

MODEL T10446 HEAVY-DUTY 1" SDS HAMMER DRILL OWNER'S MANUAL



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

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

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

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



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

- Lead from lead-based paints.
- Crystalline silica from bricks, cement and other masonry products.
- · Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

SECTION 1: SAFETY

AWARNING

For Your Own Safety Read Instruction Manual **Before Operating This Equipment**

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



DANGER Indicates all limitations. Indicates an imminent hazardous situation which, if

WARNING

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



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

NOTICE

This symbol is used to alert the user to useful information about proper operation of the equipment.

AWARNING Safety Instructions for Tools

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using tool. Untrained users can be seriously hurt.

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

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

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

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

MENTAL ALERTNESS. Be mentally alert when running tools. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

AWARNING

DISCONNECTING POWER SUPPLY. Always disconnect tool from power supply before servicing, adjusting, or changing cutting tools (bits, blades, cutters, etc.). Make sure switch is in OFF position before reconnecting to avoid an unexpected or unintentional start.

APPROVED OPERATION. Untrained operators can be seriously hurt by tools. Only allow trained or properly supervised people to use tool. When tool is not being used, disconnect power, remove switch keys, or lock-out tool to prevent unauthorized use—especially around children. Make workshop kid proof!

NEVER STAND ON TOOL. Serious injury or accidental contact with cutting tool may occur if tool is tipped. Tool may be damaged.

ONLY USE AS INTENDED. Only use tool for its intended purpose. Never modify or alter tool for a purpose not intended by the manufacturer or serious injury may result!

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

CHILDREN & BYSTANDERS. Keep children and bystanders a safe distance away from work area. Stop using tool if children or bystanders become a distraction.

REMOVE ADJUSTING TOOLS. Never leave adjustment tools, chuck keys, wrenches, etc. in or on tool—especially near moving parts. Verify removal before starting!

SECURING WORKPIECE. When required, use clamps or vises to secure workpiece. A secured workpiece protects hands and frees both of them to operate the tool.

FEED DIRECTION. Unless otherwise noted, feed work against the rotation of blades or cutters. Feeding in the same direction of rotation may pull your hand into the cut.

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

GUARDS & COVERS. Guards and covers can protect you from accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly before using tool.

DANGEROUS ENVIRONMENTS. Do not use tools in wet or rainy locations, cluttered areas, around flammables, or in poorly-lit areas. Keep work area clean, dry, and well-lighted to minimize risk of injury.

STABLE TOOL. Unexpected movement during operations greatly increases the risk of injury and loss of control. Verify tools are stable/secure and mobile bases (if used) are locked before starting.

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

UNATTENDED OPERATION. Never leave tool running while unattended. Turn tool off and ensure all moving parts completely stop before walking away.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep tool in good working condition. An improperly maintained tool may increase the risk of serious injury.

CHECK DAMAGED PARTS. Regularly inspect tool for damaged parts, loose bolts, mis-adjusted or mis-aligned parts, binding, or any other conditions that may affect safe operation. Always repair or replace damaged or mis-adjusted parts before operating tool.

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

AWARNING

Additional Safety Instructions for Hammer Drills

CONCEALED ITEMS. Drilling into concealed items can cause personal injury or property damage. Always make sure the area of drilling is free from items other than masonry material, such as rebar, wire mesh, water or gas pipes, electrical conduit or wires, etc.

HOLDING HAMMER DRILL. The hammer drill produces significant torque during operation. To maintain control of the tool, always firmly hold the grip with one hand and the auxiliary handle with the other before starting the tool and during operation.

DRILL BIT. If the bit is not firmly locked in the chuck, it could be thrown from the tool and cause personal injury or property damage. Always make sure the bit is properly locked in the chuck and is against the workpiece before starting the drill.

HOLDING HAMMER DRILL. The hammer drill produces significant torque during operation. To prevent injuries from loss of control, always firmly hold the grip with one hand and the auxiliary handle with the other before starting the tool and during operation.

REMOVING BIT. Drill bits can become extremely hot during operation. Always use a rag or heavy work gloves to protect your hands when removing hot drill bits.

DISCONNECT TOOL. To avoid unexpected start-up, always disconnect the drill from power before changing bits. Never leave the tool connected to power when left unattended.

REMOVING BIT FROM HOLE. If the drill stops rotating while it is in the hole, it could become stuck and difficult to remove. Always remove the bit from the hole while it is still rotating and turn the tool *OFF* just as the bit leaves the hole.

PERSONAL PROTECTIVE EQUIPMENT

(PPE). Dust and flying debris could cause respiratory, eye, or skin injuries. The noise caused by the hammer drill could cause hearing loss over time. Always wear an approved respirator, safety glasses and face shield, heavy work gloves and long sleeves, and hearing protection when using the hammer drill.

ELECTRICAL CORD. To avoid electrical injuries or cord damage, always make sure the electrical cord of the drill and any extension cords are trailing behind the tool clear of the drilling area, and kept away from wet areas. Immediately replace cord if damaged.

REST PERIODS. Long-term exposure to vibration from operating the hammer drill could cause hand and arm injuries. To reduce this risk, take frequent breaks that are at least as long as the period of operation. Comfortably move fingers and hands around to increase circulation during the rest periods.

SPARKS. Sparks produced during normal operation could ignite flammable materials or fumes. Do not operate the hammer drill near flammable material or fumes. If there are excessive sparks, stop the hammer drill immediately and resolve the issue before continuing.

SECTION 2: INTRODUCTION

Foreword

We are proud to offer this manual with your new hammer drill! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the tool we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, your hammer drill may not exactly match the manual. If you find this to be the case, and the difference between the manual and the tool leaves you in doubt, check our website for the latest manual update or call technical support for help.

For your convenience, we post all available manuals and manual updates for free on our website at www.grizzly.com. Any updates to your model of tool will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our tools. If you have any service questions, parts requests or general questions about the tool, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
E-Mail: techsupport@grizzly.com

We want your feedback on this manual. If you can take the time, please email or write to us at the address below and tell us how we did:

Grizzly Industrial, Inc.
C/O Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Specifications

Power Requirements	110V, 60 Hz, 15 Amps
Tool Wattage	720 Watts
Extension Cord Requirements	Minimum 14 AWG, Maximum 50 ft.
No-Load Rotational Speed	700 RPM
Impact Frequency	3600 BPM
Maximum Bit Diameter	1"
Chuck Type	SDS
Rotation	
Applications	Drilling Concrete, Stone, and Other Masonry Materials

NOTICE

When using a portable generator to power the hammer drill, make sure that the running wattage of the generator is at least 1400 watts or higher to cover the surge requirements of the tool.

SECTION 3: SET UP

Unpacking

Your tool was carefully packaged for safe transportation. Remove the packaging materials from around your tool and inspect it. If you discover the tool is damaged, please immediately call Customer Service at (570) 546-9663 for advice.

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

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

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



This tool presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the tool!

Inventory

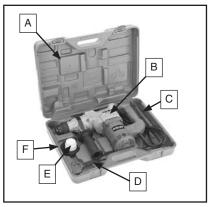


Figure 1. Model T10446 shipping inventory.

SECTION 4: OPERATIONS

Drill Bits

The Model T10446 uses SDS hammer drill bits (see **Figure 2** for examples).

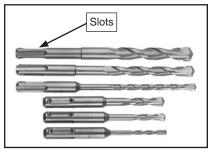


Figure 2. Examples of SDS drill bits.

Installing Bit

- 1. DISCONNECT TOOL FROM POWER!
- Clean and lightly oil the slotted area of the selected bit.
- **3.** Pull back the locking sleeve and slide the bit into chuck (see **Figure 3**).



Figure 3. Inserting the bit into hammer drill.

Twist the bit with slight inward pressure until it no longer moves further into the chuck, then release the locking sleeve.

- Tug on the bit to make sure it will not come out.
 - If the bit does come out when tugged, repeat Steps 3-4.

Removing Bit

1. DISCONNECT TOOL FROM POWER!



Hammer drill bits become hot when used. Always use a rag or heavy work gloves when removing a hot bit.

- Pull the locking sleeve back and pull the bit straight out of the hammer drill.
- When the bit is cool to the touch, clean it and apply a thin coat of light oil to prevent rust and corrosion during storage.

Dust Cup

The dust cup slides onto the bit and catches dust when drilling into an overhead surface (see **Figure 4**).

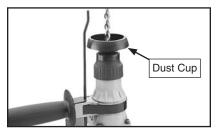


Figure 4. Dust cup attached.

Depth Stop

Use the depth stop to halt the advance of the bit at the desired drilling depth.

To attach the depth stop:

- 1. DISCONNECT TOOL FROM POWER!
- Loosen the auxiliary handle and slide the depth stop into the hole on the handle bracket (see Figure 5).

Note: Make sure the bend in the depth stop is next to the bit. This will ensure that the gauge will contact the work surface next to the hole being drilled.

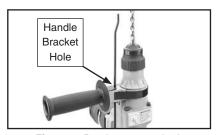


Figure 5. Depth stop attached.

3. Adjust the gauge to the proper depth for the operation, then secure it in place by re-tightening the auxiliary handle.



Dust and debris from hammer drill operation can be harmful to eyes, respiratory system, face, and skin. Also, the noise can cause hearing loss over time. Always wear heavy work gloves and long sleeves, safety goggles and faceshield, respirator, and hearing protection during operation.

Operation

To use the hammer drill:

- If desired, slide the dust cup onto the bit with the cupped side facing the work surface. Install the drill bit as instructed on the previous page.
- 2. Adjust the depth stop for the drilling depth desired.
- **3.** Put on the appropriate Personal Protective Equipment.
- 4. Firmly hold the drill with one hand on the grip and the other on the auxiliary handle, then position the tip of the bit on the work surface with firm but not heavy pressure.



The hammer drill produces significant torque during operation. To prevent injuries from loss of control, always firmly hold the grip with one hand and the auxiliary handle with the other before starting the tool and during operation.

5. Pull the trigger to turn the drill *ON*, and begin drilling.

Note: Depending on the drilling depth, you may need to clear the bit while drilling by moving the rotating bit in and out of the hole.

6. When the hole is complete, remove the bit from the hole while it is still rotating and release the trigger to turn the drill OFF. Allow the bit to stop rotating before putting the drill down.

SECTION 5: ACCESSORIES

SDS Hammer Drill Bits

H2640-3/16" x 4"

H2642—1/4" x 4"

H2643--1/4" x 6"

H2646-5/16" x 4"

H2647—5/16" x 6"

H2650-3/8" x 6"

H2652—7/16" x 6"

H2654—1/2" x 6"

H2656-5/8" x 8"

H2658-3/4" x 8"

H2634—3-Piece Set (1/4", 3/8", 1/2")

H2635—4-Piece Set (3/16", 1/4", 3/8", 1/2")

H2636—6-Piece Set (3/16", 1/4", 5/16", 3/8", 1/4", 1/2")

Buy exactly the size and length SDS bit you need or buy them in complete sets. Designed for long lasting use.

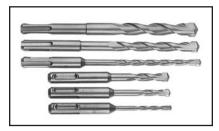


Figure 6. SDS Drill Bits.

Call 1-800-523-4777 To Order

H2499—Small Half-Mask Respirator H3631—Medium Half-Mask Respirator H3632—Large Half-Mask Respirator H3635—Cartridge Filter Pair P100

Masonry dust has been linked to nasal cancer and severe respiratory illnesses. If you work around dust everyday, a halfmask respirator can be a lifesaver. Also compatible with safety glasses!



Figure 7. Half-mask respirator and disposable cartridge filters.

Basic Eye Protection

T20501—Faceshield Crown Protector 4"

T20502—Faceshield Crown Protector 7"

T20503—Face Shield Window

T20452—"Kirova" Anti-Reflective S.

Glasses

T20451—"Kirova" Clear Safety Glasses

H0736—Shop Fox® Safety Glasses

H7194—Bifocal Safety Glasses 1.5

H7195—Bifocal Safety Glasses 2.0

H7196—Bifocal Safety Glasses 2.5

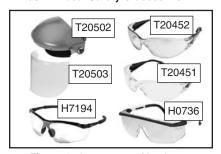


Figure 8. Assortment of basic eye protection.

SECTION 6: MAINTENANCE



AWARNING

Always DISCONNECT POWER before servicing, adjusting, or doing maintenance to reduce the risk of accidental injury or electrocution.

Cleaning

Clean and lightly oil drill bits after each use to prevent rust and corrosion.

Clean dust off the hammer drill body with a dry rag or brush—especially from the exhaust slots on the bottom of the motor. Do not use solvents that could damage the non-metallic housing.

Lubrication

The hammer drill was lubricated with grease before it left the factory—this grease will last for approximately the first 50 hours of lubrication. After this period and every 50 hours of use thereafter, you will need to add grease.

To add grease:

- 1. DISCONNECT TOOL FROM POWER!
- Clean away any dust from around the grease cap (shown in Figure 9) to prevent foreign material entering the gearbox and contaminating the grease.

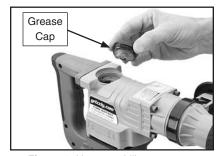


Figure 9. Hammer drill grease cap.

Unscrew the grease cap, add approximately 1³/₄ ounces of multi-purpose tool grease, then replace the cap.

SECTION 7: SERVICE

Troubleshooting

	T	
Symptom	Possible Cause	Solution
Tool will not start.	No power to the tool. Fuse is blown or circuit tripped.	wires and shorts; replace fuse or reset circuit break-
	3. Switch is at fault.	er. 3. Replace switch.
	4. Carbon brushes are worn.5. Motor is at fault.	4. Replace the carbon brush.5. Replace motor.
Bit rotates slowly.	Too much pressure on the hammer drill. Bit is dull/damaged. Inadequate power to the tool.	Apply medium pressure to the drill; allow the bit to do the work. Sharpen/replace. Make sure power circuit is adequate and there are no shorts.
Bit is stuck in hole.	 Tool turned <i>OFF</i> with bit still in hole. Bit is in contact with an item other than masonry material. 	1. Always remove the bit from the hole while it is still rotating. Disconnect tool from power, disengage bit from chuck, then remove the bit from the hole. 2. Always make sure that there are no foreign items in the area of drilling. Remove the bit from the hole as instructed in Solution 1 above.
Gearbox becomes excessively hot.	Tool is overloaded. Excessively long operational cycle. Not enough gearbox lubrication.	Reduce pressure on tool. Allow the tool and operator to rest. Re-lubricate the gearbox.

Carbon Brush Replacement

The motor carbon brushes will wear with use. If the motor becomes excessively noisy, loses power, or stops running, inspect the brushes. If the brushes are shorter than 1/4", replace them as a set.

Items Needed	Qty
Standard Screwdriver #1	1
Carbon Brushes*	2
*Grizzly Part Number PT10446051	

To replace the carbon brushes:

- DISCONNECT TOOL FROM POWER!
- Clean away any dust and debris from the motor housing. This will prevent material falling into the carbon brush installation holes (see Figure 10), which could result in motor damage.

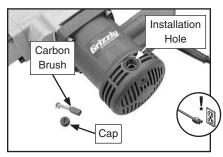


Figure 10. Carbon brush components.

Unscrew the carbon brush caps from both sides of the motor, then remove the carbon brushes.

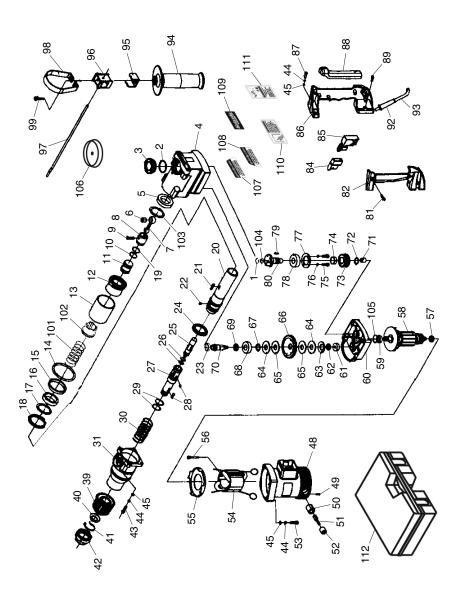
Note: If the current brushes do not need replacement after inspection, reinstall them so that the curved surface worn on the end of the brushes match the curve of the stator. This will prevent unnecessary wear from repeated break-in.

Insert the new carbon brushes into the installation holes so that the end of the brush contacts the stator, then replace the caps.

NOTICE

There may be an increase in sparks from the motor after new carbon brushes are installed. This is normal as the ends of the brushes break-in.

Parts Breakdown



Parts breakdown provided for reference only. Not all parts shown are available for purchase.

Parts List

REF	PART #	DESCRIPTION
1	PT10446001	CLIP 8MM
2	PORS038	O-RING 37.5 X 2.0 S38
3	PT10446003	GREASE CUP COVER
4	PT10446004	GEARBOX ASSEMBLY
5	PT10446005	BALL BEARING 906 OPEN
6	PT10446006	NEEDLE BEARING HK0810
7	PT10446007	CONNECTION ROD
8	PT10446008	DRIVE PISTON
9	PT10446009	PISTON KEY
10	PT10446010	O-RING 19 X 3.2
11	PT10446011	IMPACT PISTON
12	PT10446012	GEAR SLEEVE
13	PT10446013	CLUTCH HOUSING
14	PORS055	O-RING 54.5 X 2 S55
15	PT10446015	RUBBER RING
16	PT10446016	BALL BEARING 907 ZZ
17	PT10446017	SPACER
18	PT10446018	CYLINDER SEAL
19	PT10446019	O-RING 19.2 X 2.95
20	PT10446020	CYLINDER
21	PK96M	KEY 3 X 3 X 20
22	PT10446022	STEEL BALL 7MM 938
23	PT10446023	OIL SEAL
24	PT10446024	OUTER CLIP 35MM
25	PT10446025	IMPACT ROD
26	PT10446026	O-RING 11 X 1.9
27	PT10446027	TRANSIT SLEEVE
28	PT10446028	STEEL BALL 7.14MM
29	PT10446029	O-RING 19.8 X 2.1
30	PT10446030	COMPRESSION SPRING
31	PT10446031	HEAD HOUSING
39	PT10446039	SLIDING SLEEVE ASSEMBLY
40	PT10446040	SPACER
41	PT10446041	BLOCKING RING
42	PT10446042	NOSE PIECE
43	PCAP24M	CAP SCREW M58 X 16
44	PLW01M	LOCK WASHER 5MM
45	PW02M	FLAT WASHER 5MM
48	PT10446048	ROTOR HOUSING
49	PHTEK18M	TAP SCREW M3.5 X 10
50	PT10446050	CARBON BRUSH BRACKET
51	PT10446051	CARBON BRUSH SET 2PC
52	PT10446052	CARBON BRUSH CAP
53	PCAP24M	CAP SCREW M58 X 16
54	PT10446054	STATOR ASSEMBLY
55	PT10446055	STATOR COVER
56	PHTEK18M	TAP SCREW M3.5 X 10
57	P608ZZ	BALL BEARING 608 ZZ
58	PT10446058	ROTOR ASSEMBLY
59	P6001ZZ	BALL BEARING 6001 ZZ
	1. 000.22	

REF	PART #	DESCRIPTION
60	PT10446060	GEARBOX BOTTOM COVER
61	P627-OPEN	BALL BEARING 627 OPEN
62	PT10446062	RETAINER NUT
63	PT10446063	LOCK WASHER
64	PT10446064	FLAT WASHER
65	PT10446065	THRUST WASHER
66	PT10446066	GEAR
67	PT10446067	SPACER
68	P6002-OPEN	BALL BEARING 6002 OPEN
69	PT10446069	SPACER
70	PT10446070	GEAR SHAFT
71	PT10446071	DEEP-GROOVE BALL BEARING 10088
72	PT10446072	SHAFT RING 12MM
73	PT10446073	DRIVE GEAR
74	PT10446074	SPACER
75	PCAP23M	CAP SCREW M47 X 12
76	PLW02M	LOCK WASHER 4MM
77	PT10446077	BEARING COVER
78	P6202-OPEN	BALL BEARING 6202 OPEN
79	PT10446079	SHAFT KEY
80	PT10446080	ECCENTRIC DRIVE SHAFT
81	PHTEK18M	TAP SCREW M3.5 X 10
82	PT10446082	LEFT HANDLE
84	PT10446084	SWITCH COVER
85	PT10446085	ON/OFF SWITCH
86	PT10446086	RIGHT HANDLE
87	PHTEK17M	TAP SCREW M5 X 20
88	PT10446088	HANDLE GRIP
89	PHTEK18M	TAP SCREW M3.5 X 10
92	PT10446092	STRAIN RELIEF
93	PT10446093	POWER CORD
94	PT10446094	AUXILIARY HANDLE
95	PT10446095	HANDLE BRACKET
96	PT10446096	DEPTH STOP BRACKET
97	PT10446097	DEPTH STOP ROD
98	PT10446098	AUXILIARY HANDLE HARNESS
99	PT10446099	HANDLE SCREW
101	PT10446101	COMPRESSION SPRING
102	PT10446102	CLUTCH
103	PT10446103	INNER CLIP 47MM
104	PT10446104	SPACER
105	PT10446105	O-RING 28 X 1.5
106	PT10446106	DUST CUP
107	PT10446107	RIGHT TOOL ID LABEL
108	PT10446108	LEFT TOOL ID LABEL
109	PT10446109	GRIZZLY LOGO LABEL
110	PT10446110	READ MANUAL LABEL
111	PT10446111	EYE-HEARING HAZARD LABEL
112	PT10446112	CARRYING CASE

WARRANTY

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

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

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

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

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

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