

8" Variable Speed Bench Grinder



CAUTION

Read and Understand this manual before assembling and operating this grinder



THIS SYMBOL DESIGNATES THAT THIS TOOL IS LISTED BY THE INTERTEK TESTING SERVICES, TO UNITED STATES AND CANADIAN STANDARDS



GENERAL & SPECIFIC SAFETY RULES

1. **KEEP GUARDS IN PLACE** and in working order.
2. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
3. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
4. **KEEP CHILDREN AWAY.** All visitors should be kept safe distance away from work area.
5. **MAKE WORKSHOP KID PROOF** removing starter keys.
6. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it is designed.
7. **USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. 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. Table shows the correct size to use depending on cord length and name plate ampere rating. If in doubt, use the next heavier gauge.
8. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelery which may get caught in moving parts. Nonslip footwear is recommended. wear protective hair covering to contain long hair.

9. **ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
10. **DISCONNECT TOOLS** before servicing; when changing accessories, such as blades, bits, cutters, and the like.
11. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.
12. **USE INCLUDED ACCESSORIES.** Consult the owner's manual for included accessories. The use of 3rd party accessories may cause risk of injury to persons.
13. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A part that is damaged should be properly repaired or replaced.
14. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN YOUR POWER OFF.** Don't leave tool until it comes to a complete stop.

Ampere Rating		Volts	Total length of cord in feet			
		120 V	25 ft	50 ft	100 ft	150 ft
More Than	Not More Than	AWG Wire Gauge				
5*	10		18*	16*	14*	12*
10	12		16	16	14	12
12	16		14	12	Not Recommended	

*GRIND3X Rating

GRINDER SAFETY RULES

1. Always use guards and eye shields. Always wear safety glasses or eye protection when operating this tool and keep the eye shields mounted in their proper position on the wheel guard.
2. Replace a cracked wheel immediately. Handle wheels carefully to avoid bumping or dropping. DO NOT use a grinding wheel that has been dropped. Before use, inspect each wheel for cracks or flaws. If cracks are evident, discard the wheel.
3. Before mounting a new wheel, be sure that it is marked with a RPM. that is the same as, or higher than the no load speed of the grinder as marked on the nameplate.
4. Never start a grinder with anyone, including the operator, standing in line with the wheel. After installing a replacement wheel, stand to one side and allow it to run for about one minute.
5. Do not grind on the sides of grinding wheels unless they are the special wheels designed specifically for this purpose.
6. Do not over tighten wheel nut.
7. Use only flanges furnished with this grinder.
8. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to assure that it will operate properly and perform its intended function; check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect it's operation. A guard or other part that is damaged should be properly repaired or replaced.
9. Bolt bench grinder to a bench of pedestal to prevent movement.
10. Use any accessory only in the proper and intended manner.

WARNING

To assure that no damage has been done to this unit during shipment, move the grinding wheel manually before electrically running this unit.

If the grinding wheel does **NOT** spin freely, check this operation manual to make proper adjustments.

THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

IN THE EVENT OF A MALFUNCTION OR BREAKDOWN, grounding provides the path of least resistance for electric current and reduces the risk of electric shock. This tool is equipped with an electric cord that has an equipment grounding conductor and a grounding plug. The plug **MUST** be plugged into a matching electrical receptacle that is properly installed and grounded in accordance with ALL local codes and ordinances.

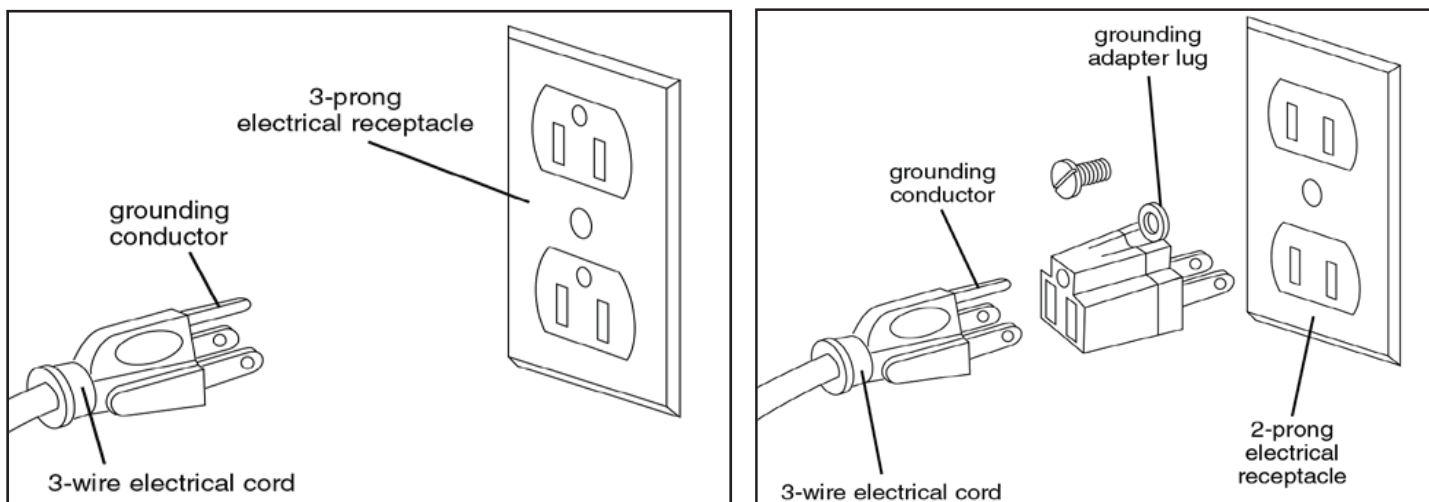
DO NOT MODIFY THE PLUG PROVIDED.

If it will not fit the electrical receptacle, have the proper electrical receptacle installed by a qualified electrician.

IMPROPER ELECTRICAL CONNECTION of the equipment grounding conductor can result in risk of electric shock. The conductor with the green insulation (with or without yellow stripes) is the equipment grounding conductor. **DO NOT** connect the equipment grounding conductor to a live terminal if repair or replacement of the electric cord or plug is necessary. **CHECK** with a qualified electrician or service personnel if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

USE ONLY A 3-WIRE EXTENSION CORD THAT HAS A 3-PRONG GROUNDING PLUG AND A 3-POLE RECEPTACLE THAT ACCEPTS THE TOOL'S PLUG. REPLACE A DAMAGED OR WORN CORD IMMEDIATELY.

This tool is intended for use on a circuit that has an electrical receptacle as shown in Left Figure. Shows a 3-wire electrical plug and electrical receptacle that has a grounding conductor. If a properly grounded electrical receptacle is not available, an adapter as shown in Right Figure can be used to temporarily connect this plug to a 2-contact ungrounded receptacle. The adapter has a rigid lug extending from it that **MUST** be connected to a permanent earth ground, such as a properly grounded receptacle box. **THIS ADAPTER IS PROHIBITED IN CANADA.**



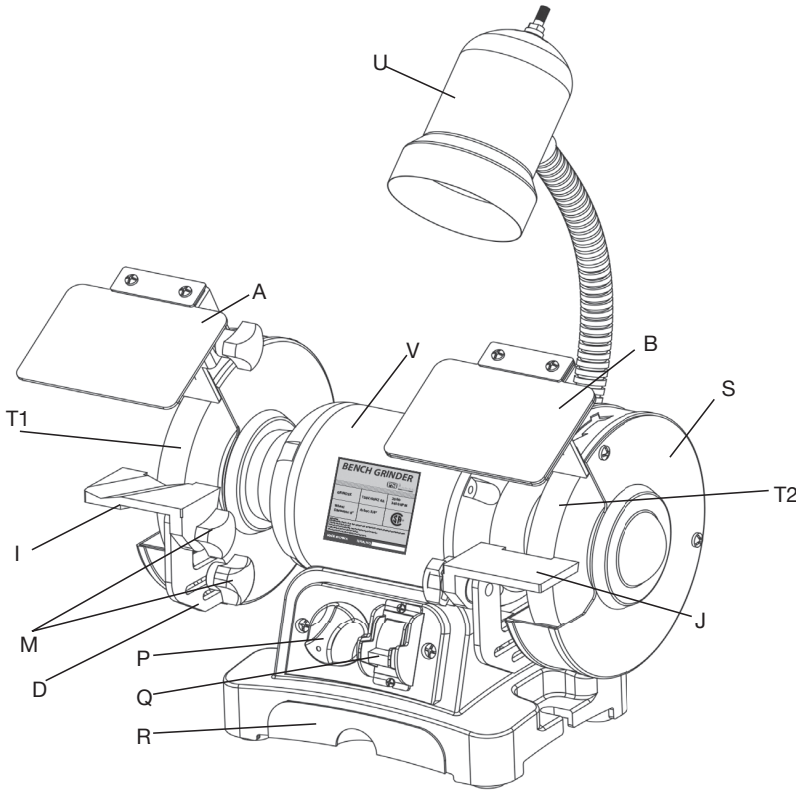
WARRANTY

This Grinder is warranted against defects in materials and workmanship for a period of two (2) years from the date of purchase. This warranty applies to the purchaser of this product, and is limited to repair or replacement of the product or its parts at PSI Woodworking Products' discretion. Excluded are parts, which have been misused, abused, altered, or consumed by normal operation of the machine. Also excluded are direct or consequential damages to the persons, property, and/or materials. Your invoice serves as proof of purchase and must be referenced prior to return authorization. Contact your dealer where you purchased your grinder for service or repair issues.

SPECIFICATIONS

MOTOR POWER	3/4HP, 120v, 5a, 60Hz
MOTOR RPM	2000 to 3400 RPM (variable)
GRINDING WHEEL SIZE	8" x 1", 5/8" Bore
GRINDING WHEEL GRIT	120 Grit (White) & 60 Grit (Grey)
LAMP	120v, 40 Watt or Less
SPARKS ARRESTORS	Left and Right
EYE SHIELDS	Clear Plastic, Left and Right
TOOL RESTS	Left and Right
QUENCH TRAY	3.4" W x 2.8" L x .63" D

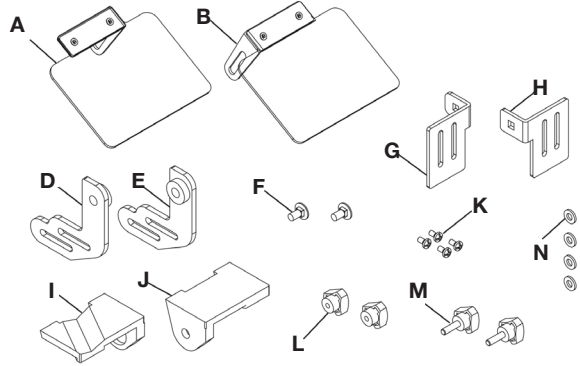
COMPONENTS



8" BENCH GRINDER OVERVIEW

- | | |
|-------------------------------|--------------------------------|
| A. Eyeshield Assembly, Left | R. Quench Tray |
| B. Eyeshield Assembly, Right | S. Wheel Cover |
| I. Tool Rest Left | T1. 8" Grinding Wheel 120 Grit |
| J. Toolrest Right | T2. 8" Grinding Wheel 60 Grit |
| M. Tool Rest Adjustment Knobs | U. Gooseneck Lamp |
| O. 8" Grinding Wheel 120 grit | V. Motor |
| P. Variable Speed Dial | W. Switch Assembly (Not Shown) |
| Q. Switch Key | X. Capacitor (Not Shown) |

CARTON CONTENTS



The following items are provided in parts bag inside the shipping box:

- Grinder (not shown)
- A. Eyeshield assembly, left
- B. Eyeshield assembly, right
- D. Tool rest support, right
- E. Tool rest support, left
- F. Carriage bolt M6 x 12 (2)
- G. Spark arrestor, left
- H. Spark arrestor, right
- I. Tool rest, left
- J. Tool rest, right
- K. Pan head screws w/ washers M5 x 10 (4)
- L. Eyeshield knob (2)
- M. Tool rest knob (2)
- N. Flat Washer M6 (4)
- Light Bulb (not shown)

PARTS KEY:

- ZGR3X-01 (A - M) Parts Bag
- ZGR3X-02 (P + Q + W) Switch Assembly
- ZGR3X-03 (Q) Switch Key
- ZGR3X-04 (X) Capacitor

ASSEMBLY INSTRUCTIONS

TOOL RESTS (Figs. A and B)

The Bench Grinder is provided with two different Tool Rests assemblies. The Left Side Tool Rest is grooved to accept drill bits. The Right Side Tool Rest is entirely flat.

1. Assemble the Tool Rest Supports (D,E) to the inside surface of the Wheel Covers (S) with the flat and lock washers (N) and knobs (M) as shown.
2. Assemble the Tool Rests (I,J) to the Supports (D,E) with the flat washers (N) and Adjustment Knobs (M) as shown. See Figure B.
3. Adjust each Tool Rest until its inside edge is 1/16" from the grinding wheel. Firmly tighten the knobs holding the supports.

Fig. A

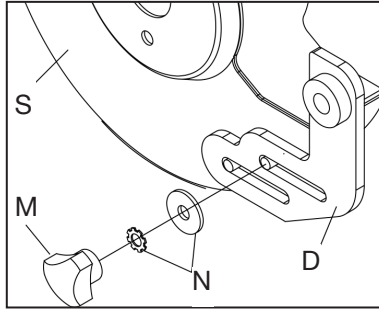
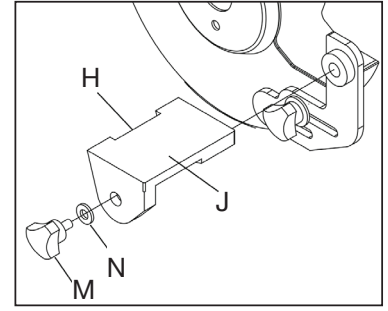


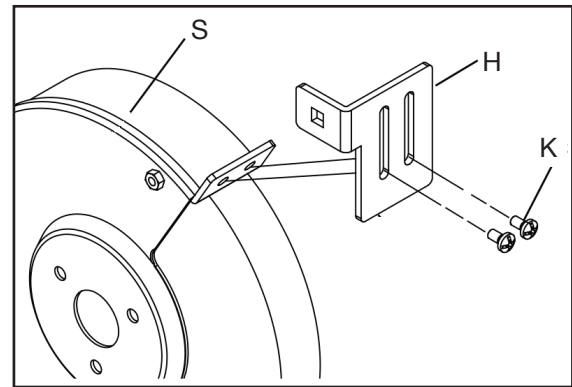
Fig. B



SPARK ARRESTORS (Fig. C)

1. Assemble the Spark Arrestors (G,H) to the front surface of the Wheel Covers (S) with the flat washers and pan head screws (K) as shown. See Figure C.
2. Adjust each Spark Arrestor until the lower edge is 1/16" from the grinding wheel. Firmly tighten the hex head screws.

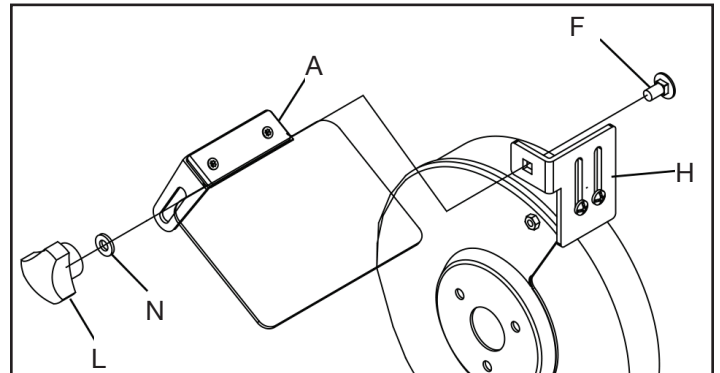
Fig. C - Spark Arrestors



EYESHIELDS (Fig. D)

1. Assemble the eyeshield (A,B) to the mounted Spark Arrestors (G,H) inserting carriage head screw (F) through the Spark Arrestor and the Eyeshield as shown.
2. Assemble the flat washer (N) and Lock Knob (L) to the carriage head screw and tighten until the Eyeshield remains in the desired position.

Fig. D - Eye Shields



WORK LIGHT

The Bench Grinder is provided with a Flexible Work Light (U) to assist in visibility of the workpiece. Accepts 40watt bulb

PERMANENT MOUNTING

Use the mounting pads on the base of the grinder to firmly attach grinder to a solid work surface (hardware not included).

OPERATING INSTRUCTIONS

When you face the bench grinder, the wheel on your left is a 120 grit grinding wheel. The wheel to your right (J) is a 60 grit grinding wheel. These wheels are used for grinding wood and plastic, removing paint and rust, polishing metal, honing cutting tools, smoothing rough edges on glass, sheet metal, etc.

To operate the bench grinder, put on safety glasses or other eye protection and hold the work firmly. Rest the work on the tool rest and feed it slowly into the wheel at the desired grinding angle. Treat the wheel with respect, never jam work into the wheel or use unnecessary pressure.

Grind only on the face of the grinding wheel, unless you have special wheels specifically made to permit grinding on the side of the wheel. This bench grinder is equipped with two grinding wheels.

GRINDING SPEED CHART

Low Speed 1745 RPM <i>Light Duty Operations</i>	High Speed 3450 RPM <i>Heavy Duty/Normal Operations</i>
Light Grinding	Heavy Grinding
Chisel Sharpening	Stock Removal
Rust and paint removal	Deburring
Lowered grinding temperature	Buffing

Before Starting

1. The Power Switch must be in the "OFF" position and the Variable Speed Switch must be turned to its slowest setting by being turned all the way to the left until solid resistance is felt.
2. Stand to the side of the Bench Grinder and plug in the power cord to a suitable power source.
3. Remain to the side of the Bench Grinder and turn it "ON" by moving the power switch to the up position.
4. Allow the grinding wheels to come up to a steady speed for at least one minute. The R.P.M.'s of the Bench Grinder can be now increased to the desired speed for the particular grinding operation by rotating the Variable Speed Switch clockwise.
5. Adjust the eyeshields. Place the workpiece on the appropriate tool rest for the desired operation.
6. Move the workpiece towards the grinding wheel until it lightly touches. Move the workpiece back and forth across the front surface of the grinding wheel removing the amount of material desired.

WARNING:

To avoid serious injury, never grind on the sides of the grinding wheels.

7. To use the Drill Bit Sharpening tool rest, lay the drill bit flat in the "V" groove. Firmly hold on to the drill bit shank. Slide the drill bit towards the grinding wheel unit until it lightly touches. Keep the drill bit flat to the plate and rotate the drill bit.
8. The operator may place the hot end of the workpiece into the water in the quench tray to cool it.
9. After completing the grinding operations, turn "OFF" the Bench Grinder by pushing down on the Power Switch.

CAUTION:

It will take a few minutes for the grinding wheels to come to a complete stop.

10. Turn the Variable Speed Switch counterclockwise to return it to its slowest setting.

CAUTION:

If used, the Flexible Work Light housing will remain hot for a few minutes after turning it "OFF". Avoid contact with housing until it is cool.

11. Unplug the Bench Grinder from the power source. NOTE: To prevent unauthorized use of the Bench Grinder, the power switch has a removable locking key. With the power switch in the "OFF" position, pull the locking key out. The Bench Grinder cannot be turned "ON" with the key removed. Insert the locking key to resume grinding operations.

CHANGING THE GRINDING WHEEL (Fig. K)

Due to normal wear, both wheels will need to be replaced occasionally.

1. Turn the power switch OFF and unplug the power cord from its power source.
2. Rotate the eyeshield up to access the tool rest.
3. Loosen the tool rest knob and rotate the tool rest away from the grinding wheel.
4. Remove the Wheel Cover (B).
5. Push a wood wedge between the grinding wheel and the guard. Then use a crescent wrench to remove the arbor hex nut.

6. NOTE: The left hand arbor hex nut (E) is left hand threaded and is loosened by rotating it clockwise. The right hand arbor hex nut is right hand threaded and is loosened by rotating it counter-clockwise.
7. Remove the Outer Wheel Flange (H) and then the abrasive wheel (I) from the arbor shaft.

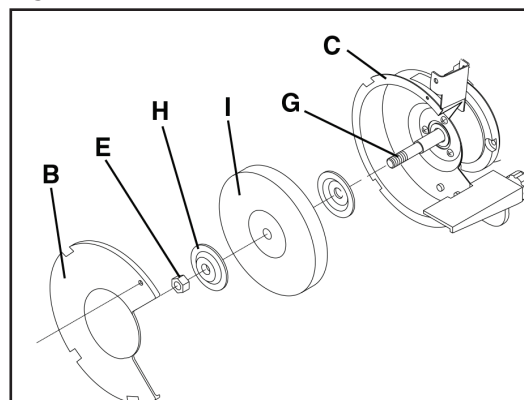
8. **CAUTION:** The new abrasive wheel to be put onto the grinder must have a higher R.P.M. rating than the grinder (3450 R.P.M.). The new abrasive wheel must have the correct outer wheel diameter and bore diameter as original wheels. The label on the side of the abrasive wheel must stay on. DO NOT remove this label.

9. Replace the abrasive wheel, outer wheel flange and arbor hex nut.
NOTE: The left hand arbor hex nut is left hand threaded and is tightened by rotating it counter-clockwise. The right hand arbor hex nut is right hand threaded and is tightened by rotating it clockwise.

CAUTION:

DO NOT OVER TIGHTEN the arbor hex nut as this may damage the abrasive wheel and cause serious injury to the operator.

Fig. K



Follow the same procedure for replacing the right wheel.

TROUBLESHOOTING

TO PREVENT INJURY TO YOURSELF or damage to the Bench Grinder, turn the switch to the “OFF” position and unplug the power cord from the electrical receptacle before making any adjustments.

PROBLEM	LIKELY CAUSE(S)	SOLUTION
Motor does not run	<ol style="list-style-type: none"> 1. Machine not plugged in 2. Power switch in “OFF” position 3. Power cord is faulty 4. Fuse or circuit breaker are open 5. Circuit board has failed 	<ol style="list-style-type: none"> 1. Plug power cord into electrical receptacle 2. Lift switch to “ON” position 3. Replace power cord 4. Overloaded electrical circuit 5. Replace circuit board
Motor does not have full power	<ol style="list-style-type: none"> 1. Incorrect line voltage 2. Capacitor has failed 3. Circuit board has failed 	<ol style="list-style-type: none"> 1. Have a qualified electrician check line for proper voltage 2. Replace capacitor 3. Replace circuit board
Motor runs hot	<ol style="list-style-type: none"> 1. Motor is overloaded 2. Poor air circulation around motor 	<ol style="list-style-type: none"> 1. Reduce pressure on workpiece 2. Remove any blockage around motor
Motor stalls or runs slow	<ol style="list-style-type: none"> 1. Motor is overloaded 2. Incorrect line voltage 3. Capacitor has failed 	<ol style="list-style-type: none"> 1. Reduce pressure on workpiece 2. Have a qualified electrician check line for proper voltage 3. Replace capacitor
Fuse blows or circuit breaker trips	<ol style="list-style-type: none"> 1. Motor overloaded 2. Overloaded electrical circuit 3. Wrong fuse or circuit breaker 4. Undersized or excessive length of extension cord, see manual 5. Grinding wheels are blocked 	<ol style="list-style-type: none"> 1. Reduce pressure on workpiece 2. Reduce the amount of items on circuit 3. Replace with correct fuse or circuit breaker 4. Use correct size 5. Unplug machine and remove obstruction



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