

MACHO[®]
ROTARY HAMMERS

Instruction Manual

5093 • 5095 • 5096 • 5097 • 5097-220 • 5098 • 5099

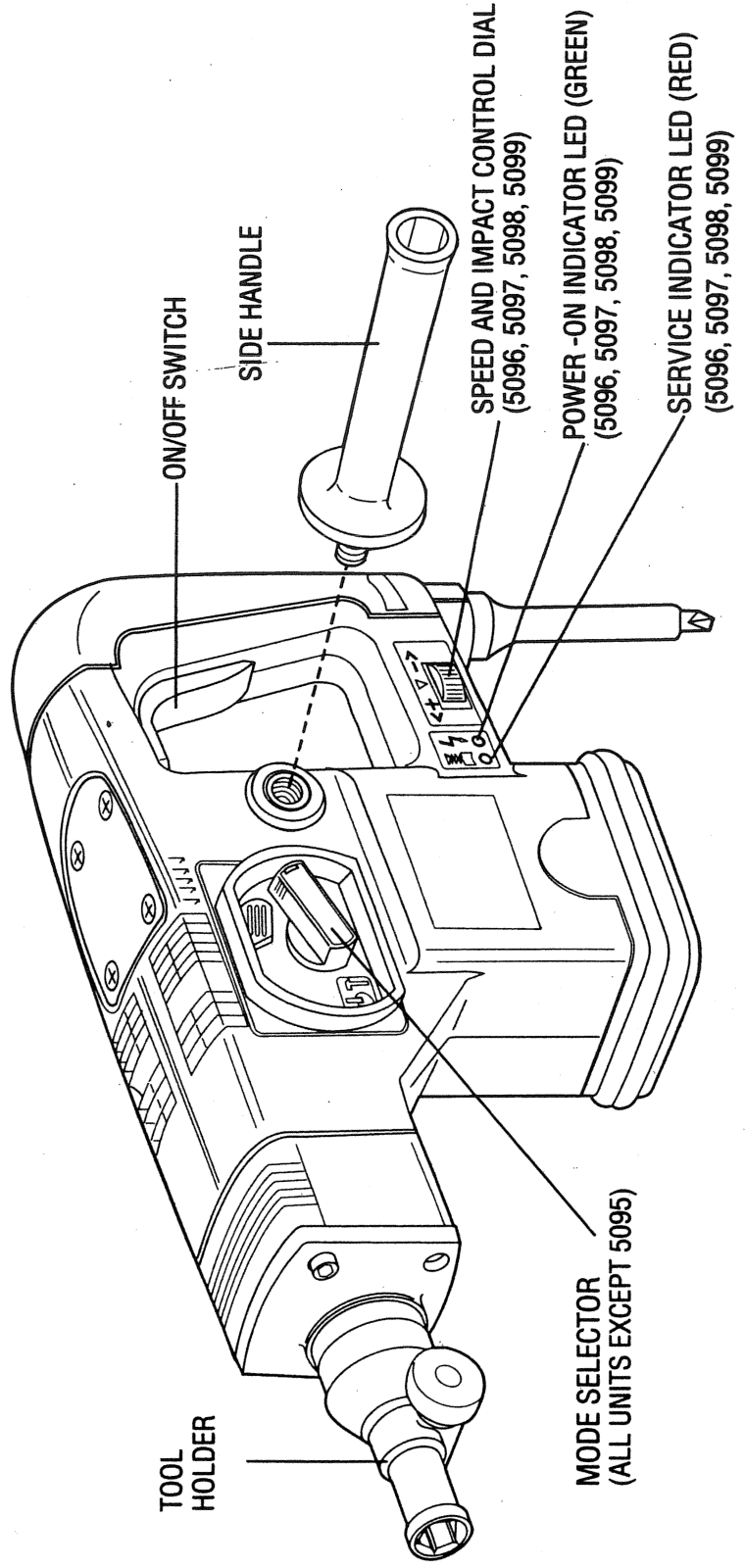
Rotary Hammers

Getting the most out of your tool.

Please take time to read this manual and pay particular attention to the safety rules we've provided for your protection. Don't forget to send in your owner's registration card. If you have any questions about your tool please call:

1-800-9-BD TOOL
(1-800-923-8665)

Model	Bit Type	Stop Rotation	Electronics	Capacity	Core
5093 Macho™ SR	Spline	yes	no	1-1/2"	3-1/2"
5095 Macho™ S	Spline	no	no	1-1/2"	3-1/2"
5096 Macho™ SE	Spline	yes	yes	1-1/2"	3-1/2"
5097-220 Macho™ ME	SDS Max	yes	yes	1-1/2"	3-1/2"
5097 Macho™ ME	SDS Max	yes	yes	1-1/2"	3-1/2"
5098 Macho™ XSE	Spline	yes	yes	1-3/4"	4"
5099 Macho™ XME	SDS Max	yes	yes	1-3/4"	4"



FOR YOUR SAFETY - ALL TOOLS

WARNING: When using electric tools, basic safety precautions should always be followed to reduce risk of fire, electric shock, and personal injury, including the following:

READ ALL INSTRUCTIONS.

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries
2. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
3. **CONSIDER WORK AREA ENVIRONMENT.** Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit.
4. **KEEP CHILDREN AWAY.** All visitors should be kept away from work area. Do not let visitors contact tool.
5. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place – out of reach of children.
6. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
7. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended, for example, don't use circular saw for cutting tree limbs or logs.
8. **DRESS PROPERLY.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Non-skid footwear is recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **USE SAFETY GLASSES.** Also use face or dustmask if operation is dusty.
10. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
11. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.

12. **DON'T OVERREACH.** Keep proper footing and balance at all times.
13. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safe performance. Follow instructions for lubricating and changing accessories. Keep handles dry, clean, and free from oil and grease.
14. **DISCONNECT TOOLS** when not in use, before servicing, and when changing accessories.
15. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
16. **AVOID UNINTENTIONAL STARTING.** Don't carry plugged in tool with finger on switch. Be sure switch is off when plugging in.
17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **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 by an authorized service center unless otherwise indicated in this manual. Have defective switches replaced by authorized service center. Don't use tool if switch does not turn it on and off.
20. **DO NOT OPERATE** portable electric tools near flammable liquids or in gaseous or explosive atmospheres. Motors in these tools normally spark, and the sparks might ignite fumes.

SAVE THESE INSTRUCTIONS FOR FUTURE USE

SAFETY INSTRUCTIONS- ROTARY HAMMERS

1. **WEAR SAFETY GOGGLES** or other eye protection.
2. **WEAR EAR PROTECTORS** when hammering for extended periods.
3. **ALWAYS USE THE SIDE HANDLE** supplied with the tool. Keep a firm grip on the hammer when it is operating.
4. **DON'T OVERREACH.** Maintain a firm, balanced working stance. When necessary, use only properly positioned, safe platforms, ladders and scaffolds, to do the job safely.
5. Hammer bits and tools get hot in operation. Wear gloves when touching them.
6. **CAUTION:** When drilling or driving into walls, floors or wherever "live" electrical wires may be encountered, **DO NOT TOUCH ANY FRONT METAL PARTS OF THE TOOL!** Hold the tool only by the plastic handle to prevent shock if you drill or drive into a "live" wire.

SAVE THESE INSTRUCTIONS FOR FUTURE USE

Motor

Your tool is powered by a B&D built motor. Be sure your power supply agrees with nameplate marking.

Voltage decrease of more than 10% will cause loss of power and overheating. All B&D tools are factory tested; if this tool does not operate, check the power supply.

Grounding

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal.

If your unit is intended for use on less than 150 volts, it has a plug similar to that shown in Figure A. An adapter, Figures B and C, is available for connecting Figure A plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., must be connected to a permanent ground such as a properly grounded outlet box. Whenever the adapter is used, it must be held in place by a metal screw.

NOTE: No adapter is available for 220V plugs (5097-220).

ADAPTER SHOWN IN FIGURES B and C IS NOT FOR USE IN CANADA.

Warning: Improper connection of the equipment grounding conductor can result in the risk of electric shock. Check with a qualified electrician or service person if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the appliance. If it will not fit the outlet, a proper outlet must be installed by a qualified electrician.

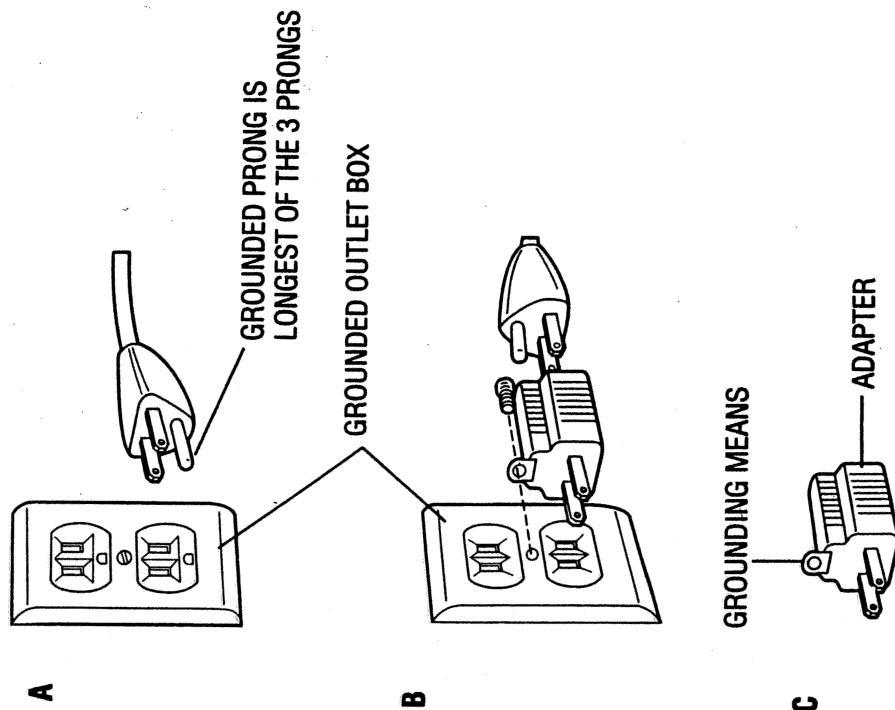
We recommend that you never disassemble the tool or try to do any rewiring in the electrical system. Any repairs should be performed only by authorized service centers. Should you be determined to make a repair yourself, remember that the green colored wire is the grounding wire. Never connect this green wire to a live terminal. If you replace the plug on the power cord, be sure to connect the green wire only to the grounding (longest) prong on a three-prong plug. Never remove the grounding prong.

Extension Cords

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. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table 1 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

Table 1
Minimum Gage for Cord Sets
Total Length of Cord in Feet

Volts	Minimum Gage for Cord Sets Total Length of Cord in Feet		AWG
	0-25	26-50	
120V	0-25	26-50	16
240V	0-50	51-100	16
Ampere Rating More Than	Not more Than	0-25	18
		26-50	18
		51-100	16
10	12	16	14
12	16	14	Not Recommended



Side Handle and Depth Rod

For operating convenience, the side handle can be installed in front or rear positions. ALWAYS OPERATE THE TOOL WITH THE SIDE HANDLE PROPERLY ASSEMBLED.

To mount in front position (FIGURE 1)

1. Unscrew the side handle and disassemble the side handle clamp.
2. Snap the steel ring over the collar behind the tool holder. Squeeze both ends together, mount the bush and insert the pin.
3. Place the side handle clamp and screw on the clamp knob. Do not tighten.
4. Insert adjustable depth rod into hole.
5. Screw the side handle into the clamp knob and tighten it.
6. Rotate the side handle mounting assembly to the desired position. For drilling horizontally with a heavy drill bit, place the side handle assembly at an angle of approximately 20° for optimum control.
7. Lock the side handle mounting assembly in place by tightening the clamp knob.

To mount in rear position (FIGURE 2)

1. Unscrew the side handle and remove it from the front position. Leave the side handle mounting assembly in front position so that the depth adjustment rod can still be used.
2. Screw the side handle directly into one of the rear side handle positions on either side of the tool.

FIGURE 1

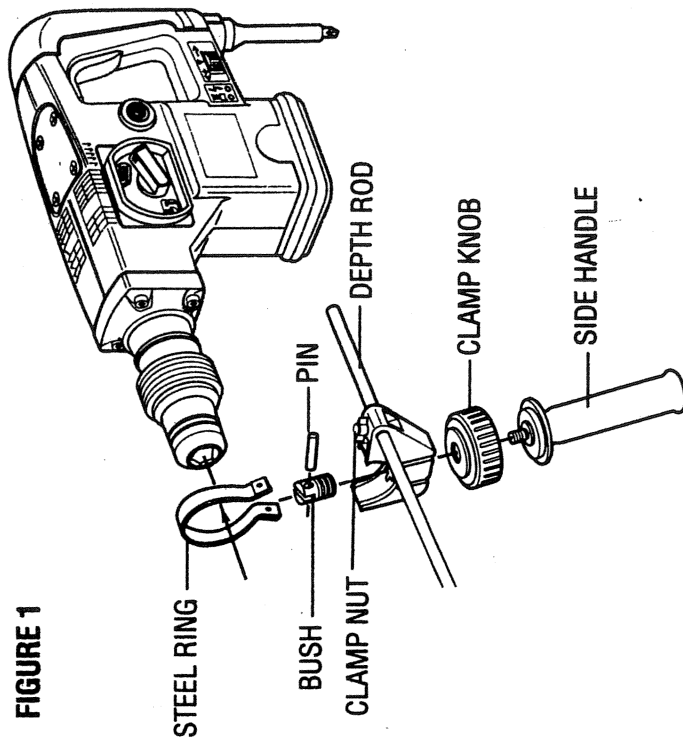
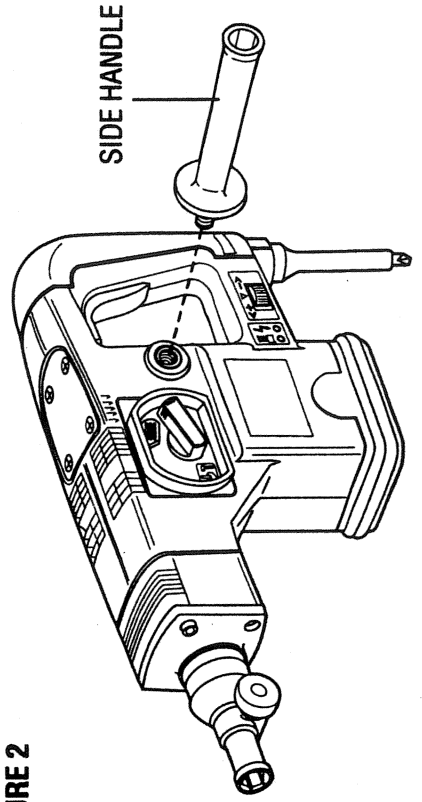


FIGURE 2



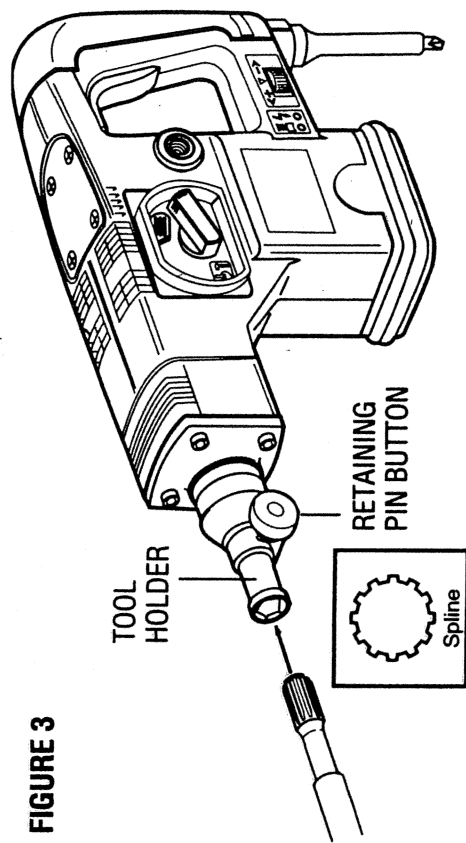


FIGURE 3

- To adjust the depth rod**
1. Loosen clamp nut and insert bit into tool holder.
 2. Push drill bit into a surface and adjust rod to desired depth of hole (distance between bit tip and depth rod tip).
 3. Tighten clamp nut.

NOTE: This adjustment can be made with or without side handle in place.

Inserting and Removing Spline Drive Accessories

FIGURE 3 : (5093, 5095, 5096, 5098)

TURN OFF TOOL AND DISCONNECT FROM POWER SUPPLY.

1. Unlock the tool holder by pushing the retaining pin button and holding it in.
2. Insert the bit shank into the tool holder as far as it will go.
3. Release the retaining pin button.
4. Pull on the bit to check if it is properly locked.
5. To remove a bit unlock the tool holder as described above.

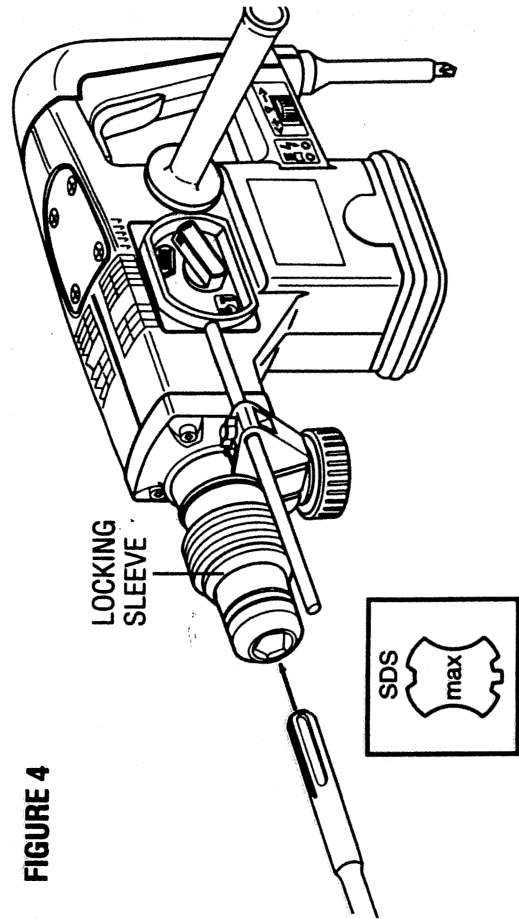


FIGURE 4

Inserting and Removing SDS-max Accessories

FIGURE 4: (5097 and 5099)

TURN OFF TOOL AND DISCONNECT FROM POWER SUPPLY.

1. Pull back the tool holder locking sleeve and insert the bit shank.
2. Turn the bit slightly until the sleeve snaps back in position.
3. Pull on the bit to check if it is properly locked. The hammering function requires the bit to be able to move axially several centimeters when locked in the tool holder.
4. To remove bit, pull back the tool holder locking sleeve and pull the bit out of the tool holder.

Soft Start Feature (5096, 5097, 5098, 5099)

The soft start feature allows you to build up speed slowly, thus preventing the drill bit from walking off the intended hole position when starting. The soft start feature also reduces the immediate torque reaction transmitted to the gearing and the operator if the hammer is started with the drill bit in an existing hole.

Torque Limiting Clutch

All rotary hammers are equipped with a torque limiting clutch that reduces the maximum torque reaction transmitted to the operator in the case of a jamming drill bit. This feature also prevents the gearing and motor from stalling. The torque limiting clutch has been factory set and cannot be adjusted.

Electronic Speed and Impact Control (5096, 5097, 5098, 5099)

(FIGURE 5) The electronic speed and impact control allows the use of smaller drill bits without the risk of bit breakage, drilling into light and brittle materials without shattering, and optimal tool control for precise chiseling. *To set the control dial.* Turn the dial to the desired level. The higher the number, the greater the speed and impact energy. With dial settings from "1" to "5" (full power) the tool is extremely flexible and adaptable for many different applications. The required setting depends on the bit size and hardness of material being drilled.

Mode Selector

(FIGURE 6) Your rotary hammer (all units except 5095) can be used in two operating modes: *Hammer drilling* (simultaneous rotating and impacting for all concrete and masonry drilling operations) and *Hammering only with spindle lock* (impacting only- for light chipping, chiseling, and demolition applications). The chisel can be locked into 8 different positions.

FIGURE 5

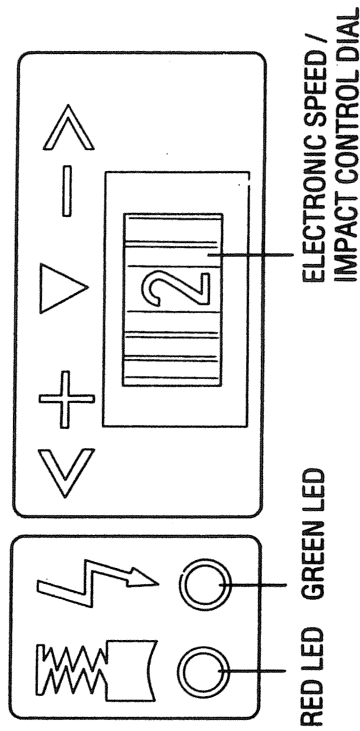
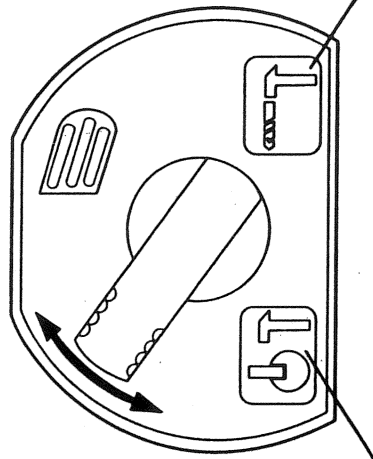


FIGURE 6
HAMMER ONLY WITH SPINDLE LOCK
HAMMER DRILL



NOTE: Also in this mode, the hammer can also be used as a lever to free a jammed drill bit.

To select the *required operating mode*, rotate the selector lever over the safety lock until it covers the symbol.

Service and Power Indicator LEDs (5096, 5097, 5098, 5099)

(FIGURE 5) The RED service indicator LED lights up when the carbon brushes are nearly worn out to indicate that the tool needs servicing. After approximately 8 hours of use the motor will automatically be shut off. Take the tool to a B&D service location for routine inspection and maintenance.

The GREEN power-ON indicator LED lights up when the tool is switched ON. If the indicator LED is lit but the tool does not start, this indicates a motor related problem. If the indicator LED does not light up and the tool does not start, this indicates an ON/OFF switch or cord related problem.

Drilling with a Solid Bit

1. Set the speed and impact control dial (5096, 5097, 5098, 5099).
2. Set the model selector to the "hammer drilling" position (for all units except 5095).
3. Insert the appropriate drill bit.
4. Fit and adjust the side handle.
5. If necessary, set the drilling depth rod.
6. Mark the spot where the hole is to be drilled.
7. Place the drill bit on the spot and press the ON/OFF switch.
8. Push with only enough force until hammer beats smoothly. The hammer only needs enough pressure or force to engage the mechanism. Pushing harder will not make the hammer drill faster.

9. To stop the tool, release the ON/OFF switch. Always turn the tool OFF when work is finished and before unplugging.

Drilling with a Core Bit

1. Turn the speed and impact control dial to the maximum torque position. (5096, 5097, 5098, 5099)
2. Set the model selector to the "hammer drilling" position (for all units except 5095).
3. Fit and adjust the side handle.
4. Assemble the centering bit and adapter shank into core bit.
5. Place the centering bit on the spot and press the ON/OFF switch.

NOTE: Some core drills require the removal of centering bit after about 1 cm of penetration. If so, remove and continue drilling.

6. When drilling through a structure thicker than the depth of the core bit, break away the round cylinder of concrete or core inside the bit at regular intervals. To avoid unwanted breaking away of concrete around the hole, first drill a hole the diameter of the centering bit completely through the structure. Then drill the cored hole halfway from each side.
7. To stop the tool, release the ON/OFF switch. Always turn the tool OFF when work is finished and before unplugging.

Chipping and Chiseling

1. Set the model selector to the "hammering only with spindle lock" position on all models except 5095 in which it is not necessary.
2. Set the impact control dial to desired impact energy.
3. Insert the appropriate chisel and rotate it by hand to lock it into the desired position. For spline units, use a 3/4" hex x 21/32" round insert tool and for SDS Max models use SDS Max insert tools.

4. Fit and adjust the side handle.
5. Press the ON/OFF switch and start working.
6. Push with enough force to keep bit from bouncing only. Pushing harder will not increase chipping speed.
7. To stop the tool, release the ON/OFF switch. Always turn the tool OFF when work is finished and before unplugging.

Accessories

Recommended accessories for use with your tool are available at extra cost from your distributor or your local service center. Service centers are listed in the back of manual.

CAUTION: The use of any non-recommended accessory may be hazardous.

If you need any assistance in locating any accessory, call 1-800-9-BD TOOL (1-800-923-8665) or contact B&D, Consumer Services Department, 626 Hanover Pike, P.O. Box 618, Hampstead, MD 21074.

Maintenance

Your B&D tool has been designed to operate over a long period of time with a minimum of maintenance. Continuous satisfactory operation depends upon proper tool care and regular cleaning. Keep ventilation slots clear and regularly clean the housing with a soft cloth.

Important

To assure product safety and reliability, repairs, maintenance, and adjustments should be performed by B&D service centers or other qualified service organizations, always using B&D replacement parts.

Every B&D tool is of the highest quality.

If you wish to contact us regarding this product, please call toll free between 8:00am and 8:00pm ET, seven days a week.

1-800-9-BD TOOL

(1-800-923-8665)

One Year Free Maintenance

All B&D tools for Industry and Construction are covered under a one year free maintenance program where B&D will inspect your tool for safety and provide necessary maintenance or repairs, including normal wear and tear parts, for one year, FREE OF CHARGE.

Full Warranty

All B&D tools for Industry and Construction are warranted to be free of any defects in materials or workmanship. Upon thorough examination of tool, B&D will repair or replace, at our option, any product that is determined to be defective.

Conditions

The service/safety check and the warranty do not apply to: repairs made or attempted by anyone other than an authorized B&D service location; misuse, abuse, neglect, improper application of the tool; missing parts; or normal wear and tear (after first year of ownership). Please return the complete unit, transportation prepaid, to any B&D factory owned or B&D authorized service center location (list provided or see yellow pages under "Tools Electric").

Black & Decker (U.S.) Inc. • 701 East Joppa Road, Towson, Maryland 21286

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