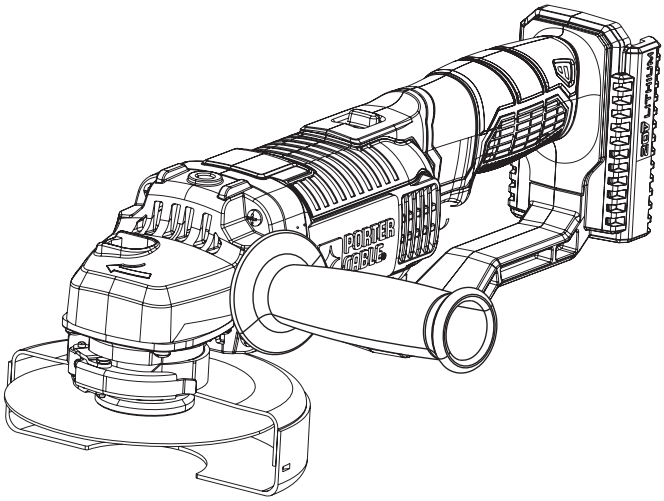
PORTER CABLE®

20v Max* 4-1/2 inch (115mm) Lithium Cut Off Tool / Grinder



*Maximum initial battery pack voltage (measured without a workload) is 20 volts. The nominal voltage is 18.

Instruction manual

CATALOG NUMBER

PCC761

SAFETY GUIDELINES - DEFINITIONS

It is important for you to read and understand this manual. The information it contains relates to protecting **YOUR SAFETY and PREVENTING PROBLEMS.** The symbols below are used to help you recognize this information.

⚠**DANGER:** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠**WARNING:** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠**CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE: Used without the safety alert symbol indicates potentially hazardous situation which, if not avoided, may result in property damage.

General Power Tool Safety Warnings

⚠**WARNING: Read all safety warnings and all 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.

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.*

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. *Protective equipment such as dust mask, nonskid 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 dust collection 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 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) BATTERY TOOL USE AND CARE

a) Recharge only with the charger specified by the manufacturer. *A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*

b) Use power tools only with specifically designated battery packs. Use of any other battery packs may create a risk of injury and fire.

c) When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another. *Shorting the battery terminals together may cause burns or a fire.*

d) Under abusive conditions, liquid may be ejected from the battery, avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. *Liquid ejected from the battery may cause irritation or burns.*

6) 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.*

SAFETY INSTRUCTIONS FOR ALL OPERATIONS

Safety Warnings Common for Grinding, Sanding, Wire Brushing, or Abrasive, Cutting-Off Operations

a) This power tool is intended to function as a grinder, sander, wire brush, or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

b) Operations such as polishing are not recommended to be performed with this power tool. *Operations for which the power tool was not designed may create a hazard and cause personal injury.*

*c) Do not u***se accessories which are not specifically designed and recommended by the tool manufacturer.** Just because the accessory can be attached to your power tool, it does not assure safe operation.

d) The rated speed of the accessory must be at least equal to the maximum speed marked on the power tool. Accessories running faster than their rated speed can break and fly apart.

e) The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool. Incorrectly sized accessories cannot be adequately guarded or controlled.

f) Threaded mounting of accessories must match the grinder spindle thread. For accessories mounted by flanges, the arbour hole of the accessory must fit the locating diameter of the flange. *Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.*

g) **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheel for chips and cracks, backing pad for cracks, tear or excess wear,**

wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute. Damaged accessories will normally break apart during this test time.

h) **Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and work shop apron capable of stopping small abrasive or workpiece fragments.** The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtrating particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.

i) **Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.** Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.

j) **Hold the power tool by insulated gripping surfaces only, when performing an operation where the cutting tool may contact hidden wiring.** Contact with a "live" wire will also make exposed metal parts of the power tool "live" and could give the operator an electric shock.

k) **Position the cord clear of the spinning accessory.** If you lose control, the cord may be cut or snagged and your hand or arm may be pulled into the spinning accessory.

l) **Never lay the power tool down until the accessory has come to a complete stop.** The spinning accessory may grab the surface and pull the power tool out of your control.

m) **Do not run the power tool while carrying it at your side.** Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.

n) **Regularly clean the power tool's air vents.** The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.

o) **Do not operate the power tool near flammable materials.** Sparks could ignite these materials.

p) **Do not use accessories that require liquid coolants.** Using water or other liquid coolants may result in electrocution or shock.

q) **Do not use Type 11 (flaring cup) wheels on this tool.** Using inappropriate accessories can result in injury.

r) **Always use side handle. Tighten the handle securely.** The side handle should always be used to maintain control of the tool at all times.

s) **When starting the tool with a new or replacement wheel, or a new or replacement wire brush installed, hold the tool in a well protected area and let it run for one minute.** If the wheel has an undetected crack or flaw, it should burst in less than one minute. If the wire brush has loose wires, they will be detected. Never start the tool with a person in line with the wheel. This includes the operator.

t) **To prevent the spindle end from contacting the bottom of the hole of the abrasive product, use accessories that have a threaded hole depth of at least 21mm.** Failure to use an accessory with the appropriate thread depth could result in damage to the abrasive product and injury to the operator or persons in the area.

KICKBACK AND RELATED WARNINGS

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions. Kickback is the result of tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below:

a) **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start up.** The operator can control torque reaction or kickback forces, if proper precautions are taken.

b) **Never place your hand near the rotating accessory.** Accessory may kickback over your hand.

c) **Do not position your body in the area where power tool will move if kickback occurs.** Kickback will propel the tool in direction opposite to the wheel's

movement at the point of snagging.

d) **Use special care when working corners, sharp edges etc. Avoid bouncing and snagging the accessory.** Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.

e) **Do not attach a saw chain woodcarving blade or toothed saw blade.** Such blades create frequent kickback and loss of control.

SAFETY WARNINGS SPECIFIC FOR GRINDING AND ABRASIVE CUTTING-OFF OPERATIONS

a) **Use only wheel types that are recommended for your power tool and the specific guard designed for the selected wheel.** Wheels for which the power tool was not designed cannot be adequately guarded and are unsafe.

b) **The grinding surface of the center depressed wheels must be mounted below the plane of the guard lip.** *An improperly mounted wheel that projects through the plane of the guard lip cannot be adequately protected.*

c) **The guard must be securely attached to the power tool and positioned for maximum safety, so the least amount of wheel is exposed towards the operator.** The guard helps to protect operator from broken wheel fragments, accidental contact with wheel and sparks that could ignite clothing.

d) **Wheels must be used only for recommended applications. For example: do not grind with the side of cut-off wheel.** Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.

e) **Always use undamaged wheel flanges that are of correct size and shape for your selected wheel.** Proper wheel flanges support the wheel thus reducing the possibility of wheel breakage. Flanges for cut-off wheels may be different from grinding wheel flanges.

f) **Do not use worn down wheels from larger power tools.** Wheel intended for larger power tool is not suitable for the higher speed of a smaller tool and may burst.

ADDITIONAL SAFETY WARNINGS SPECIFIC FOR ABRASIVE CUTTING-OFF OPERATION

a) **Do not "jam" the cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.** Over stressing the wheel increases the loading and susceptibility to twisting or binding of the wheel in the cut and the possibility of kickback or wheel breakage.

b) **Do not position your body in line with and behind the rotating wheel.** When the wheel, at the point of operation, is moving away from your body, the possible kickback may propel the spinning wheel and the power tool directly at you.

c) **When wheel is binding or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop. Never attempt to remove the cut-off wheel from the cut while the wheel is in motion otherwise kickback may occur.** Investigate and take corrective action to eliminate the cause of wheel binding.

d) **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully reenter the cut.** The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.

e) **Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback.** Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.

f) **Use extra caution when making a "pocket cut" into existing walls or other blind areas.** The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.

g) **It is recommended to use grinding/ cutting wheels no thicker than 1/4 inch (6mm) thick.**

SAFETY WARNINGS SPECIFIC FOR SANDING OPERATIONS

a) **Do not use excessively oversized sanding disc paper. Follow manufacturers recommendations, when selecting sanding paper.** Larger sanding paper extending beyond the sanding pad presents a laceration hazard and may cause snagging, tearing of the disc or kickback.

SAFETY WARNINGS SPECIFIC FOR WIRE BRUSHING OPERATIONS

a) **Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excessive load to the brush.** The wire bristles can easily penetrate light clothing and/or skin.

b) **If the use of a guard is recommended for wire brushing, do not allow any interference of the wire**

wheel or brush with the guard. Wire wheel or brush may expand in diameter due to work and centrifugal forces.

c) *Safety glasses: Safety Goggles or safety glasses with side shields and a full face shield compliant with ANSI Z87.1 eye protection (CAN/CPA Z94.3), must be worn by the operator and others that are within 50 feet of the use of this product/accessory.*

ADDITIONAL SAFETY INFORMATION

- **Do not use Type 1 flat cut-off abrasive or diamond wheels without proper guard.**

⚠**WARNING: Always wear proper personal hearing protection that conforms to ANSI S12.6 (S3.19) during use.** *Under some conditions and duration of use, noise from this product may contribute to hearing loss.*

⚠**WARNING: ALWAYS** use safety glasses. *Everyday eyeglasses are NOT safety glasses. Also use face or dust mask if cutting operation is dusty. ALWAYS WEAR CERTIFIED SAFETY EQUIPMENT:*

- ANSI Z87.1 eye protection (CAN/CSA Z94.3),
- ANSI S12.6 (S3.19) hearing protection,
- NIOSH/OSHA/MSHA respiratory protection.

⚠**WARNING: 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, and*
- *arsenic and chromium from chemically-treated lumber.*

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

- **Avoid prolonged contact with dust from power sanding, sawing, grinding, drilling, and other construction activities. Wear protective clothing and wash exposed areas with soap and water.** *Allowing dust to get into your mouth, eyes, or lay on the skin may promote absorption of harmful chemicals.*

⚠**WARNING:** *Use of this tool can generate and/or disperse dust, which may cause serious and permanent respiratory or other injury. Always use NIOSH/OSHA approved respiratory protection appropriate for the dust exposure. Direct particles away from face and body.*

⚠**WARNING: Do not operate this tool for long periods of time.** Vibration caused by the operating action of this tool may cause permanent injury to fingers, hands, and arms. Use gloves to provide extra cushion, take frequent rest periods, and limit daily time of use.

⚠**WARNING: When not in use, place grinder on a stable surface where it will not move inadvertently, roll or cause a tripping or falling hazard.** The grinder may stand upright on the battery pack but may be easily knocked over. Serious personal injury may result.

⚠**CAUTION: To reduce the risk of personal injury,** use extra care when working into a corner or edge because a sudden, sharp movement of the tool may be experienced when the wheel or other accessory contacts a secondary surface or a surface edge.

- 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. The following table 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.

Minimum Gauge for Cord Sets

Volts	Total Length of Cord in Feet			
120V	0-25 (0-7,6m)	26-50 (7,6-15,2m)	51-100 (15,2-30,4m)	101-150 (30,4-45,7m)
	Ampere Rating			
More Than	Not more Than	American Wire Gauge		
6 -	10 18	16	14	12

SAVE THESE INSTRUCTIONS

SYMBOLS

The label on your tool may include the following symbols. The symbols and their definitions are as follows:

V.....volts
A.....amperes
Hz.....hertz
W.....watts
min.....minutes
~.....alternating current
⎓ or DC.....direct current
n_o .....no load speed
n.....rated speed
Ⓘ.....Class I Construction (grounded)
⏚.....earthing terminal
⚠ .....safety alert symbol
⧈.....Class II Construction (double insulated)
.../min or rpm...revolutions or reciprocation per minute

SPM.....Strokes per minute
5/8 -11 ……. Arbor size and Thread count per inch

.....Read instruction manual before use

.....Use proper eye protection

.....Use proper hearing protection

..... Use proper respiratory protection

IMPORTANT SAFETY INSTRUCTIONS FOR BATTERY CHARGERS

SAVE THESE INSTRUCTIONS: This manual contains important safety instructions for battery chargers.

- Before using charger, read all instructions and cautionary markings on charger, battery pack, and product using battery pack.

⚠**WARNING: Shock hazard.** Do not allow any liquid to get inside charger.

⚠**CAUTION: Burn hazard.** To reduce the risk of injury, charge only designated ***PORTER-CABLE*** batteries. Other types of batteries may burst causing personal injury and damage.

⚠**CAUTION:** Under certain conditions, with the charger plugged in to the power supply, the charger can be shorted by foreign material. Foreign materials of a conductive nature such as, but not limited to, steel wool, aluminum foil, or any buildup of metallic particles should be kept away from charger cavities. Always unplug the charger from the power supply when there is no battery pack in the cavity. Unplug charger before attempting to clean.

- **DO NOT attempt to charge the battery pack with any chargers other than the ones in this manual. *The charger and battery pack are specifically designed to work together.***
- **These chargers are not intended for any uses other than charging designated *PORTER-CABLE* rechargeable batteries. *Any other uses may result in risk of fire, electric shock or electrocution.***
- **Do not expose charger to rain or snow.**
- **Pull by plug rather than cord when disconnecting charger. *This will reduce risk of damage to electric plug and cord.***
- Make sure that cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- Do not use an extension cord unless it is absolutely necessary. Use of improper extension cord could result in risk of fire, electric shock, or electrocution.
- An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety. The smaller the gauge number of the wire, the greater the capacity of the cable, that is 16 gauge has more capacity than 18 gauge. When using more than one extension to make up the total length, be sure each individual extension contains at least the minimum wire size.
- **Do not place any object on top of charger or place the charger on a soft surface that might block the ventilation slots and result in excessive internal heat. Place the charger in a position away from any heat source. *The charger is ventilated through slots in the top and the bottom of the housing.***
- **Do not mount charger on wall or permanently affix charger to any surface.** *The charger is intended to use on a flat, stable surface (i.e., table top, bench top).*
- **Do not operate charger with damaged cord or plug —** *have them replaced immediately.*
- **Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way.** *Take it to an authorized service center.*
- **Do not disassemble charger;** *take it to an authorized service center when service or repair is required. Incorrect reassembly may result in a risk of electric shock, electrocution or fire.*
- **Disconnect the charger from the outlet before attempting any cleaning.** *This will reduce the risk of electric shock. Removing the battery pack will not reduce this risk.*
- **NEVER attempt to connect 2 chargers together.**
- **The charger is designed to operate on standard household electrical power (120 Volts). Do not attempt to use it on any other voltage.**

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTION FOR BATTERY PACKS

⚠**WARNING:** *For safe operation, read this manual and manuals originally supplied with tool before using the charger.*

The battery pack is not fully charged out of the carton. Before using the battery pack and charger, read the safety instructions below. Then follow charging procedures outlined.

READ ALL INSTRUCTIONS

- **Do not incinerate the battery pack even if it is severely damaged or is completely worn out.** *The battery pack can explode in a fire. Toxic fumes and materials are created when battery packs are burned.*
- **Do not charge or use battery in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Inserting or removing the battery from the charger may ignite the dust or fumes.*
- **If battery contents come into contact with the skin, immediately wash area with mild soap and water.** *If battery liquid gets into the eye, rinse water over the open eye for 15 minutes or until irritation ceases. If medical attention is needed, the battery electrolyte for Lithium-Ion batteries is composed of a mixture of liquid organic carbonates and lithium salts.*
- **Contents of opened battery cells may cause respiratory irritation.** *Provide fresh air. If symptoms persist, seek medical attention.*

⚠**WARNING:** *Burn hazard. Battery*

liquid may be flammable if exposed to spark or flame.

- *Charge the battery packs only in PORTER-CABLE chargers.*
- **DO NOT splash or immerse in water or other liquids.** *This may cause premature cell failure.*
- **Do not store or use the tool and battery pack in locations where the temperature may reach or exceed 105°F (40°C) (such as outside sheds or metal buildings in summer).**

⚠**WARNING:** *Never attempt to open the battery pack for any reason. If battery pack case is cracked or damaged, do not insert into charger. Do not crush, drop or damage battery pack. Do not use a battery pack or charger that has received a sharp blow, been dropped, run over or damaged in any way (i.e., pierced with a nail, hit with a hammer, stepped on). Damaged battery packs should be returned to service center for recycling.*

⚠**WARNING: Fire hazard.** *Do not store or carry battery so that metal objects can contact exposed battery terminals. For example, do not place battery in aprons, pockets, tool boxes, product kit boxes, drawers, etc., with loose nails, screws, keys, etc. Transporting batteries can possibly cause fires if the battery terminals inadvertently come in contact with conductive materials such as keys, coins, hand tools and the like. The US Department of Transportation Hazardous Material Regulations (HMR) actually prohibit transporting batteries in commerce or on airplanes (i.e., packed in suitcases and carry-on luggage) UNLESS they are properly protected from short circuits. So when transporting individual batteries, make sure that the battery terminals are protected and well insulated from materials that could contact them and cause a short circuit.*

NOTE: *Lithium-Ion batteries should not be put in checked baggage.*

STORAGE RECOMMENDATIONS

1. The best storage place is one that is cool and dry away from direct sunlight and excess heat or cold.
2. Long-term storage will not harm the battery pack or charger as long as the battery is not depleted.

IMPORTANT CHARGING NOTES

1. Longest life and best performance can be obtained if the battery pack is charged when the air temperature is between 65°F and 75°F (18°- 24°C). DO NOT charge the battery pack in an air temperature below +40°F (+4.5°C), or above +105°F (+40.5°C). This is important and will prevent serious damage to the battery pack.
2. The charger and battery pack may become warm to touch while charging. This is a normal condition, and does not indicate a problem. To facilitate the cooling of the battery pack after use, avoid placing the charger or battery pack in a warm environment such as in a metal shed, or an uninsulated trailer.
3. If the battery pack does not charge properly:
   a. Check current at receptacle by plugging in a lamp or other appliance.
   b. Check to see if receptacle is connected to a light switch which turns power off when you turn out the lights.
   c. Move charger and battery pack to a location where the surrounding air temperature is approximately 65°F - 75°F (18°- 24°C).
   d. If charging problems persist, take the tool, battery pack and charger to your local service center.
4. The battery pack should be recharged when it fails to produce sufficient power on jobs which were easily done previously. **DO NOT CONTINUE** to use under these conditions. Follow the charging procedure. You may also charge a partially used pack whenever you desire with no adverse affect on the battery pack.
5. Foreign materials of a conductive nature such as, but not limited to, steel wool, aluminum foil, or any buildup of metallic particles should be kept away from charger cavities. Always unplug the charger from the power supply when there is no battery pack in the cavity. Unplug charger before attempting to clean.
6. Do not freeze or immerse charger in water or any other liquid.

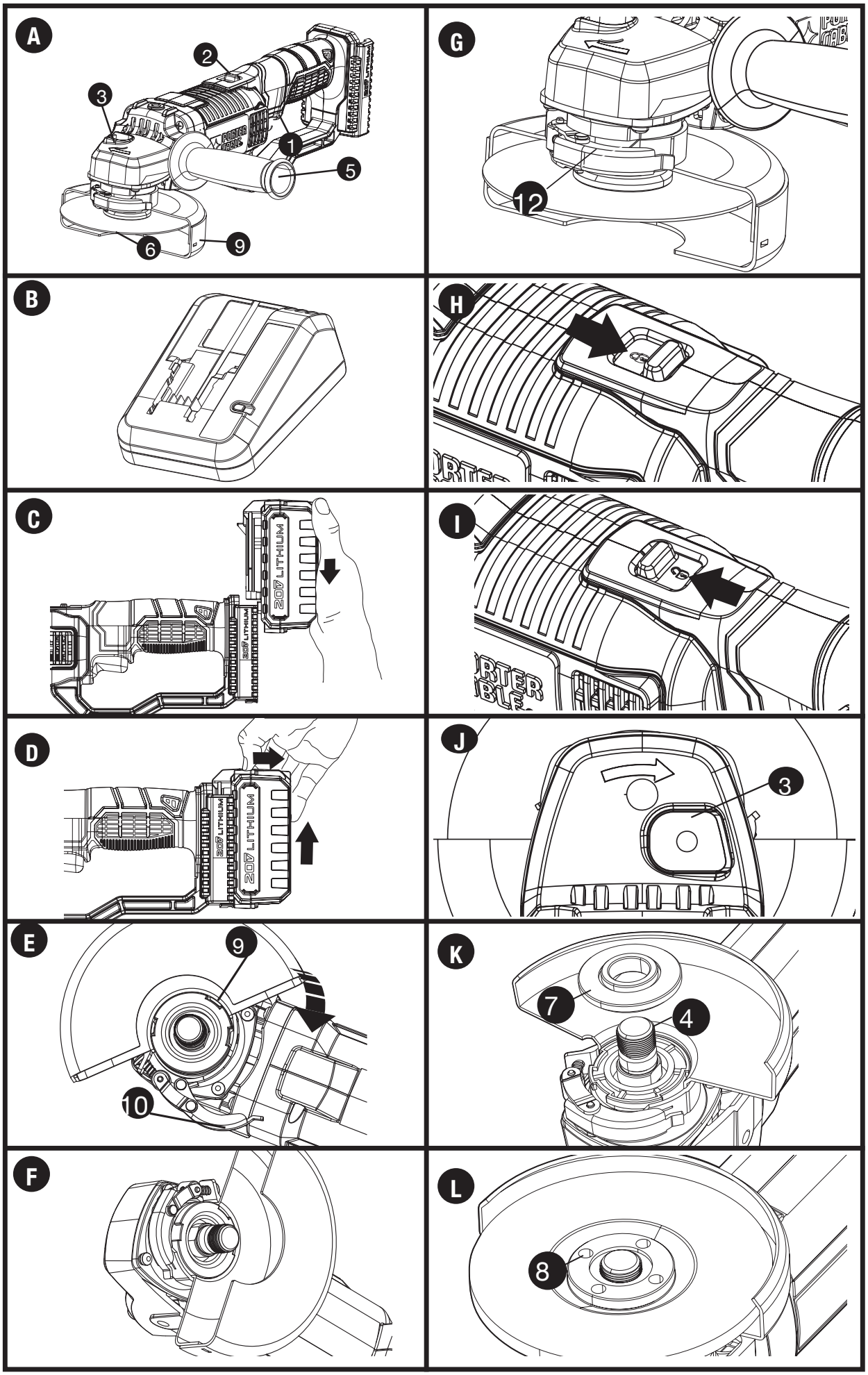
⚠**WARNING: Shock hazard**. Do not allow any liquid to get inside charger.***Never attempt to open the battery pack for any reason. If the plastic housing of the battery pack breaks or cracks, return to a service center for recycling.***

Recharge discharged batteries as soon as possible after use or battery life may be greatly diminished.

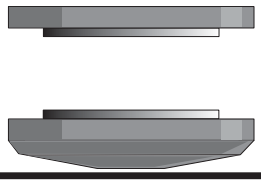
FUNCTIONAL DESCRIPTION FIGURE A

1. Trigger Switch
2. Lock-Off Button
3. Spindle Lock Button
4. Spindle (not shown)
5. Side Handle
6. Abrasive Wheel
7. Unthreaded Backing Flange (not shown)
8. Threaded Clamp Nut (not shown)
9. Guard (Type 1, Type 27)

This product uses the batteries and chargers listed below.
20V Max* Lithium-Ion Batteries: PCC680L, PCC681L, PCC685L, PCC682L 20V Max* Lithium-Ion Chargers: PCC690L, PCC691L, PCC695L, PCC692L



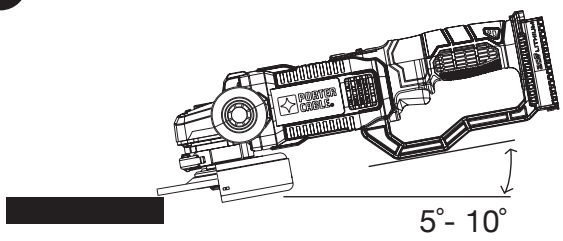
M **1/4 inch wheels**



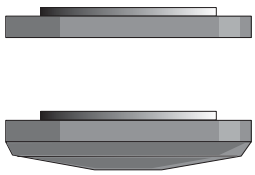
Threaded clamp nut

Backing flange

P



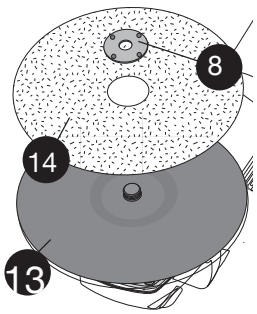
N **1/8 inch wheels**



Threaded clamp nut

Backing flange

Q



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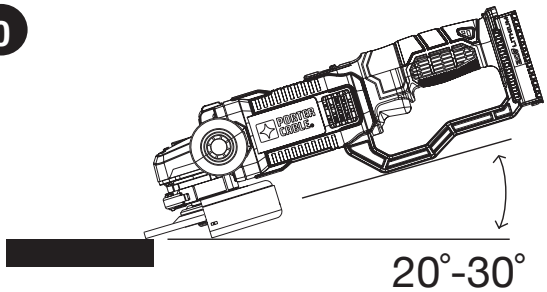

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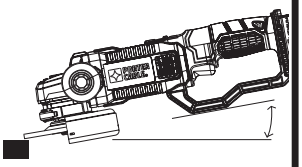

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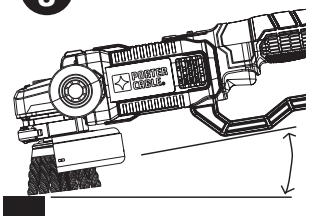
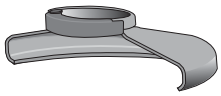
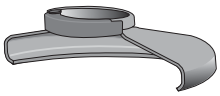


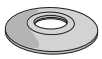
4-1/2 inch (115mm) Grinding Wheels



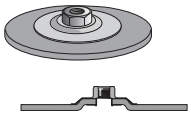
Type 27 guard



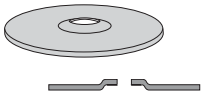
Type 27 guard



Unthreaded backing flange



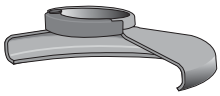
Type 27 hubbed wheel



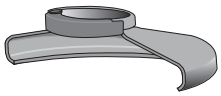
Type 27 depressed center wheel

Threaded clamp nut

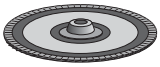
4-1/2 inch (115mm) Sanding Flap Discs



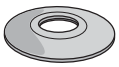
Type 27 guard



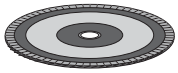
Type 27 guard



Hubbed sanding flap disc



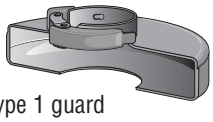
Unthreaded backing flange



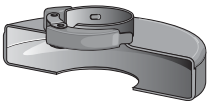
non-hubbed sanding flap disc

Threaded clamp nut

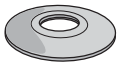
4-1/2 inch (115mm) Type 1 Cutting Wheels



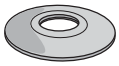
Type 1 guard



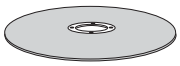
Type 1 guard



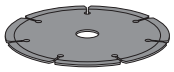
Backing flange



Backing flange



abrasive cutting wheel

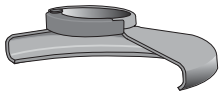


diamond cutting whee

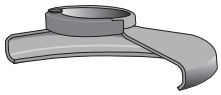
Clamp nut

Clamp nut

Wire Wheels

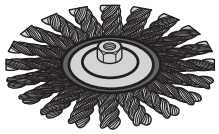


Type 27 guard



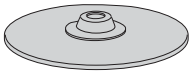
Type 27 guard
Protector tipo 27

3 inch wire cup brush

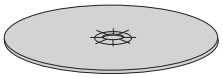


4 inch wire cup brush

Sanding Discs



Rubber backing pad



Sanding disc

Threaded clamp nut

CHARGING PROCEDURE

PORTER-CABLE chargers are designed to charge PORTER-CABLE battery packs. Charge times are: PCC690L and PCC692L in 35-100 mins., PCC691L in 65-200 mins. and PCC695L in 160-300 mins. depending on the pack being charged.

1. Plug the charger into an appropriate outlet before inserting the battery pack.
2. **Figure B-** Insert the battery pack into the charger.
3. The LED will flash indicating that the battery is being charged.
4. The completion of charge is indicated by the LED remaining on continuously. The pack is fully charged and may be used at this time or left on the charger.

CHARGER DIAGNOSTICS

This charger is designed to detect certain problems that can arise with the battery packs or the power source. Problems are indicated by one LED flashing in different patterns.

BAD BATTERY

The charger can detect a weak or damaged battery. The LED flashes in the pattern indicated on the label. If you see this bad battery blink pattern, do not continue to charge the battery. Return it to a service center or a collection site for recycling.

HOT/COLD PACK DELAY

When the charger detects a battery that is excessively hot or excessively cold, it automatically starts a Hot/Cold Pack Delay, suspending charging until the battery has normalized. After this happens, the charger automatically switches to the Pack Charging mode. This feature ensures maximum battery life. The light flashes in the pattern indicated on the label.

PROBLEM POWER LINE

When the charger is used with some portable power sources such as generators or sources that convert DC to AC, the charger may temporarily suspend operation. The LED flashes in the pattern indicated on the label. This indicates that the power source is out of limits.

LEAVING THE BATTERY IN THE CHARGER

The charger and battery pack can be left connected with the LED glowing indefinitely. The charger will keep the battery pack fresh and fully charged. This charger features an automatic tune-up mode which equals or

balances the individual cells in the battery pack to allow it to function at peak capacity. Battery packs should be tuned up weekly or whenever the battery no longer delivers the same amount of work. To use the automatic tune-up mode, place the battery pack in the charger and leave it for at least 8 hours.

INSTALLATION AND REMOVAL OF THE BATTERY PACK

TO INSTALL BATTERY PACK: Figure C-

Insert battery pack onto the tool until an audible click is heard. Make sure battery pack is fully seated and fully latched into position.

TO REMOVE BATTERY PACK: Depress the battery release button as shown in **figure D** and pull battery pack out of the tool.

OPERATING INSTRUCTIONS

⚠**WARNING:** *Always use proper eye protection that conforms to ANSI Z87.1(CAN/CSA Z94.3) while operating this power tool.*

⚠**WARNING: Use clamps or another practical way to secure and support the work piece to a stable platform.** Holding the work by hand or against your body leaves it unstable and may lead to loss of control.

NOTE: Before cutting any type of material, be sure it is firmly anchored or clamped to prevent slipping.

TRIGGER SWITCH

The tool is equipped with a switch lock-off feature to prevent unintentional operation.

• To switch the tool on, press the lock off button (2),
then squeeze the on/off switch (1).

• Releasing the trigger turns the motor OFF.

NOTE: This tool has no provision to lock the switch in the ON position, and should never be locked in the ON position by any other means.

These utilize a carbon steel back welded to high speed steel teeth making the blade more flexible and less prone to breaking

ASSEMBLY

⚠**WARNING: To prevent accidental operation, turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.** Failure to do this could result in serious personal injury.

ATTACHING THE SIDE HANDLE

- A three position auxiliary handle (5) is furnished with your grinder and can be screwed into either side of the grinder housing as well as into the top.

⚠**WARNING:** This handle SHOULD BE USED AT ALL TIMES to maintain complete control of the tool. Always make sure the handle is tight.

ACCESSORIES

It is important to choose the correct guards, backing pads and flanges to use with grinder accessories.

⚠**CAUTION:** Accessories must be rated for at least the speed recommended on the tool warning label. Wheels and other accessories running over their rated accessory speed may fly apart and cause injury. Threaded accessories must have a 5/8 inch-11 hub. Every unthreaded accessory must have a 7/8 inch (22mm) arbor hole. If it does not, it may have been designed for a circular saw. Use only the accessories shown on pages 10 and 11 of this manual. Accessory ratings must always be above tool speed as shown on tool nameplate.

MOUNTING GUARD

MOUNTING AND REMOVING GUARD

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories. Guards must be used with all grinding wheels, sanding flap discs, wire brushes, cut-off wheels and wire wheels. The tool may be used without a guard only when sanding with conventional sanding discs. Porter Cable model PCC671 is provided with a guard intended for use with depressed center wheels (Type 27) and hubbed grinding wheels (Type 27). The same guard is designed for use with sanding flap discs (Type 27 and 29) and wire cup brushes. Grinding and cutting with wheels other than Type 27 and 29 require different accessory guards included with tool. A Type 1 guard is provided for use with a Type 1 wheel **and is shown in figures E and F. Both Type 27 and Type 1 guards attach and are removed in the same way as described in figures E and F.**

FIGURE E

1. ATTACHING - Open the guard latch (10), and align the lugs on the guard (9) with the slots on the gear case cover.
2. Push the guard down until the guard lugs engage and rotate freely in the groove on the gear case hub.
3. With the guard latch open, rotate the guard (9) into the desired working position. The guard body should be positioned between the spindle and the operator to provide maximum operator protection.
4. **Figure F** - Close the guard latch to secure the guard on the gear case. You should not be able to rotate the guard by hand when the latch is closed. Do not operate the grinder with a loose guard or the clamp lever in open position.
5. REMOVING - To remove the guard, open the guard latch, rotate the guard

so that the lugs on the guard (9) are aligned with the slots on the gear case cover, and pull up on the guard.

FIGURE G

NOTE: The guard is pre-adjusted to the diameter of the gear case hub at the factory. If, after a period of time, the guard becomes loose, tighten the adjusting screw (12) with latch in the closed position and guard installed on the tool.

Do not tighten the adjusting screw with the latch in the open position. Undetectable damage to the guard or the mounting hub may result. If the guard cannot be tightened by the guard latch, do not use the tool and take the tool and guard to a service center to repair or replace the guard.

NOTE: Edge grinding and cutting can be performed with Type 27 wheels designed and specified for this purpose; 1/4 inch (6mm) thick wheels are designed for surface grinding while 1/8 inch (3mm) wheels are designed for edge grinding. Cutting can also be performed by using a Type 1 wheel and a Type 1 guard.

OPERATION

SWITCH - FIGURE H & I

Lock-off Button and Trigger Switch

Your cut-off tool is equipped with a lock-off button (2).

To lock the trigger switch (1), move the lock-off button (2) to the rear as shown in Figure H. When the lock-off button is moved to this position, the trigger switch is locked. Always lock the trigger switch when carrying or storing the tool to eliminate unintentional starting.

To unlock the trigger switch, move the lock-off button to the front as shown in Figure I. When the lock-off button is moved to this position, the trigger switch is unlocked. Pull the trigger switch (1) to turn the motor ON. Releasing the trigger switch turns the motor OFF.

NOTE: This tool has no provision to lock the switch in the ON position, and should never be locked ON by any other means.

Hold the side handle (5) and body of the tool firmly to maintain control of the tool at start up and during use and until the wheel or accessory stops rotating. Make sure the wheel has come to a complete stop before laying the tool down.

Allow the tool to reach full speed before touching tool to the work surface. Lift the tool from the work surface before turning the tool off.

SPINDLE LOCK

The spindle lock button (3) is provided to prevent the spindle from rotating when installing or removing wheels. Operate the spindle lock only when the tool is turned off, the battery is removed, and the wheel has come to a complete stop.

Do not engage the spindle lock while the tool is operating. Damage to the tool will result and attached accessory may spin off possibly resulting in injury.

To engage the lock, depress the spindle lock button shown in **figure J** and rotate the spindle until you are unable to rotate the spindle further.

MOUNTING AND USING DEPRESSED CENTER GRINDING WHEELS AND SANDING FLAP DISCS

MOUNTING AND REMOVING HUBBED WHEELS

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

Hubbed wheels install directly on the 5/8 in.-11 threaded spindle.

1. Thread the wheel on the spindle by hand.
2. Depress the spindle lock button and use a wrench to tighten the hub of the wheel.
3. Reverse the above procedure to remove the wheel.

Failure to properly seat the wheel before turning the tool on may result in damage to the tool or the wheel.

MOUNTING NON-HUBBED WHEELS

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

Depressed center Type 27 grinding wheels must be used with included flanges. See pages 13 and 14 of this manual for more information.

1. **Figure K -** Install the unthreaded backing flange (7) on spindle (4) with the raised section (pilot) against the wheel.
2. Place wheel against the backing flange, centering the wheel on the raised section (pilot) of the backing flange.
3. **Figure L -** While depressing the spindle lock button, thread the threaded clamp nut (8) on spindle.
   Figure M - If the wheel you are installing is **more than 1/8 inch (3mm) thick**, place the threaded clamp nut on the spindle so that the raised section (pilot) **fits into the center of the wheel. Figure N -** If the wheel you are installing is **1/8 inch (3mm) thick or less**, place the threaded clamp nut on the spindle so that the raised section (pilot) **is not against the wheel.**
4. While depressing the spindle lock button (3), tighten the threaded clamp nut with included wrench.
5. To remove the wheel, depress the spindle lock button and loosen the threaded clamp nut with included wrench.

NOTE: If the wheel spins after the

threaded clamp nut is tightened, check the orientation of the threaded clamp nut. If a thin wheel is installed with the pilot on the clamp nut against the wheel, it will spin because the height of the pilot prevents the clamp nut from holding the wheel.

SURFACE GRINDING WITH GRINDING WHEELS

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to the work surface, allowing the tool to operate at high speed. Grinding rate is greatest when the tool operates at high speed.
3. **Figure O -** Maintain a 20˚ to 30˚ angle between the tool and work surface.
4. Continuously move the tool in a forward and back motion to avoid creating gouges in the work surface.
5. Remove the tool from work surface before turning tool off. Allow the tool to stop rotating before laying it down.

EDGE GRINDING WITH GRINDING WHEELS

Wheels used for cutting and edge grinding may break or kick back if they bend or twist while the tool is being used to do cut-off work or deep grinding. To reduce the risk of serious injury, limit the use of these wheels with a standard Type 27 guard to shallow cutting and notching (less than 1/2 inch (13mm) in depth). The open side of the guard must be positioned away from the operator. For deeper cutting with a Type 1 cut-off wheel, use a closed Type 1 guard. See pages 13 and 14 for more information.

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to the work surface, allowing the tool to operate at high speed. Grinding rate is greatest when the tool operates at high speed.
3. Position yourself so that the open-underside of the wheel is facing away from you.
4. Once a cut is begun and a notch is established in the workpiece, do not change the angle of the cut. Changing the angle will cause the wheel to bend and may cause wheel breakage. Edge grinding wheels are not designed to withstand side pressures caused by bending.
5. Remove the tool from the work surface before turning the tool off. Allow the tool to stop rotating before laying it down.

Do not use edge grinding/cutting wheels for surface grinding applications because these wheels are not designed for side pressures encountered with surface grinding. Wheel breakage and injury may result.

SURFACE FINISHING WITH SANDING FLAP DISCS

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to work surface, allowing the tool to operate at high speed. Sanding rate is greatest when the tool operates at high speed.
3. **Figure P -** Maintain a 5˚ to 10˚ angle between the tool and work surface.
4. Continuously move the tool in a forward and back motion to avoid creating gouges in the work surface.
5. Remove the tool from work surface before turning tool off. Allow the tool to stop rotating before laying it down.

MOUNTING SANDING BACKING PADS

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

NOTE: Guard may be removed when using sanding backing pads

Proper guard must be reinstalled for grinding wheel, sanding flap disc, cutoff wheel, wire brush or wire wheel applications after sanding applications are complete.

1. **Figure Q -** Place or appropriately thread backing pad (13) on the spindle.
2. Place the sanding disc (14) on the backing pad (13).
3. While depressing spindle lock, thread clamp nut (8) on spindle, piloting the raised hub on the clamp nut into the center of sanding disc and backing pad.
4. Tighten the clamp nut by hand. Then depress the spindle lock button while turning the sanding disc until the sanding disc and clamp nut are snug.
5. To remove the wheel, grasp and turn the backing pad and sanding pad while depressing the spindle lock button.

USING SANDING BACKING PADS

Choose the proper grit sanding discs for your application. Sanding discs are available in various grits. Coarse grits yield faster material removal rates and a rougher finish. Finer grits yield slower material removal and a smoother finish.

Begin with coarse grit discs for fast, rough material removal. Move to a medium grit paper and finish with a fine grit disc for optimal finish.

Coarse	16 - 30 grit
Medium	36 - 80 grit
Fine Finishing	100 - 120 grit
Very Fine Finishing	150 - 180 grit

1. Allow the tool to reach full speed before touching tool to the work surface.
2. Apply minimum pressure to work surface, allowing the tool to operate at high speed. Sanding rate is greatest when the tool operates at high speed.
3. **Figure R -** Maintain a 5˚ to 15˚ angle between the tool and work surface. The sanding disc should contact approximately

one inch (25mm) of work surface.
4. Move the tool constantly in a straight line to prevent burning and swirling of work surface. Allowing the tool to rest on the work surface without moving, or moving the tool in a circular motion causes burning and swirling marks on the work surface.
5. Remove the tool from work surface before turning tool off. Allow the tool to stop rotating before laying it down.

PRECAUTIONS TO TAKE WHEN SANDING PAINT

1. Sanding of lead based paint is NOT RECOMMENDED due to the difficulty of controlling the contaminated dust. The greatest danger of lead poisoning is to children and pregnant women.
2. Since it is difficult to identify whether or not a paint contains lead without a chemical analysis, we recommend the following precautions when sanding any paint:

PERSONAL SAFETY

1. No children or pregnant women should enter the work area where the paint sanding is being done until all clean up is completed.
2. A dust mask or respirator should be worn by all persons entering the work area. The filter should be replaced daily or whenever the wearer has difficulty breathing.

   NOTE: Only those dust masks suitable for working with lead paint dust and fumes should be used. Ordinary painting masks do not offer this protection. See your local hardware dealer for the proper N.I.O.S.H. approved mask.
3. NO EATING, DRINKING or SMOKING should be done in the work area to prevent ingesting contaminated paint particles. Workers should wash and clean up BEFORE eating, drinking or smoking. Articles of food, drink, or smoking should not be left in the work area where dust would settle on them.

ENVIRONMENTAL SAFETY

1. Paint should be removed in such a manner as to minimize the amount of dust generated.
2. Areas where paint removal is occurring should be sealed with plastic sheeting of 4 mils thickness.
3. Sanding should be done in a manner to reduce tracking of paint dust outside the work area.

CLEANING AND DISPOSAL

1. All surfaces in the work area should be vacuumed and thoroughly cleaned daily for the duration of the sanding project. Vacuum filter bags should be changed frequently.
2. Plastic drop cloths should be gathered up and disposed of along with any dust chips or other removal debris. They should be placed in sealed refuse receptacles and disposed of through regular trash pick-up procedures. During clean up, children and pregnant women should be kept away from the immediate work area.
3. All toys, washable furniture and utensils used by children should be washed thoroughly before being used again.

MOUNTING AND USING WIRE BRUSHES AND WIRE WHEELS

Wire cup brushes or wire wheels screw directly on the grinder spindle without the use of flanges. Use only wire brushes or wheels provided with a 5/8 inch-11 threaded hub. A Type 27 guard is required when using wire brushes and wheels. **Wear work gloves when handling wire brushes and wheels.** They can become sharp.

Wheel or brush must not touch guard when mounted or while in use. Undetectable damage could occur to the accessory, causing wires to fragment from accessory wheel or cup.

MOUNTING WIRE CUP BRUSHES AND WIRE WHEELS

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

1. Thread the wheel on the spindle by hand.
2. Depress spindle lock button and use a wrench on the hub of the wire wheel or brush to tighten the wheel.
3. To remove the wheel, reverse the above procedure.

Failure to properly seat the wheel hub before turning the tool on may result in damage to tool or wheel.

USING WIRE CUP BRUSHES AND WIRE WHEELS

Wire wheels and brushes can be used for removing rust, scale and paint, and for smoothing irregular surfaces.

NOTE: The same precautions should be taken when wire brushng paint as when sanding paint.

1. Allow the tool to reach full speed before touching the tool to the work surface.
2. Apply minimum pressure to work surface, allowing the tool to operate at high speed. Material removal rate is greatest when the tool operates at high speed.
3. **Figure S -** Maintain a 5˚ to 10˚ angle between the tool and work surface for wire cup brushes.
4. Maintain contact between the edge of the wheel and the work surface with wire wheels.
5. Continuously move the tool in a forward and back motion to avoid creating gouges in the work surface. Allowing

the tool to rest on the work surface without moving, or moving the tool in a circular motion causes burning and swirling marks on the work surface.

6. Remove the tool from the work surface before turning the tool off. Allow the tool to stop rotating before setting it down.

Use extra care when working over an edge, as a sudden sharp movement of grinder may be experienced.

MOUNTING AND USING CUTTING (TYPE 1) WHEELS

Cutting wheels include diamond wheels and abrasive discs. Abrasive cutting wheels for metal and concrete use are available. Diamond blades for concrete cutting can also be used.

A closed, 2-sided type 1 cutting wheel guard is included with this tool and is required when using cutting wheels. Failure to use proper flange and guard can result in injury resulting from wheel breakage and wheel contact. See pages 10 and 11 for more information.

MOUNTING CLOSED (TYPE 1) GUARD

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

1. Open the guard latch (10), and align the arrow on the guard (9) with the arrow on the hub (11). This will align the lugs with slots on the gear case cover. Position the guard facing backward.
2. Push the guard down until the guard lug engages and rotates freely in the groove on the gear case hub.
3. Rotate guard (9) into desired working position. The guard body should be positioned between the spindle and the operator to provide maximum operator protection.
4. Close the guard latch to secure the guard on the gear case cover. You should be unable to rotate the guard by hand when the latch is in closed position. Do not operate grinder with a loose guard or clamp lever in open position.
5. To remove the guard, open the guard latch, rotate the guard so that the arrows are aligned and pull up on the guard.

NOTE: The guard is pre-adjusted to the diameter of the gear case hub at the factory. If, after a period of time, the guard becomes loose, tighten the adjusting screw (12) with the clamp lever in the closed position with guard installed on the tool.

Do not tighten adjusting screw with clamp lever in open position. Undetectable damage to guard or mounting hub may result.

MOUNTING CUTTING WHEELS

Turn off tool and remove battery before making any adjustments or removing or installing attachments or accessories.

Matching diameter backing flange and threaded clamp nut (included with tool) must be used for cutting wheels.

1. Place the unthreaded backing flange on spindle with the raised section (pilot) facing up. The raised section (pilot) on the backing flange will be against the wheel when the wheel is installed.
2. Place the wheel on the backing flange, centering the wheel on the raised section (pilot).
3. Install the threaded clamp nut with the raised section (pilot) facing away from the wheel.
4. Depress the spindle lock button and tighten clamp nut with included wrench.
5. To remove the wheel, depress the spindle lock button and loosen the threaded clamp nut with included wrench.

USING CUTTING WHEELS

Do not use edge grinding/cutting wheels for surface grinding applications because these wheels are not designed for side pressures encountered with surface grinding. Wheel breakage and injury may result.

1. Allow tool to reach full speed before touching tool to work surface.
2. Apply minimum pressure to work surface, allowing tool to operate at high speed. Cutting rate is greatest when the tool operates at high speed.
3. Once a cut is begun and a notch is established in the workpiece, do not change the angle of the cut. Changing the angle will cause the wheel to bend and may cause wheel breakage.
4. Remove the tool from work surface before turning tool off. Allow the tool to stop rotating before setting it down.

MAINTENANCE

CLEANING

Blowing dust and grit out of the motor housing using compressed air is a necessary maintenance procedure. Dust and grit from metal grinding often accumulate on interior surfaces and could create an electrical shock hazard if not cleaned out.

- Always handle accessories with care when mounting or removing.
- The best storage place for accessories is one that is cool and dry away from direct sunlight and excess heat or cold.

⚠**WARNING: ALWAYS** use safety glasses. Everyday eyeglasses are **NOT** safety glasses. Also use face or dust mask if cutting operation is dusty. **ALWAYS WEAR CERTIFIED SAFETY EQUIPMENT:**

- ANSI Z87.1 eye protection (CAN/CSA Z94.3),
- ANSI S12.6 (S3.19) hearing protection,
- NIOSH/OSHA/MSHA respiratory protection.

Use only mild soap and a damp cloth to clean the tool. Never let any liquid get inside the tool;

never immerse any part of the tool into a liquid.

LUBRICATION

Porter Cable tools are properly lubricated at the factory and are ready for use. Tools should be lubricated regularly every year depending on usage. (Tools used on heavy duty jobs and tools exposed to heat may require more frequent lubrication.) This lubrication should be attempted only by trained power tool repairperson's such as those at Porter Cable service centers or in other qualified service personnel.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
• Light will not illuminate	• Battery pack not installed properly.	• Check battery pack installation.
	• Battery pack not charged.	• Check battery pack charging requirements.
• Battery pack will not charge.	• Battery pack not inserted into charger.	• Insert battery pack into charger until LED illuminates.
	• Charger not plugged in.	• Plug charger into a working outlet. Refer to "Important Charging Notes" for more details.
	• Surrounding air temperature too hot or too cold.	• Move charger and battery pack to a surrounding air temperature of above 40 degrees F (4,5°C) or below 105 degrees F (+40,5°C).
• Unit shuts off abruptly.	• Battery pack has reached its maximum thermal limit.	• Allow battery pack to cool down.
	• Out of charge. (**To maximize the life of the battery pack it is designed to shutoff abruptly when the charge is depleted.**)	• Place on charger and allow to charge.