

# Owner's Manual & Safety Instructions

**Save This Manual** Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

17e

# drillmaster®

94436

1/2"

# HAMMER DRILL



When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

## **⚠️ WARNING**

Copyright© 2006 by Harbor Freight Tools®. All rights reserved.  
No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

**Read this material before using this product.  
Failure to do so can result in serious injury.  
SAVE THIS MANUAL.**

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## SAVE THIS MANUAL

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## IMPORTANT SAFETY INFORMATION

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In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

**CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

**NOTICE** is used to address practices not related to personal injury.

### **CAUTION**

**CAUTION**, without the safety alert symbol, is used to address practices not related to personal injury.

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## General Power Tool Safety Warnings

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**WARNING** Read all safety warnings and instructions. *Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.*

**Save all warnings and instructions for future reference.**

*The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.*

1. **Work area safety**
  - a. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
  - b. **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.*
  - c. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*
2. **Electrical safety**
  - a. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
  - b. **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.*

- c. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
  - d. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*
  - e. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** *Use of a cord suitable for outdoor use reduces the risk of electric shock.*
  - f. **If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply.** *Use of a GFCI reduces the risk of electric shock.*
3. **Personal safety**
- a. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*
  - b. **Use personal protective equipment. Always wear eye protection.** *Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
  - c. **Prevent unintentional starting. Ensure the switch is in the off-position before connecting to power source and/or battery pack, picking**
- up or carrying the tool.** *Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.*
  - d. **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
  - e. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
  - f. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** *Loose clothes, jewelry or long hair can be caught in moving parts.*
  - g. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of these devices can reduce dust-related hazards.*
  - h. **Only use safety equipment that has been approved by an appropriate standards agency.** *Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.*
4. **Power tool use and care**
- a. **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*
  - b. **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled*

*with the switch is dangerous and must be repaired.*

- c. **Disconnect the plug from the power source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
  - d. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
  - e. **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
  - f. **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*
  - g. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*
5. **Service**
- a. **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*

## **Drill and Impact Drill Safety Warnings**

1. **Wear ear protectors with impact drills.** *Exposure to noise can cause hearing loss.*
2. **Use auxiliary handles supplied with the tool.** *Loss of control can cause personal injury.*
3. **Hold power tools 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.*
4. Let bit cool before touching, changing or adjusting it. Bits heat up dramatically while in use, and can burn you.
5. If the drill bit jams, release the trigger immediately; drill torque can cause injury or break bit.
6. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
7. Avoid unintentional starting. Prepare to begin work before turning on the tool.
8. Do not lay the tool down until it has come to a complete stop. Moving parts can grab the surface and pull the tool out of your control.
9. When using a handheld power tool, maintain a firm grip on the tool with both hands to resist starting torque.
10. Do not leave the tool unattended when it is plugged into an electrical outlet. Turn off the tool, and unplug it from its electrical outlet before leaving.

11. This product is not a toy. Keep it out of reach of children.
12. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should:
  - Avoid operating alone.
  - Do not use with power switch locked on.
  - Properly maintain and inspect to avoid electrical shock.
  - Any power cord must be properly grounded. Ground Fault Circuit Interrupter (GFCI) should also be implemented – it prevents sustained electrical shock.
13. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

### Vibration Safety

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand

injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.

2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.
3. Wear suitable gloves to reduce the vibration effects on the user.
4. Use tools with the lowest vibration when there is a choice.
5. Include vibration-free periods each day of work.
6. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
7. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.



## **SAVE THESE INSTRUCTIONS.**

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### **GROUNDING**

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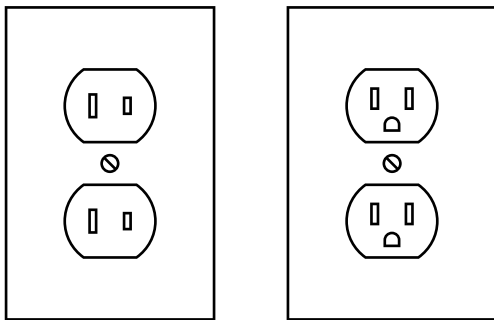
**WARNING TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION:**



**Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding**

prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

### Double Insulated Tools: Tools with Two Prong Plugs



Outlets for 2-Prong Plug

1. Tools marked “Double Insulated” do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code.
2. Double insulated tools may be used in either of the 120 volt outlets shown in the preceding illustration. (See Outlets for 2-Prong Plug.)

### Extension Cords

1. **Grounded** tools require a three wire extension cord. **Double Insulated** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a




serious drop in voltage, resulting in loss of power and possible tool damage. (See Table A.)

3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. (See Table A.)
4. When using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. (See Table A.)
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. (See Table A.)
6. If you are using an extension cord outdoors, make sure it is marked with the suffix “W-A” (“W” in Canada) to indicate it is acceptable for outdoor use.
7. Make sure the extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect the extension cords from sharp objects, excessive heat, and damp or wet areas.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120/240 VOLT)					
NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH				
	25'	50'	75'	100'	150'
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	18	14	12	10	-
12.1 – 16.0	14	12	10	-	-

16.1 – 20.0	12	10	-	-	-
<b>TABLE A</b> * Based on limiting the line voltage drop to five volts at 150% of the rated amperes.					

**Symbology**

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
<b>VAC</b>	Volts Alternating Current
<b>A</b>	Amperes
n <sub>0</sub> xxxx/min.	No Load Revolutions per Minute (RPM)

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## SPECIFICATIONS

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Input	120 VAC, 60 Hz, 4.2 A
Motor	2,800 RPM; double insulated
Impact Performance	44,800 BPM
Trigger	forward / reverse lever; Trigger lock button
Chuck	Keyed, 1/16" to 1/2" capacity
Side Handle	Adjustable 360°; Adjustable depth rod
Power Cord	Six feet long, 2-prong polarized plug

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## UNPACKING

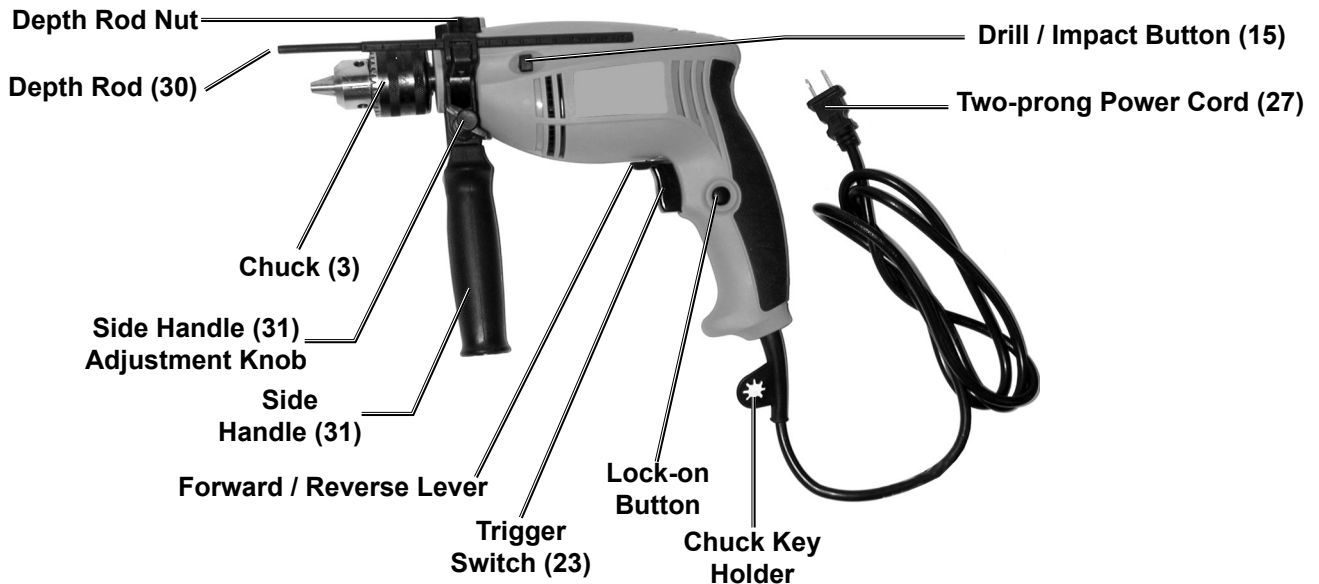
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When unpacking, check to make sure that the following parts are included: Impact Drill, Side Handle, Chuck Key, and Depth Rod. Refer to the Assembly section, and the Assembly Drawing and Parts List at the end of this manual. If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.

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## CONTROLS AND INDICATORS

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## ASSEMBLY INSTRUCTIONS

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### Side Handle Assembly

1. Slide the Side Handle (31) over the front housing until it rests behind the Chuck (3).
2. When required for exact depth drilling, insert the Depth Rod (30) into the Side Handle. Adjust distance as necessary using the Depth Rod Nut.
3. Turn the Side Handle (31) to the desired position for operation, then securely tighten the Handle Adjusting Knob.

### Inserting Drill Bits

1. Locate the Chuck Key (32) and place the end into the Chuck (3). Turn counterclockwise until the Chuck opening is sufficient to place the bit.
2. With the drill or impact bit in place, turn the Chuck Key clockwise until the Chuck tightens securely over the bit.
3. Remove the Chuck Key (32) and place it in the Chuck Key holder on the Power Cord.

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## OPERATING INSTRUCTIONS

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1. Press the Forward/Reverse Lever to correct position for the current job.  
*Right position:* drill or fasten (clockwise). *Left position:* removing fasteners or freeing bits (counterclockwise).
2. Press in (left side) the Drill / Impact Button (15) for normal drilling, or press in (opposite side) hammer (impact) drilling. The impact drill setting (indicated by a hammer symbol) is typically used for drilling cement or other masonry materials.  
**Caution: Do not attempt to switch from drilling mode to Impact mode with the motor running. This can damage the internal gears.**
3. For precision depth drilling, loosen (counterclockwise) the Depth Rod Nut and move the Depth Rod (30) to the desired position. Retighten the Depth Rod Nut.
4. Verify that the bit is securely tightened in the Chuck.
5. Press (and hold) the Trigger Switch (23) to turn drill On.
6. Optionally, after pressing in the Trigger Switch in, you can press the Lock-on Button to keep the drill running without keeping your finger on the Trigger Switch. Use this function when drilling soft materials only.  
**Warning: Do not drill or hammer-drill hard, brittle materials such as steel or concrete with the Trigger Switch Lock-on Button pressed in (ON). If the drill bit catches on the material, the high torque of the drill will cause the tool body to twist around without stopping. This violent action could cause injuries to your hands and arms. It could also damage the Impact Drill.**
7. When drilling is completed, release the Trigger Switch (23).  
If the Lock-on Button was used, squeeze the Trigger Switch, then release it to turn the Impact Drill off.

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## TROUBLESHOOTING

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<b>Problem</b>	<b>Possible Cause</b>	<b>Probable Solution</b>
Drill does not turn on when Trigger Switch squeezed.	1. Drill Power Cord not plugged in or other power source problem. 2. Forward/Reverse Lever not properly set.	1. Check power source and connection at receptacle. 2. Push lever completely to left or right.
Drill loses power or stops during operation.	Motor Carbon Brushes dirty or need replacement.	Have a qualified technician clean or replace brushes.
Grinding noise when Trigger Switch squeezed.	1. Drill / Impact Button not pushed in all the way. 2. Internal gears damaged.	1. Push Drill / Impact Button all the way in. 2. Have a qualified technician repair or replace gears.

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## INSPECTION, MAINTENANCE, AND CLEANING

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**⚠ WARNING!** Make sure the Trigger Switch of the Impact Drill is in its “OFF” position and that the tool is unplugged from its electrical outlet before performing any inspection, maintenance, or cleaning procedures.

1. Before each use, inspect the general condition of the Impact Drill. Check for loose screws, misalignment or binding of moving parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. Do not use damaged equipment.
2. Periodically recheck all nuts, bolts, and screws for tightness.
3. Keep tool clean by wiping with a clean, damp cloth. Never use caustic agents to clean plastic parts.
4. Store tool in a clean and dry location when not in use.
5. Periodically, using a rag and light oil, wipe drill bits and other steel parts of the drill to keep them from rusting.
6. Periodically blow out the motor air vents of dust and debris using compressed air.
7. Over time, if the performance of the tool diminishes, or it stops working completely, it may be necessary to replace the motor’s Carbon Brushes (18). The brushes are accessed by removing Brush Cover (20). This procedure must be completed by a qualified technician.

## PARTS LIST

Part	Description	Q'ty	Part	Description	Q'ty
1	Chuck Screw (left-hand) M5x22	1	17	Stator	1
2	Washer, Spring, Ø5	1	18	Carbon Brush	2
3	Chuck	1	19	Brush Holder	2
4	Bearing, 6001	1	20	Brush Cover	2
5	Fender Ring, Ø12	1	21	Bearing, 626	1
6	Spindle, Output	1	22	Lower Motor Housing	1
7	Steel Ball, Ø3	1	23	Switch, Trigger	1
8	Gear	1	24	Cable Clip	1
9	Spring, Small	1	25	Screw, Tap, 4x14	2
10	Steel Sleeve	1	26	Guard, Power Cord	1
11	Impact Block	1	27	Power Cord	1
12	Steel Ball, Ø5	1	28	Screw, M4x18	10
13	Bearing, 608	1	29	Upper Motor Housing	1
14	Slip Slice	1	30	Depth Rod	1
15	Drill Impact Button	1	31	Side Handle	1
16	Armature	1	32	Chuck Key (not shown)	1

### PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

### LIMITED 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. 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 product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

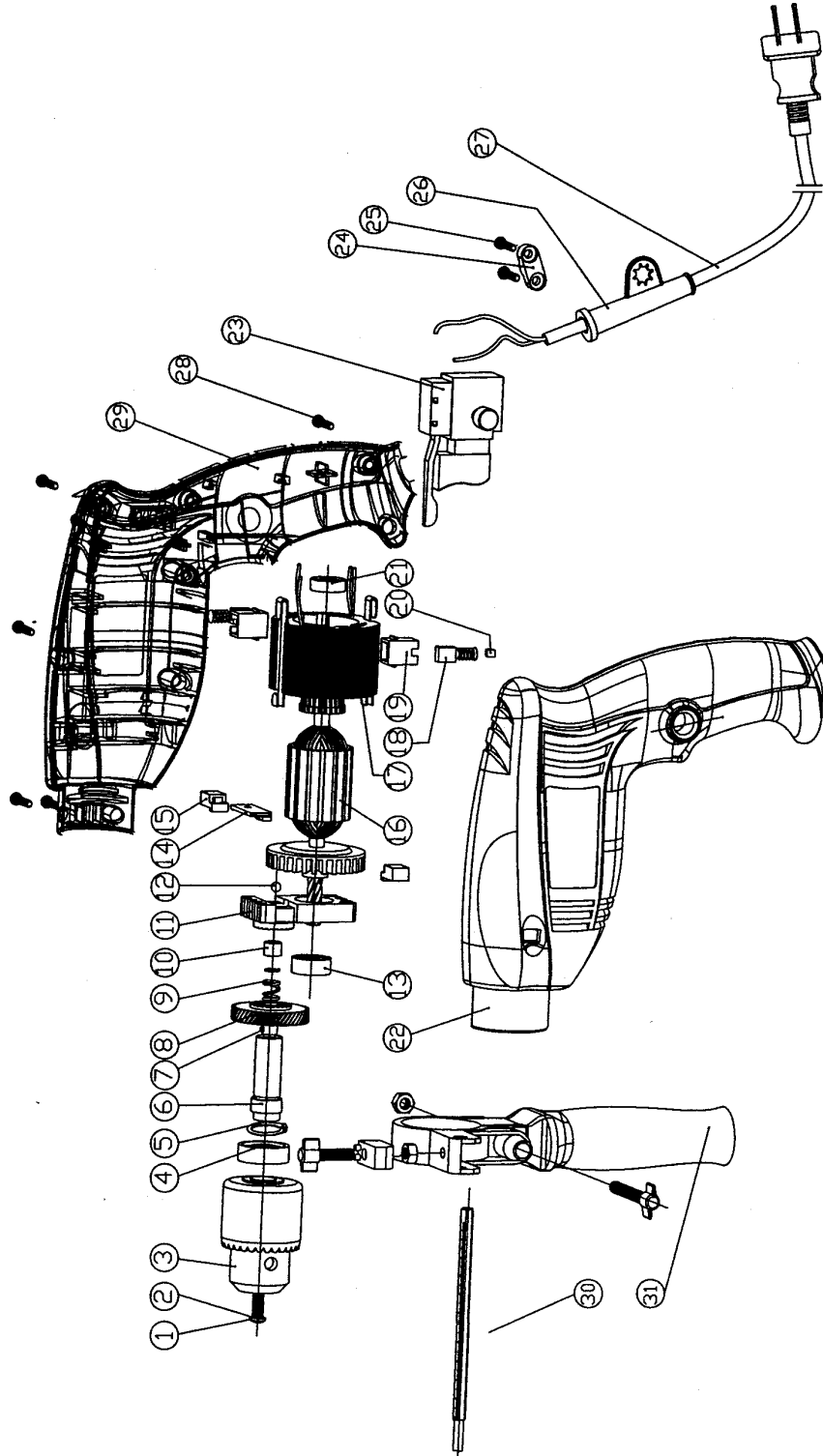
This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd. • PO Box 6009 • Camarillo, CA 93011 • 1-888-866-5797**

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# ASSEMBLY DRAWING

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**Record Product's Serial Number Here:** \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.