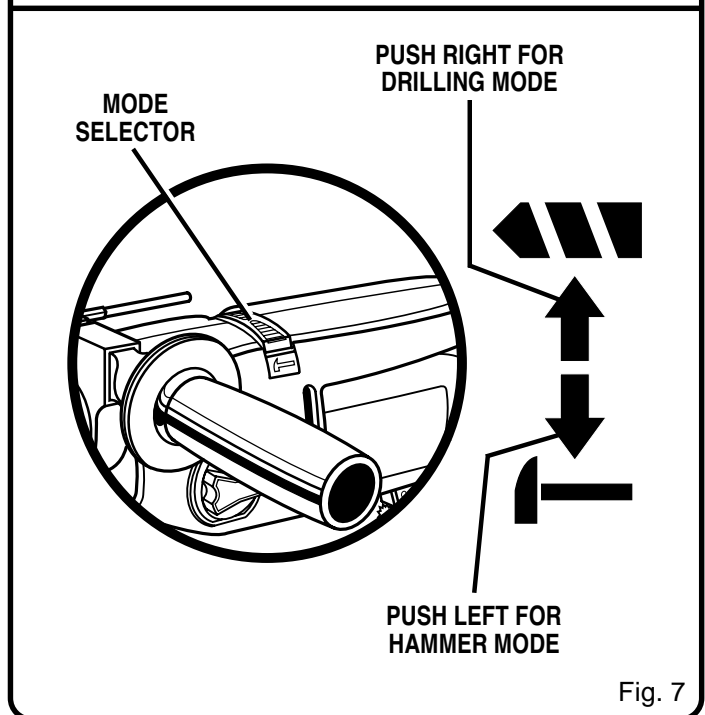


Fig. 7

OPERATION

WARNING:

Your hammer drill should never be connected to power supply when you are assembling parts, making adjustments, installing or removing drill bits, or when not in use. Disconnecting your drill will prevent accidental starting that could cause serious injury.

TO INSTALL BITS

See Figure 8.

■ UNPLUG YOUR HAMMER DRILL.

WARNING:

Failure to unplug your hammer drill could result in accidental starting causing serious injury.

- Open or close the chuck jaws to a point where the opening is slightly larger than the drill bit you intend to use. Also, raise the front of your drill slightly to keep the drill bits from falling out of the chuck jaws.
- Insert drill bit into chuck the full length of the jaws.

WARNING:

Do not insert drill bit into chuck jaws and tighten as shown in figure 9. This could cause drill bit to be thrown from your drill resulting in possible serious personal injury or damage to your chuck.

- Tighten the chuck jaws securely on drill bit, using only the chuck key provided. **Do not use a wrench to tighten or loosen the chuck jaws.**
- Remove chuck key and return to storage area.

TO REMOVE BITS

■ UNPLUG YOUR HAMMER DRILL.

WARNING:

Failure to unplug your hammer drill could result in accidental starting causing serious injury.

- Loosen the chuck jaws using only the chuck key provided. **Do not use a wrench to tighten or loosen the chuck jaws.**
- Remove drill bit from chuck jaws.
- Remove chuck key and return to storage area.

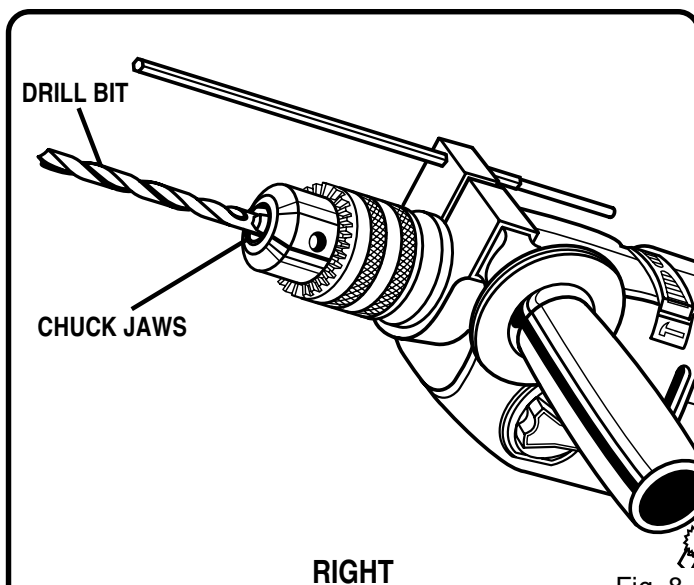


Fig. 8

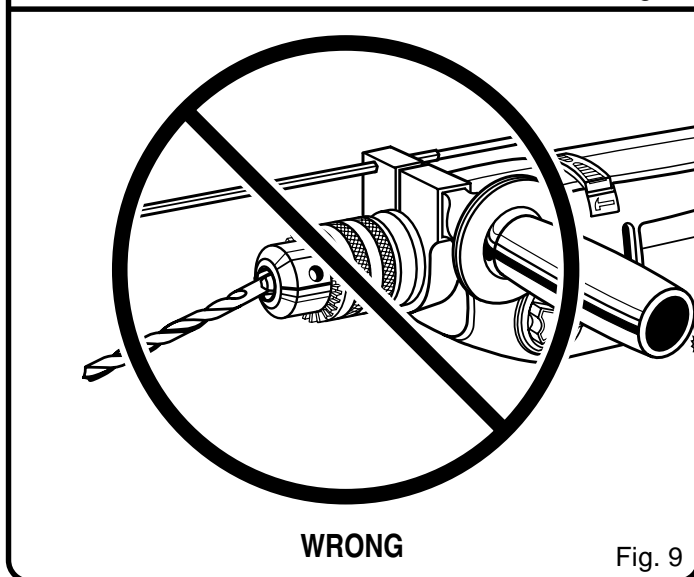


Fig. 9

OPERATION

TWO-SPEED GEAR SHIFT KNOB

See Figure 10.

The hammer drill has a two-speed gear shift knob which provides a high speed of approximately 3,000 RPM and a low speed of approximately 1,000 RPM (stated speeds are with the trigger switch in "Full-On" position).



WARNING:

Failure to unplug your hammer drill could result in accidental starting causing serious injury.

For high speed operation, rotate two-speed gear shift knob clockwise aligning "2" with indicating mark on knob. For low speed operation, rotate knob counterclockwise aligning "1" with the indicating mark on knob. It may be necessary to rotate the chuck by hand while rotating knob.

DO NOT SHIFT SPEEDS WHILE TOOL IS RUNNING.



WARNING:

Always wear safety goggles or safety glasses with side shields when operating hammer drill. Failure to do so could result in dust, shavings, or loose particles being thrown into your eyes, resulting in possible serious injury.

DRILLING

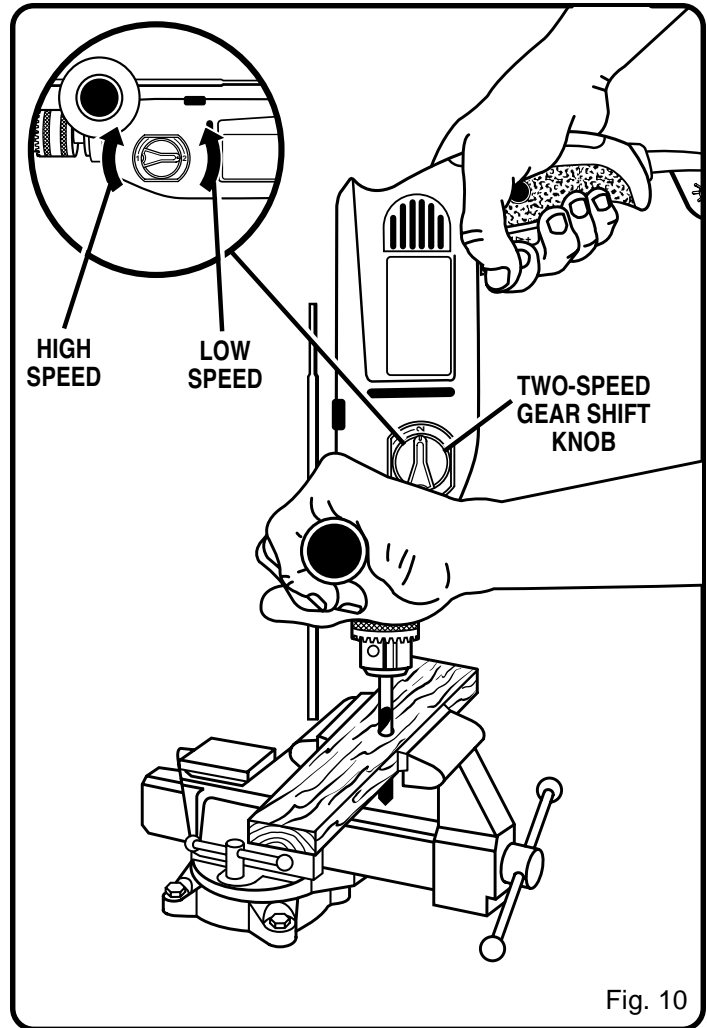
See Figure 10.

- Depress and release the switch trigger to be sure your drill is in **OFF** position before connecting it to power supply.
- Check the direction of rotation lever for correct setting (forward or reverse). See Figure 3, Page 8.
- Secure the material to be drilled in a vise or with clamps to keep it from turning as the drill bit rotates.
- Plug your hammer drill into power supply source.
- Hold your drill firmly and place the bit at the point to be drilled.
- Depress the switch trigger to start your drill. Do not lock the switch **ON** for jobs where your drill may need to be stopped suddenly.
- Move the drill bit into the workpiece applying only enough pressure to keep the bit cutting. Do not force your drill or apply side pressure to elongate a hole. Let your drill and bit do the work. See Figure 10.



WARNING:

Be prepared for binding or breakthrough. When these situations occur, drill has a tendency to grab and kick in the opposite direction and could cause loss of control when breaking through material. If not prepared, this loss of control can result in possible serious injury.



When drilling hard, smooth surfaces use a center punch to mark the desired hole location. This will prevent the drill bit from slipping off center as the hole is started. However, the variable speed feature allows starting holes without center punching if desired. To accomplish this, operate your drill at a low speed until the hole is started.

When drilling metals use a light oil on the drill bit to keep it from overheating. The oil will prolong the life of the bit and increase the drilling action.

If the bit jams in the workpiece or if your drill stalls, stop the tool immediately. Remove the bit from the workpiece and determine the reason for jamming.

OPERATION

CHUCK REMOVAL

See Figures 11, 12, and 13.

Whenever necessary to remove the chuck for replacement, use the following procedure for chuck removal:

■ UNPLUG YOUR HAMMER DRILL.



WARNING:

Failure to unplug your hammer drill could result in accidental starting causing serious injury.

- Open chuck jaws. Insert a 5/16 in. (8 mm) or larger hex key into the chuck of your drill and tighten the chuck jaws securely.
- Tap the hex key sharply with a mallet in a clockwise direction. See Figure 11. This will loosen the chuck screw for removal.
- Open the chuck jaws and remove hex key. Remove the chuck screw by turning it in a clockwise direction. See Figure 12.

NOTE: The chuck screw has left hand threads.

- Insert hex key in chuck and tighten chuck jaws securely. Tap sharply with a mallet in a counterclockwise direction. This will loosen the chuck on the spindle. It can now be unscrewed by hand. See Figure 13.

TO RETIGHTEN A LOOSE CHUCK

The chuck may at times become loose on the spindle and develop a wobble. Also, the chuck screw may become loose causing the chuck jaws to bind and prevent them from closing. To tighten, follow these steps:

■ UNPLUG YOUR HAMMER DRILL.



WARNING:

Failure to unplug your hammer drill could result in accidental starting causing serious injury.

- Insert hex key into chuck and tighten chuck jaws securely. Tap hex key sharply with a mallet in a clockwise direction. This will tighten the chuck on the spindle. See Figure 11.
- Open the chuck jaws and remove hex key.
- Tighten the chuck screw.

NOTE: The chuck screw has left hand threads. See Figure 12.

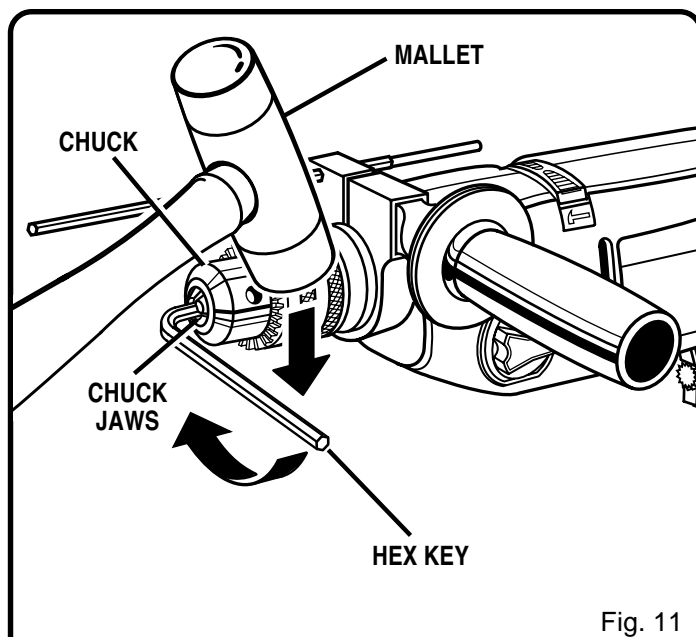


Fig. 11

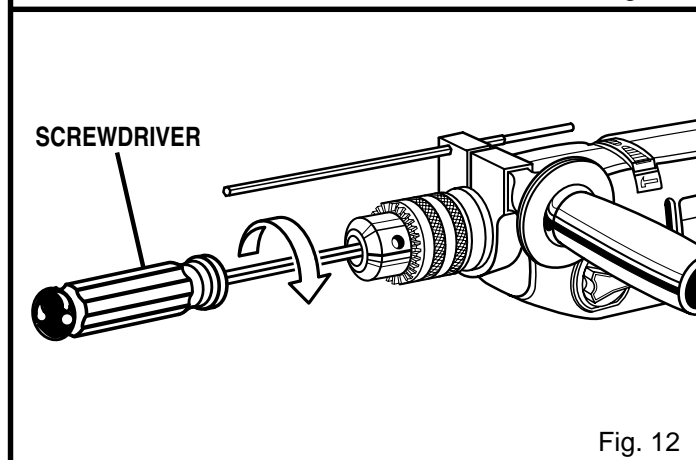


Fig. 12

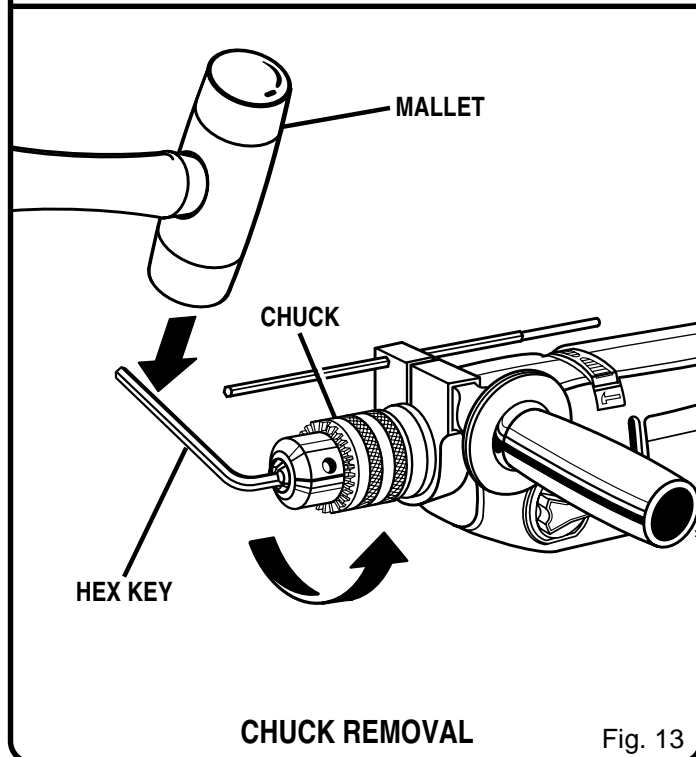


Fig. 13

MAINTENANCE



WARNING:

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

GENERAL

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, carbon dust, etc.



WARNING:

Do not at any time let brake fluids, gasoline, petroleum-based products, penetrating oils, etc. come in contact with plastic parts. They contain chemicals that can damage, weaken, or destroy plastic.

EXTENSION CORDS

The use of any extension cord will cause some loss of power. To keep the loss to a minimum and to prevent tool from overheating, use an extension cord that is heavy enough to carry the current the tool will draw.

A wire gage size (A.W.G.) of at least **16** is recommended for an extension cord 100 feet or less in length. When working outdoors, use an extension cord that is suitable for outdoor use. The cord's jacket will be marked **WA**.



CAUTION:

Keep extension cords away from the drilling area and position the cord so that it will not get caught on lumber, tools, etc., during drilling operation.

When electric tools are used on fiberglass boats, sports cars, wallboard, spackling compounds, or plaster, it has been found that they are subject to accelerated wear and possible premature failure, as the fiberglass chips and grindings are highly abrasive to bearings, brushes, commutators, etc. Consequently it is not recommended that this tool be used for extended work on any fiberglass material, wallboard, spackling compounds, or plaster. During any use on fiberglass it is extremely important that the tool is cleaned frequently by blowing with an air jet.



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.



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.



WARNING:

Do not use this product as a component of other products. Also, do not use attachments or accessories not recommended for use with this product. Any such use could result in possible serious personal injury.

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.

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