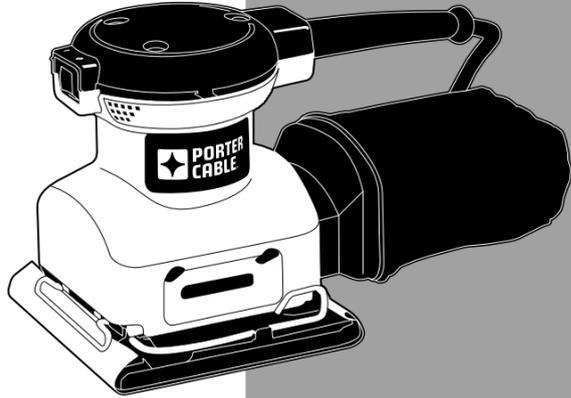


## 1/4 SHEET PALM SANDER

Instruction manual



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The following are PORTER-CABLE trademarks for one or more power tools and accessories: a gray and black color scheme; a four-point star design; and three contrasting/outlined longitudinal stripes.

### DEFINITIONS - SAFETY GUIDELINES

- ⚠ 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.

**⚠ WARNING:** To reduce the risk of injury, read the instruction manual.

### 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.

#### 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, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.

- c) **Prevent unintentional starting. Ensure the switch is in the off position before connecting to power source and/or battery pack, picking up or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
- d) **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.
- e) **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- f) **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** Loose clothes, jewelry or long hair can be caught in moving parts.
- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of 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) 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.

### ADDITIONAL SPECIFIC SAFETY RULES

- **Hold power tools by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord.** Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.
- **Do not sand metal of any kind with your sander.** Sparks may be generated by sanding screws, nails or other metals which may ignite dust particles.
- **Do not wet sand with this sander.** Liquids may enter the motor housing and cause electric shock.
- **Empty dust collection system frequently, especially when sanding resin-coated surfaces such as polyurethane, varnish, shellac, etc.** Dispose of coated dust particles according to the finish manufacturer's guidelines, or place in a metal can with a tight fitting metal lid. Remove coated dust particles from the premises daily. The accumulation of fine sanding dust particles may self ignite and cause fire.
- **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.
- **Sanding of lead-based paint, chemically pressure treated lumber or other materials that may contain carcinogens is not recommended.** Sanding of these materials should only be performed by a professional.
- **Clean out your tool often, especially after heavy use.** Dust and grit containing metal particles often accumulate on interior surfaces and could create a risk of serious injury, electric shock or electrocution. Always disconnect the sander from the power source before cleaning. Always wear safety glasses that conform to ANSI Z87.1.
- **Always disconnect tool from the power source before changing abrasive sheets.** Such preventive safety measures reduce the risk of starting the power tool accidentally.
- **Air vents often cover moving parts and should be avoided.** Loose clothes, jewelry or long hair can be caught in moving parts.
- **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. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. When using more than one extension to make up the total length, be sure each individual extension contains at least the minimum wire size. The following table shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Ampere Rating		Minimum Gauge for Cord Sets				
		Volts	Total Length of Cord in Feet (meters)			
More Than	Not More Than	120V	25 (7.6)	50 (15.2)	100 (30.5)	150 (45.7)
		240V	50 (15.2)	100 (30.5)	200 (61.0)	300 (91.4)
		AWG				
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

**⚠ 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:** 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.

- 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	~ or AC .....alternating current
== DC.....direct current	⊘ or AC/DC .....alternating or direct current
Ⓛ.....Class I Construction (grounded)	no.....no load speed
Ⓜ.....Class II Construction (double insulated)	n.....rated speed
.../min.....per minute	⊕ .....earthing terminal
	⚠.....safety alert symbol
	BPM.....beats per minute

IPM.....impacts per minute      RPM.....revolutions per minute  
 SPM.....strokes per minute      sfpm.....surface feet per minute

**ADDITIONAL SAFETY RULES FOR PAINT REMOVAL**

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. See your local hardware store for the proper NIOSH approved dust 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 mil 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.

**SAVE THESE INSTRUCTIONS FOR FUTURE USE**

**MOTOR**

Be sure your power supply agrees with nameplate marking. 120 Volts AC means your tool will operate on alternating current. As little as 10% lower voltage can cause loss of power and can result in overheating. All PORTER-CABLE tools are factory-tested; if this tool does not operate, check the power supply.

**COMPONENTS (FIG. 2, 3, 5, 7, 10)**

**▲WARNING:** Never modify the power tool or any part of it. Damage or personal injury could result.

- |                   |                  |
|-------------------|------------------|
| A. Clamp lever    | D. Switch        |
| B. Paper punch    | E. Brush holders |
| C. Collection bag | F. Brush springs |

**▲WARNING:** Accessories must be rated for at least the speed recommended on the tool warning label. Accessories running over rated speed can fly apart and cause injury. Accessory ratings must always be above tool speed as shown on tool nameplate.

**OPERATION**

**▲WARNING:** To reduce the risk of injury, turn unit off and disconnect it from power source before installing and removing accessories, before adjusting or when making repairs. An accidental start-up can cause injury.

**ATTACHING ABRASIVE PAPER (FIG. 1-3, 5)**

Your sander is designed to use quarter sheet sandpaper. A quarter sheet of sandpaper is measured 4-1/2" x 5-1/2" (114.3 mm x 139.7 mm). This size paper can be made by:

- a. Cutting full sized - 9" x 11" (228.6 mm x 279.4 mm) - sandpaper into 1/4 sheets of 4-1/2" x 5-1/2" (114.3 mm x 139.7 mm).
- b. Cutting half sheet of sandpaper into two 4-1/2" x 5-1/2" (114.3 mm x 139.7 mm) sheets.
- c. Pre-cut 4-1/2" x 5-1/2" (114.3 mm x 139.7 mm) sandpaper is available at extra cost.

For normal operations, assemble the abrasive paper to your unit as follows.

1. Soften the stiff sandpaper by pulling it over the 90° edge of a table or other straight edge, as shown in Figure 1. Concentrate on softening the edges to be clamped.
2. Release clamp by pulling up on clamp lever (A) and disengaging it from the tab on the base plate. Fig. 2.
3. Insert the 4-1/2" (114.3 mm) edge of the abrasive paper under the front paper clamp, as shown in Figure 3 until it hits the paper limiting ribs shown in the figure. Close the front paper clamp and hook it into the lock position behind the tab on the base plate.
4. Stretch paper over sanding pad and insert under the opposite clamp in the same way.
5. If you are using the dust extraction feature, perforate the sandpaper with the provided paper punch (B) as shown in Figure 5. (See **Paper Punch** section.)

**SWITCH (FIG. 4)**

**▲WARNING:** To reduce the risk of injury, make sure the sander is not resting on the workpiece when the switch is turned on.

To turn the unit on, depress the side of the dust protected switch (D) that corresponds to the symbol "I". To turn the tool off, depress the side of the switch that corresponds to the symbol "O". See Figure 4.

**PAPER PUNCH (FIG. 5, 6)**

A paper punch (B) is provided with your sander to let you perforate regular sandpaper to make dust collection possible.

To perforate your sandpaper, install the sandpaper on the tool as instructed in this manual. With the sander turned off and unplugged, place the paper punch on the paper so that the tabs at the edges of the punch are against any two adjacent sides of the sanding pad, as shown in Figure 5. Press the punch against the pad so that the 8 points penetrate the paper, as shown in Figure 6. (Press the punch into the pad as far as it will go.) Remove the paper punch and the paper is ready. An alternate method of perforating the paper is to fasten the punch down to a suitable work surface and press the sander (with the paper attached) down on the punch. Two holes are provided in the punch for this purpose. Use #8 flat head screws.

**DUST COLLECTION BAG (FIG. 7)**

**▲WARNING:** To reduce the risk of serious personal injury, NEVER operate this tool with perforated paper unless the dust collection system is in place.

**▲WARNING:** Empty dust collection system frequently, especially when sanding resin-coated surfaces such as polyurethane, varnish, shellac, etc. Dispose of coated dust particles according to the finish manufacturer's guidelines, or place in a metal can with a tight fitting metal lid. Remove coated dust particles from the premises daily. The accumulation of fine sanding dust particles may self ignite and cause fire.

To use the dust collecting system, lower the plastic end of the collection bag (C) over the flange and push it down as far as it will go, as shown.

To empty the dust collection bag, simply lift it up, off of the sander and empty over a trash receptacle.

**OPERATION (FIG. 8)**

To operate your sander, grasp it as shown in Figure 8 and turn it on. Move it in long, sweeping strokes along the surface being sanded, letting it do the work. Pushing down on the tool while sanding actually slows the removal rate and produces an inferior quality surface. Be sure to check your work often, this sander is capable of removing material rapidly, especially with coarse paper.

Your sander is designed to sand flush on three sides (four sides without the dust collection bag) for sanding in corners, and its small size and light weight make it ideal for overhead work.

The orbital action of your sander allows you to sand with the grain or at any angle across it for most sanding jobs. On the final sanding steps, as discussed below, a better finish will result if you sand only with the grain.

To produce the best finish possible, start with coarse grit sandpaper and change gradually to finer and finer paper. A final sanding with a piece of well worn fine sandpaper will produce a really professional looking finish that in many cases will need no hand sanding at all. The rate at which the dust collection bag will fill up will vary with the type of material being sanded and the coarseness of the sandpaper. For best results, empty the bag frequently and check the opening for clogging.

When sanding painted surfaces, you may find that the sandpaper loads up and clogs with paint. A heat gun will work much better to remove paint before sanding. FOLLOW ALL SAFETY INSTRUCTIONS IN HEAT GUN INSTRUCTION MANUAL.

**MAINTENANCE**

**▲WARNING:** To reduce the risk of injury, turn unit off and disconnect it from power source before installing and removing accessories, before adjusting or when making repairs. An accidental start-up can cause injury.

FIG. 1

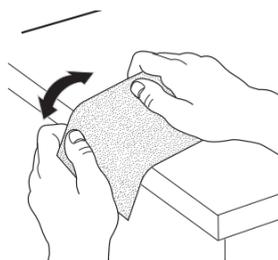


FIG. 2

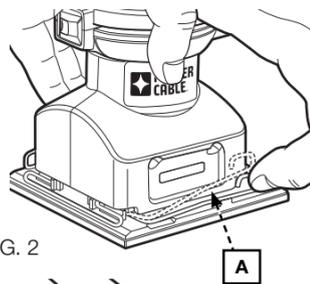


FIG. 4

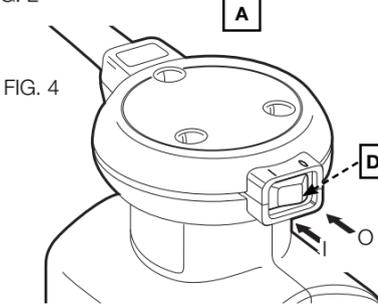


FIG. 6

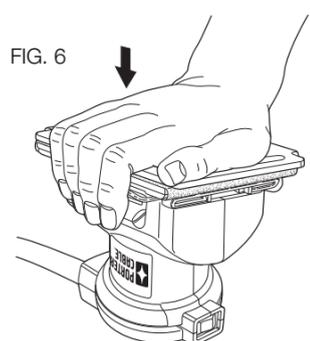


FIG. 8

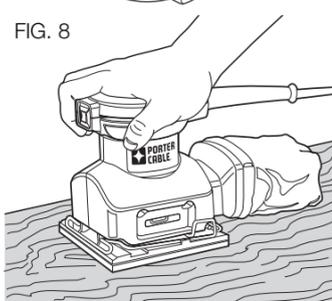


FIG. 3

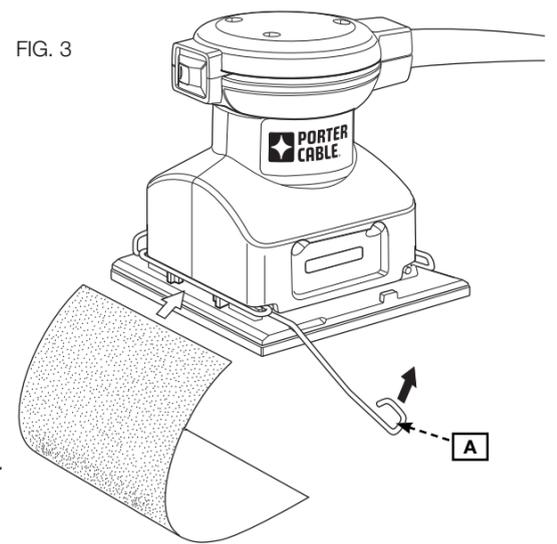


FIG. 5

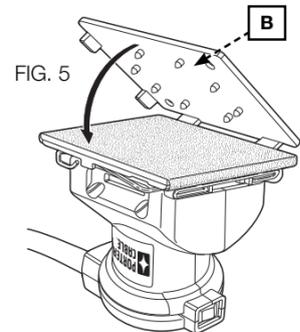


FIG. 7

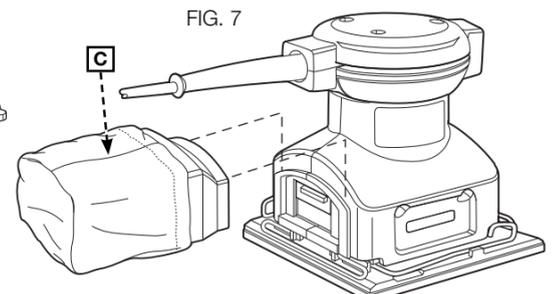


FIG. 9

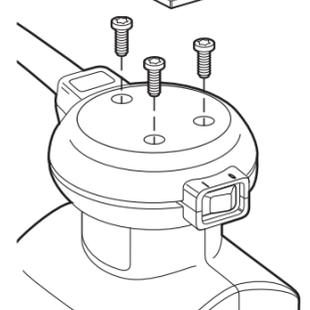
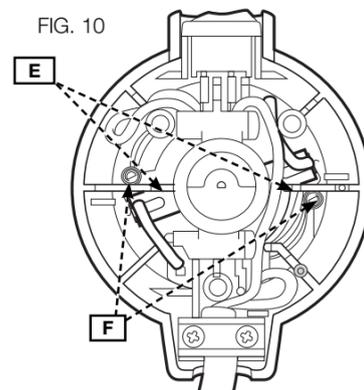


FIG. 10



**CLEANING**

**▲WARNING:** Periodically blowing dust and chips out of the motor housing using clean, dry compressed air is a suggested maintenance procedure. To reduce the risk of serious personal injury, ALWAYS wear ANSI Z87.1 safety glasses while using compressed air.

**▲WARNING:** When cleaning, use only mild soap and a damp cloth on plastic parts. Many household cleaners contain chemicals which could seriously damage plastic. Also, do not use gasoline, turpentine, lacquer, paint thinner, dry cleaning fluids or similar products which may seriously damage plastic parts. NEVER let any liquid get inside the tool; NEVER immerse any part of the tool into a liquid.

**FAILURE TO START**

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

**TOOL CARE**

Avoid overloading your sander. Overloading will result in a considerable reduction in speed and efficiency and the unit will become hot. In this event, run sander at a "no load" condition for a minute or two.

**BRUSH REPLACEMENT (FIG 9, 10)**

To replace the tool's brushes, remove the three screws located in the top cap, as shown in Figure 9. Lift off the top cap. Observe the brush holders (E), as shown in Figure 10 and the wires leading from the brushes to the motor field.

Pull the wires from the motor field and then lift and hold out of the way one of the brush springs (F). Remove the old brush from the brush holder and discard the brush/wire assembly. Still holding the brush spring out of the way, insert the new brush, release the spring against the back of the brush and plug the wire into the motor field. Repeat the procedure for the second brush.

Replace the top cap and tighten the three screws that hold it in place. (Always replace both brushes.)

**LUBRICATION**

Self lubricating bearings are used in the tool and periodic relubrication is not required. However, it is recommended that, once a year, you take or send the tool to a service center for a thorough cleaning and inspection.