

**M** 1/4 inch wheels



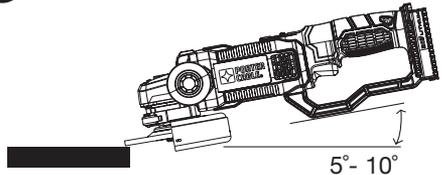
Threaded clamp nut



Backing flange



**P**



5° - 10°

**N** 1/8 inch wheels



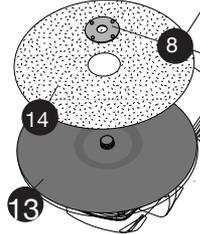
Threaded clamp nut



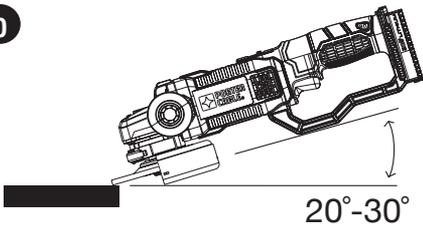
Backing flange



**Q**

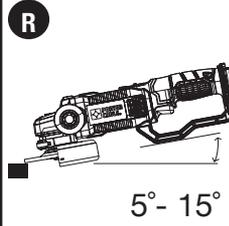


**O**



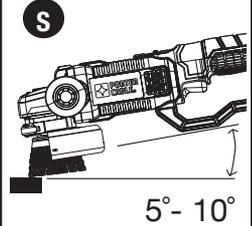
20° - 30°

**R**



5° - 15°

**S**



5° - 10°

**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 wheel



Clamp nut

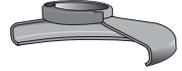


Clamp nut

## 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 in 35-80 mins., PCC691L in 65-140 mins. and PCC695L in 160-360 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 brushing 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**