The Model and Serial No. plate is located on the main housing of the tool. Record these numbers in the spaces below and retain for future reference.

Model No. ______________________________________
Type ___________________________________________
Serial No. _______________________________________

IMPORTANT

Please make certain that the person who is to use this equipment carefully reads and understands these instructions before starting operations.
IMPORTANT SAFETY INSTRUCTIONS

WARNING Read and understand all warnings and operating instructions before using any tool or equipment. When using tools or equipment, basic safety precautions should always be followed to reduce the risk of personal injury. Improper operation, maintenance or modification of tools or equipment could result in serious injury and property damage. There are certain applications for which tools and equipment are designed. Porter-Cable strongly recommends that this product NOT be modified and/or used for any application other than for which it was designed.

If you have any questions relative to its application DO NOT use the product until you have written Porter-Cable and we have advised you.

Online contact form at www.porter-cable.com
Postal Mail: Technical Service Manager
Porter-Cable Corporation
4825 Highway 45 North
Jackson, TN 38305

Information regarding the safe and proper operation of this tool is available from the following sources:
Power Tool Institute
1300 Sumner Avenue, Cleveland, OH 44115-2851
www.powertoolinstitute.org

National Safety Council
1121 Spring Lake Drive, Itasca, IL 60143-3201

American National Standards Institute, 25 West 43rd Street, 4 floor, New York, NY 10036 www.ansi.org ANSI 01.1 Safety Requirements for Woodworking Machines, and the U.S. Department of Labor regulations www.osha.gov

SAVE THESE INSTRUCTIONS!
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 and 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, always wear NIOSH/OSHA approved, properly fitting face mask or respirator when using such tools.
GENERAL SAFETY RULES

**WARNING**  Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury. The term "power tool" in all of the warnings listed below refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

SAVE THESE INSTRUCTIONS

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 earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.

   b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is earthed or 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.

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 safety 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) **Avoid accidental starting. Ensure the switch is in the off-position before plugging in.** Carrying power tools with your finger on the switch or plugging in 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.

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 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 tools 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 and in the manner intended for the particular type of power tool, 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.
1. **HOLD TOOL BY INSULATED GRIPPING SURFACES WHEN PERFORMING AN OPERATION WHERE THE CUTTING TOOLS MAY CONTACT HIDDEN WIRING OR ITS OWN CORD.** Contact with a “live” wire will make exposed metal parts of the tool “live” and will shock the operator.

2. **VERIFY** the direction of rotation before starting the tool.

3. **NEVER ATTEMPT TO CHANGE DIRECTION** of rotation while switch is “ON”. Be sure switch is “OFF” and motor has completely stopped before changing direction of rotation.

4. **DO NOT** use bits larger than those recommended. They increase the chance of jamming. Large bits may also overload the drill and damage the motor and gears.

5. **USE ONLY** the proper chuck key to tighten or loosen the chuck. Do not use chuck if jaws or other parts are cracked or worn.

6. **NEVER** hold work in your hand, lap, or against other parts of your body when drilling.

7. **DO NOT** use drill as a router or try to elongate or enlarge holes by twisting the drill. Drill bits may break and cause injury.

8. **DO NOT USE ON LADDER OR SCAFFOLD.** Reaction torque may cause loss of balance.

9. **SOME WOOD CONTAINS PRESERVATIVES WHICH CAN BE TOXIC.** Take extra care to prevent inhalation and skin contact when working with these materials. Request, and follow, any safety information available from your material supplier.

10. **WEAR EYE AND HEARING PROTECTION. ALWAYS USE SAFETY GLASSES.** Everyday eyeglasses are NOT safety glasses. USE CERTIFIED SAFETY EQUIPMENT. Eye protection equipment should comply with ANSI Z87.1 standards. Hearing equipment should comply with ANSI S3.19 standards.

11. **WARNING** **USE OF THIS TOOL CAN GENERATE AND DISBURSE DUST OR OTHER AIRBORNE PARTICLES, INCLUDING WOOD DUST, CRYSSTALLINE SILICA DUST AND ASBESTOS DUST.** Direct particles away from face and body. Always operate tool in well ventilated area and provide for proper dust removal. Use dust collection system wherever possible. Exposure to the dust may cause serious and permanent respiratory or other injury, including silicosis (a serious lung disease), cancer, and death. Avoid breathing the dust, and avoid prolonged contact with dust. Allowing dust to get into your mouth or eyes, or lay on your skin may promote absorption of harmful material. Always use properly fitting NIOSH/OSHA approved respiratory protection appropriate for the dust exposure, and wash exposed areas with soap and water.
SAVE THESE INSTRUCTIONS!

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>volts</td>
</tr>
<tr>
<td>A</td>
<td>amperes</td>
</tr>
<tr>
<td>Hz</td>
<td>hertz</td>
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<td>hours</td>
</tr>
<tr>
<td>min</td>
<td>minutes</td>
</tr>
<tr>
<td>s</td>
<td>seconds</td>
</tr>
<tr>
<td>n₀</td>
<td>no-load speed</td>
</tr>
<tr>
<td>.../min or ...min⁻¹</td>
<td>Revolutions or reciprocations per minute</td>
</tr>
<tr>
<td>≃ or d.c.</td>
<td>direct current</td>
</tr>
<tr>
<td>≃ or a.c.</td>
<td>alternating current</td>
</tr>
<tr>
<td>2</td>
<td>two-phase alternating current</td>
</tr>
<tr>
<td>2N</td>
<td>two-phase alternating current with neutral</td>
</tr>
<tr>
<td>3</td>
<td>three-phase alternating current</td>
</tr>
<tr>
<td>3N</td>
<td>three-phase alternating current with neutral</td>
</tr>
<tr>
<td>- - A</td>
<td>rated current of the appropriate fuse-link in amperes</td>
</tr>
<tr>
<td>X</td>
<td>time-lag miniature fuse-link where X is the symbol for the time/current characteristic, as given in IEC 60127</td>
</tr>
<tr>
<td>♯</td>
<td>protective earth</td>
</tr>
<tr>
<td>☐</td>
<td>class II tool</td>
</tr>
<tr>
<td>IPXX</td>
<td>IP symbol</td>
</tr>
</tbody>
</table>
EXTENSION CORD SELECTION

If an extension cord is used, make sure the conductor size is large enough to prevent excessive voltage drop which will cause loss of power and possible motor damage. A table of recommended extension cord sizes will be found in this section. This table is based on limiting line voltage drop to 5 volts (10 volts for 230 volts) at 150% of rated amperes.

If an extension cord is to be used outdoors, it must be marked with the suffix W-A or W following the cord type designation. For example – SJTW-A to indicate it is acceptable for outdoor use.

**RECOMMENDED EXTENSION CORD SIZES FOR USE WITH PORTABLE ELECTRIC TOOLS**

<table>
<thead>
<tr>
<th>Nameplate Ampere Rating</th>
<th>Length of Cord in Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>115V</td>
</tr>
<tr>
<td></td>
<td>25 Ft.</td>
</tr>
<tr>
<td>0-2</td>
<td>18</td>
</tr>
<tr>
<td>2-3</td>
<td>18</td>
</tr>
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<td>3-4</td>
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<td>4-5</td>
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<td>6-8</td>
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<td>8-10</td>
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<td>10-12</td>
<td>16</td>
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<td>16</td>
</tr>
<tr>
<td>16-18</td>
<td>14</td>
</tr>
<tr>
<td>18-20</td>
<td>14</td>
</tr>
</tbody>
</table>

SAVE THESE INSTRUCTIONS!
1. **CAUTION** DISCONNECT TOOL FROM POWER SOURCE.

2. The three-jaw chuck is designed for self-centering of the drill bit. Open chuck jaws by turning outer sleeve counterclockwise, when viewing the chuck from the bit end. Open large enough so that bit shank can be inserted.

3. Clean and insert smooth end of drill bit as far as it will go into the chuck, or up to the flutes for small bits.

4. While holding the bit with one hand, turn outer sleeve clockwise until bit is gripped in the chuck.

5. Tighten chuck – insert chuck key into each of 3 keyholes in chuck body (Fig. 1) in succession and tighten securely by turning key clockwise. 
   
   **CAUTION** Be sure chuck key is removed before starting tool.

6. To remove bit, reverse this procedure.

**TO INSTALL SPADE HANDLE**

A spade handle (D) Fig. 2, is furnished with the tool. This handle may be assembled in any one of four positions on the back of the drill. Place the washer on the screw, insert screw through hole in spade handle, locate handle as desired, and tighten screw securely. The spade handle was designed to carry or transport the tool only. NEVER hold the tool by the spade handle during drilling operations.
TO INSTALL AUXILIARY HANDLE

An auxiliary handle (C) Fig. 2, is supplied with some models. This handle screws directly into the drill housing providing complete control of the drill.

It is strongly recommended that the auxiliary handle be used and tool held as illustrated in Fig. 4 during all drilling operations.

OPERATION

TO START AND STOP THE MACHINE

1. **CAUTION** Make sure switch is OFF and power circuit voltage is the same as that shown on the specification plate.
2. Connect tool to power circuit.
3. Grip machine firmly to resist starting torque.
4. To START the machine in FORWARD (clockwise rotation), depress the bottom of the trigger switch (A) Fig. 3.
   To START the machine in REVERSE (counterclockwise rotation), depress the top of the trigger switch (B) Fig. 3.
   
   **NOTE:** Allow motor to stop before attempting to reverse direction of rotation. Failure to do so, could damage motor.
5. TO STOP the machine, release the trigger switch.

HOW TO HOLD THE DRILL

**WARNING** The front end of drill may be made live if the tool drills into live wiring in a wall. TO PREVENT ACCIDENTAL ELECTRICAL SHOCK, DRILL MUST BE HELD AS SHOWN IN FIG. 4.

An auxiliary handle (C) Fig. 2, is supplied with each drill. The auxiliary handle should be used during all drilling operations: firmly grasp auxiliary handle with one hand and switch handle with the other hand as shown in Fig. 4.
GENERAL DRILLING
1. Be sure drill bit is securely gripped in chuck. (See INSTALLING AND REMOVING DRILL BIT).
2. Make sure work is held securely in vise or clamped in place prior to starting drilling operation.
   ▶️ WARNING Loose work may spin and cause bodily injury.
3. Locate exact center for hole to be drilled and using a center punch, make a small dent in work.
4. Place tip of drill bit in dent made by center punch, hold drill square with work, and start the motor.
   Apply steady, even pressure to keep drill bit cutting. Too little pressure will keep the bit from cutting and dull the edges due to excessive friction created by sliding over the surface.
   ▶️ CAUTION Too much pressure may cause the bit to break or overheat resulting in bodily injury or damaged drill bits.
   ▶️ CAUTION BE ALERT and brace yourself against the twisting action of the drill, should the bit jam in the work.
5. If drill stalls or becomes jammed in the hole, release trigger immediately, remove drill bit from work and determine cause of stalling or jamming. DO NOT SQUEEZE TRIGGER ON AND OFF IN AN ATTEMPT TO FREE A STALLED OR JAMMED DRILL – THIS WILL DAMAGE THE MOTOR. The direction of rotation may be reversed to help free a jammed bit.
6. Reduce the pressure on the drill just before the bit cuts through the work to avoid splintering wood or stalling in metal.
7. When bit has completely penetrated work and is spinning freely, withdraw it from the work while the motor is still running, then turn off drill.

DRILLING WOOD
In addition to the instructions listed under GENERAL DRILLING, the following also apply:
1. When using twist drills in wood, they should be withdrawn from the hole frequently to clear chips built up in flutes to avoid overheating and burning work.
2. If a backing block is used to keep back of work from splintering, it should be clamped securely in place. If a backing block is not used with spade bits or auger bits, ease up pressure as soon as bit point breaks through work, and complete the hole from the opposite side.

DRILLING METAL
In addition to the instructions listed under GENERAL DRILLING, the following also apply:
   ▶️ CAUTION When drilling metal, jamming of bit is more likely than when drilling other materials.
1. Use only good quality sharp high speed steel twist bits when drilling metal.
2. Start drilling with slow speed and gradually increase speed as drill cuts. The harder the material, the slower the speed required. The softer the material, the faster the speed.
3. When drilling a large hole, it is easier to first drill a smaller hole and then enlarge it to the required size.

4. The use of a lubricant, such as oil, on the drill point helps keep the bit cool, increases drilling action and prolongs drill bit life.

**TROUBLESHOOTING**

For assistance with your tool, visit our website at [www.porter-cable.com](http://www.porter-cable.com) for a list of service centers or call the Porter-Cable help line at 1-800-487-8665.

**MAINTENANCE**

**KEEP TOOL CLEAN**

Periodically blow out all air passages with dry compressed air. All plastic parts should be cleaned with a soft damp cloth. NEVER use solvents to clean plastic parts. They could possibly dissolve or otherwise damage the material.

⚠️ **WARNING** Wear ANSI Z87.1 safety glasses while using compressed air.

**FAILURE TO START**

Should your tool fail to start, check to make sure the prongs on the cord plug are making good contact in the outlet. Also, check for blown fuses or open circuit breakers in the line.

**CHUCK REPLACEMENT**

1. **CAUTION** DISCONNECT TOOL FROM POWER SOURCE.

2. Open chuck jaws as wide as possible to gain access to the chuck retaining screw.

3. Remove chuck retaining screw. Turn screw clockwise (left hand threads).

4. Place the short end of a large hex wrench (1/4" or larger) into the chuck. Align wrench flats with chuck jaws and tighten chuck securely using chuck key. While supporting chuck on a solid surface, position hex wrench to left (see Fig. 5) and strike wrench a sharp blow with a hammer to loosen chuck. Turn chuck counterclockwise to remove.

5. INSTALL CHUCK: Open jaws of replacement chuck as wide as possible. Thread chuck by turning chuck clockwise. Hand tighten. Install hex wrench in chuck (see Step 4). While supporting chuck on a solid surface, position hex wrench to the right (see Fig. 6) and strike a sharp blow with a hammer to seat chuck onto spindle.

6. Remove hex wrench from chuck.

7. INSTALL CHUCK RETAINING SCREW. Turn screw counterclockwise and tighten securely.
LUBRICATION
This tool has been lubricated with a sufficient amount of high grade lubricant for the life of the unit under normal operating conditions. No further lubrication is necessary.

BRUSH INSPECTION (If applicable)
For your continued safety and electrical protection, brush inspection and replacement on this tool should ONLY be performed by an AUTHORIZED PORTER-CABLE SERVICE STATION or a PORTER-CABLE•DELTA FACTORY SERVICE CENTER.

At approximately 100 hours of use, take or send your tool to your nearest authorized Porter-Cable Service Station to be thoroughly cleaned and inspected. Have worn parts replaced and lubricated with fresh lubricant. Have new brushes installed, and test the tool for performance.

Any loss of power before the above maintenance check may indicate the need for immediate servicing of your tool. DO NOT CONTINUE TO OPERATE TOOL UNDER THIS CONDITION. If proper operating voltage is present, return your tool to the service station for immediate service.

SERVICE

REPLACEMENT PARTS
When servicing use only identical replacement parts. For a service parts list or to learn more about Porter-Cable visit our website at www.porter-cable.com

SERVICE AND REPAIRS
All quality tools will eventually require servicing, or replacement of parts due to wear from normal use. For assistance with your tool, visit our website at www.porter-cable.com for a list of service centers or call the Customer Care Department at 1-800-487-8665. All repairs made by our service centers are fully guaranteed against defective material and workmanship. We cannot guarantee repairs made or attempted by others.

Should you have any questions about your tool, feel free to write us at any time. In any communications, please give all information shown on the nameplate of your tool (model number, type, serial number, etc.).
ACCESSORIES

A complete line of accessories is available from your Porter-Cable•Delta Supplier, Porter-Cable•Delta Factory Service Centers, and Porter-Cable Authorized Service Stations. Please visit our Web Site www.porter-cable.com for a catalog or for the name of your nearest supplier.

WARNING Since accessories other than those offered by Porter-Cable•Delta have not been tested with this product, use of such accessories could be hazardous. For safest operation, only Porter-Cable•Delta recommended accessories should be used with this product.

WARRANTY

PORTER-CABLE LIMITED ONE YEAR WARRANTY

Porter-Cable warrants its Professional Power Tools for a period of one year from the date of original purchase. We will repair or replace at our option, any part or parts of the product and accessories covered under this warranty which, after examination, proves to be defective in workmanship or material during the warranty period. For repair or replacement return the complete tool or accessory, transportation prepaid, to your nearest Porter-Cable Service Center or Authorized Service Station: Proof of purchase may be required. This warranty does not apply to repair or replacement required due to misuse, abuse, normal wear and tear or repairs attempted or made by other than our Service Centers or Authorized Service Stations.

ANY IMPLIED WARRANTY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WILL LAST ONLY FOR ONE (1) YEAR FROM THE DATE OF PURCHASE.

To obtain information on warranty performance please write to: PORTER-CABLE CORPORATION, 4825 Highway 45 North, Jackson, Tennessee 38305; Attention: Product Service. THE FOREGOING OBLIGATION IS PORTER-CABLE’S SOLE LIABILITY UNDER THIS OR ANY IMPLIED WARRANTY AND UNDER NO CIRCUMSTANCES SHALL PORTER-CABLE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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