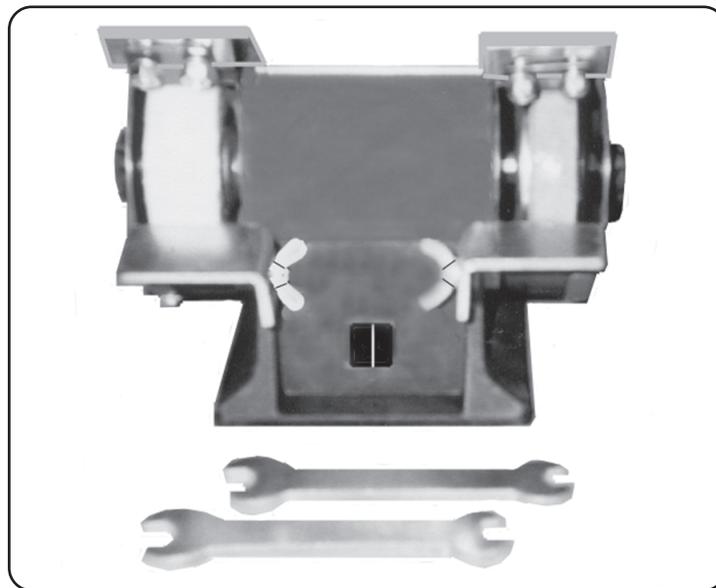


CHICAGO
Electric® Power Tools

3" MINI TOOL GRINDER

Model 94071

ASSEMBLY AND OPERATING INSTRUCTIONS



Distributed Exclusively by



**HARBOR FREIGHT
TOOLS**



3491 Mission Oaks Blvd., Camarillo, CA 93011

Visit our Web site at: <http://www.harborfreight.com>

**TO PREVENT SERIOUS INJURY,
READ AND UNDERSTAND ALL WARNINGS
AND INSTRUCTIONS BEFORE USE.**

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For technical questions, please call 1-800-444-3353.

PRODUCT SPECIFICATIONS

Item	Description
Electrical Requirements	Power Input: 120VAC/60Hz Motor: Single Speed / 3450 RPM Power Cord Length: 6 Feet Power Cord Plug Type: 3 Prong, Grounded Power Switch Type: On/Off Rocker Switch
Grinding Wheel	3" Diameter x 1/2" Thick / 80 Grit / Aluminum Oxide
Buffing Wheel	3" Diameter x 3/8" Thick / Cotton
Arbor Size	1/2" Diameter
Mounting Holes	3/16" Diameter (Qty. 4)
Additional Features	Non-Slip Rubber Pads (Removable)/ Tool Rest / Spark Shields
Accessories	8MM Spanner Wrench (Qty. 1) / 10MM Spanner Wrench (Qty. 1)
Overall Dimensions	5-1/8" H x 6-1/2" W x 4-1/2" D
Unit Weight	4.5 Pounds

SAVE THIS MANUAL

You will need this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures, parts list and assembly diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

GENERAL SAFETY RULES

WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS
Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.
SAVE THESE INSTRUCTIONS

WORK AREA

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **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.

3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

ELECTRICAL SAFETY

4. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.** If the tools should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
5. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation eliminates the need for the three wire grounded power cord and grounded power supply system.
6. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
7. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
8. **Do not abuse the Power Cord. Never use the Power Cord to carry the tools or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.
9. **When operating a power tool outside, use an outdoor extension cord marked “W-A” or “W”.** These extension cords are rated for outdoor use, and reduce the risk of electric shock.

PERSONAL SAFETY

10. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.

11. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
12. **Avoid accidental starting. Be sure the Power Switch is off before plugging in.** Carrying power tools with your finger on the Power Switch, or plugging in power tools with the Power Switch on, invites accidents.
13. **Remove adjusting keys or wrenches before turning the power tool on.** A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
14. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
15. **Use safety equipment. Always wear eye protection.** Dust mask, nonskid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

TOOL USE AND CARE

16. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
17. **Do not use the power tool if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.
18. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
19. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
20. **Maintain tools with care. Keep cutting tools sharp and clean.** Properly maintained tools with a sharp cutting edge are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired.

21. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
22. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

SERVICE

23. **Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
24. **When servicing a tool, use only identical replacement parts. Follow instructions in the “*Inspection, Maintenance, And Cleaning*” section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES

1. **Avoid serious eye injury.** ALWAYS wear ANSI-approved safety impact eye glasses underneath an ANSI-approved safety impact full face shield when operating the Grinder.
2. **Dress safely.** Do not wear loose clothing or jewelry as they can become caught in moving parts. Wear a protective hair covering to prevent long hair from becoming caught in moving parts. If wearing long-sleeve shirt, roll sleeves up above the elbows.
3. **Make sure the Power Switch (7) is in its “OFF” position before plugging the Power Cord/Plug (13) into an electrical outlet.**
4. **Do not abuse the Power Cord/Plug (13).** Do not pull the Power Cord to disconnect the Plug from an electrical outlet. Do not move the Grinder with the Power Cord/Plug in the outlet. Keep the Power Cord/Plug away from heat, oil, sharp, edges, and its own Buffing Wheel (39) and Grinding Wheel (40).
5. **Never leave the Grinder unattended while it is running.** Always turn off the tool, unplug the tool from its electrical outlet, and wait until its wheels stop rotating before leaving the area.
6. **Never use the *sides* of the Grinding Wheel (40) to grind objects.**

7. **Keep all Guards in place and in proper working order.**
8. **Remove adjusting keys and wrenches.** Check to make sure all adjusting keys and wrenches are removed from this tool before turning it on.
9. **Never attempt to remove material stuck in the moving parts of the Grinder while the tool is turned on, plugged in, or running.**
10. **Use light pressure when starting to grind.** Too much pressure on a cold Grinding Wheel (40) can cause the wheel to crack.
11. **When replacing the Buffing Wheel (39) and/or Grinding Wheel (40), make sure each wheel has a minimum 3500 RPM rating.**
12. **When replacing the Grinding Wheel (40), do not overtighten the Hex Nut (41).** Excessive tightening can cause the Grinding Wheel to crack during operation. Be sure to reassemble all Flanges (37).
13. **Adjust the distance between the Buffing Wheel (39)/ Grinding Wheel (40) and Moveable Tool Rest (5) to maintain a 1/16" or less separation as the diameter of the wheels decrease with use.**
14. **Turn off the Grinder, unplug its Power Cord/Plug (13) from its 120 volt, grounded, electrical outlet, and allow the tool to completely stop prior to performing any inspection, maintenance, or cleaning on the unit.**
15. **Use the right tool or attachment for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this product was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this product, and do not use this product for a purpose for which it was not intended.
16.  **WARNING!** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities, contain 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 or other masonry products, arsenic and chromium from chemically treated lumber. Your risk from these exposures varies, 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.
(California Health & Safety Code 25249.5, et seq.)

17. **Industrial applications must follow OSHA requirements.**
18. **Maintain labels and nameplates on the Grinder.** These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
19.  **WARNING!** People with pacemakers should consult their physician(s) before using this product. Operation of electrical equipment in close proximity to a heart pacemaker could cause interference or failure of the pacemaker.
20.  **WARNING!** The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

GROUNDING

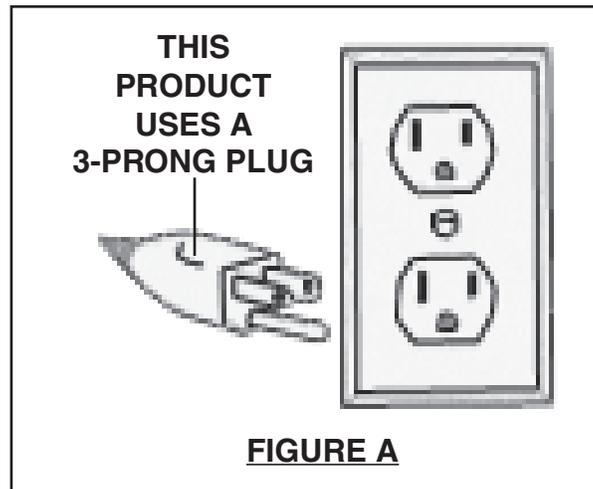
WARNING!

Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

GROUNDED TOOLS: TOOLS WITH THREE PRONG PLUGS

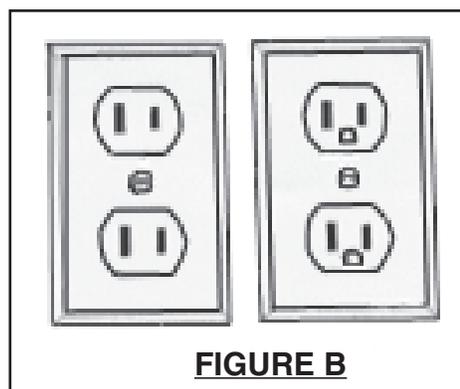
1. Tools marked with “Grounding Required” have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock. **(See Figure A, next page.)**
2. The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool’s grounding system and must never be attached to an electrically “live” terminal. **(See Figure A.)**

3. Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in the following illustration. **(See Figure A.)**



DOUBLE INSULATED TOOLS: TOOLS WITH TWO PRONG PLUGS

4. Tools marked “Double Insulated” do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association, and the National Electrical Code. **(See Figure B.)**
5. Double insulated tools may be used in either of the 120 volt outlets shown in the following illustration. **(See Figure B.)**



EXTENSION CORDS

1. **Grounded** tools require a three wire extension cord. **Double Insulated** tools can use either a two or three wire extension cord.
2. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. **(See Figure C.)**
3. The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. **(See Figure C.)**
4. If using more than one extension cord to make up the total length, make sure each cord contains at least the minimum wire size required. **(See Figure C.)**
5. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum cord size. **(See Figure C.)**
6. If you are using an extension cord outdoors, make sure it is marked with the suffix “W-A” (“W” in Canada) to indicate it is acceptable for outdoor use.
7. Make sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified electrician before using it.
8. Protect your extension cords from sharp objects, excessive heat, and damp or wet areas.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS* (120 VOLT)					
NAMEPLATE AMPERES (At Full Load)	EXTENSION CORD LENGTH				
	25 Feet	50 Feet	75 Feet	100 Feet	150 Feet
0 – 2.0	18	18	18	18	16
2.1 – 3.4	18	18	18	16	14
3.5 – 5.0	18	18	16	14	12
5.1 – 7.0	18	16	14	12	12
7.1 – 12.0	18	14	12	10	-
12.1 – 16.0	14	12	10	-	-
16.1 – 20.0	12	10	-	-	-

* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

FIGURE C

SYMBOLOLOGY

FIGURE D

	Double Insulated
	Canadian Standards Association
	Underwriters Laboratories, Inc.
V ~	Volts Alternating Current
A	Amperes
n_o xxxx/min.	No Load Revolutions per Minute (RPM)

UNPACKING

When unpacking, check to make sure all the parts shown on the **Parts List on page 14** are included. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

ASSEMBLY INSTRUCTIONS

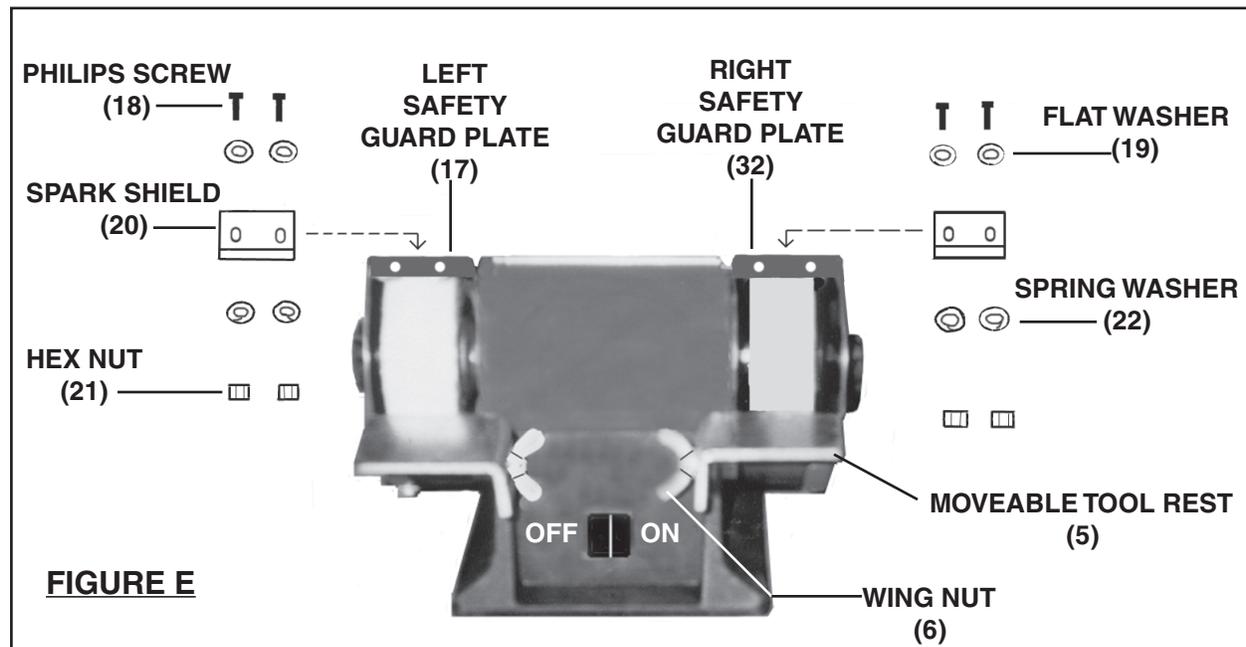
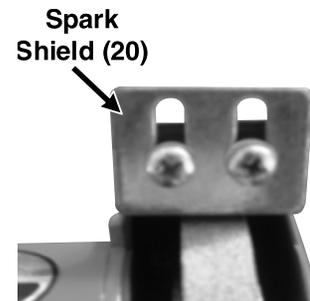
1.  **WARNING!** Make sure the Power Switch (7) of the Grinder is in its “OFF” position and its Power Cord/Plug (13) is unplugged from the electrical outlet prior to performing any assembly.

To Attach The Right Moveable Tool Rest:

1. The *left* Moveable Tool Rest (5) has been pre-attached by the manufacturer. However, the *right* Moveable Tool Rest (5) must be attached by the operator prior to using the Grinder. (See Figure E, next page.)
2. To attach the right Moveable Tool Rest (5), insert its mounting slot onto the protruding, threaded, Bolt located on the front of the Grinder. Then, secure the Moveable Tool Rest, using the Wing Nut (6). **IMPORTANT: Make sure to adjust the distance between the Moveable Tool Rest and Grinding Wheel (40) to a 1/16” or less separation.** (See Figure E.)

To Attach The Spark Shields:

1. A Spark Shield (20) must be attached to both the Left Safety Guard Plate (17) and Right Safety Guard Plate (32).
2. To do so, for each Spark Shield use two Philips Screws (18), two Flat Washers (19), two Spring Washers (22), and two Hex Nuts (21). Be sure to orient it as shown in the illustration to the right. (See also Figure E, below.)



To Mount The Grinder On A Workbench:

1. **⚠ CAUTION!** Make sure the workbench on which the Grinder will be mounted is flat, level, and sturdy enough to support the weight of the Grinder, any work-pieces, and any additional tools.
2. The Grinder is equipped with four Rubber Feet (3) which allows the tool to be temporarily placed upon a workbench for use. However, if the Grinder is to be permanently mounted on a workbench, the Rubber Feet must be removed. (See Assy. Diagram.)
3. To permanently mount the Grinder on a workbench, remove the Rubber Feet (3) and place the Grinder in the desired work location on the workbench. Use the four mounting holes at the Base (4) as a template to mark the areas where four **3/16" diameter** mounting holes should be drilled through the workbench.
4. Temporarily remove the Grinder, and drill the four 3/16" diameter mounting holes

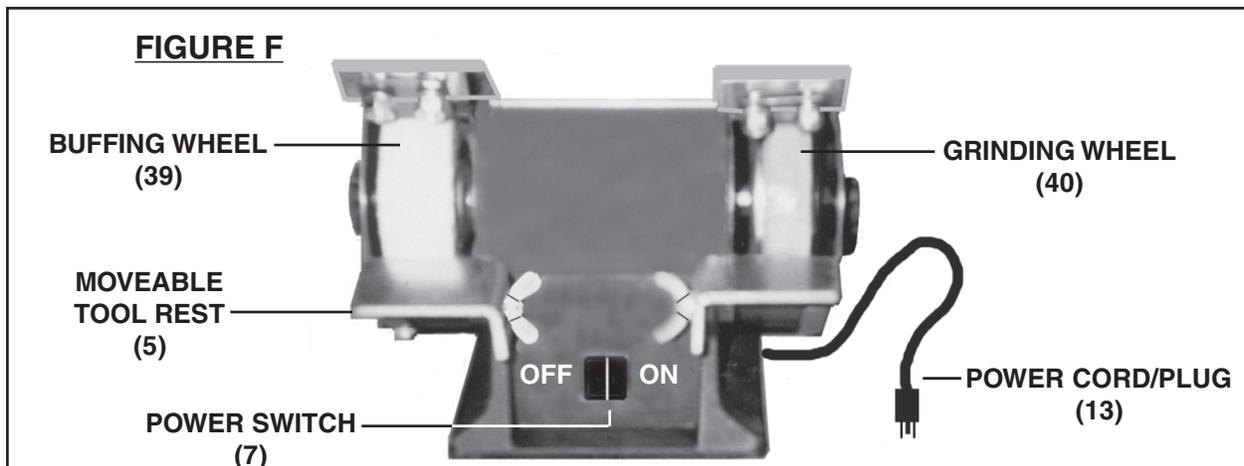
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through the workbench, making sure no hidden electric cords or cables are in the drilling path.

5. Once the 3/16" mounting holes are drilled, align the four mounting holes at the Base (4) of the Grinder with the four predrilled mounting holes in the workbench. Secure the Grinder to the workbench, using four appropriate length Bolts, Lock Washers, and Nuts (not included). **(See Assy. Diagram.)**

OPERATING INSTRUCTIONS

1. Connect the Power Cord/Plug (13) of the Grinder to the nearest 120 volt, grounded, electrical outlet. **(See Figure F.)**
2. **⚠ WARNING!** **ALWAYS** wear ANSI-approved safety impact eye glasses underneath an ANSI-approved safety impact full face shield when operating the Grinder.
3. Turn the Power Switch (7) to its "ON" position, and allow the Buffing Wheel (39) and Grinding Wheel (40) to spin up to full speed. **(See Figure F.)**
4. Place the object you are buffing or grinding firmly against the Moveable Tool Rest (5), and slowly feed the object into the revolving Buffing Wheel (39) or Grinding Wheel (40). **(See Figure F.)**
5. **⚠ CAUTION!** Make sure to keep hands and fingers away from the Buffing Wheel (39) and Grinding Wheel (40). Also, make sure to hold the object you are buffing or grinding firmly against the Moveable Tool Rest (5) throughout the buffing/grinding process. Failure to do so may cause the object to be propelled by the Buffing Wheel or Grinding Wheel toward your body and/or into the Grinder. **(See Figure F.)**



6. Once the grinding process is completed, turn the Power Switch (7) of the Grinder to its “**OFF**” position. Do not press against the Buffing Wheel (39) or Grinding Wheel (40) to stop them from spinning. Allow the Wheels to completely stop on their own. Then, disconnect the Power Cord/Plug (13) from its electrical outlet. **(See Figure F.)**
7. Always make sure the Grinder is kept in an area out of reach of children and other unauthorized people.

INSPECTION, MAINTENANCE, AND CLEANING

1.  **WARNING!** Always turn the Grinder’s Power Switch (7) to its “**OFF**” position and unplug the tool from its electrical outlet before performing any inspection, maintenance, or cleaning.
2. **Before each use:** Inspect the general condition of the Grinder. Check for misalignment or binding of moving parts, loose, cracked or broken parts, damaged Power Cord, and any other condition that may affect its safe operation. If a problem occurs with the Grinder, have the problem corrected before further use. **Do not use damaged equipment.**
3. **To install a Buffing Wheel (39): Note:** Use both Spanner Wrenches when installing and removing Buffer and Grinding Wheels. To install a new Buffing Wheel (39), remove the Seal Ring (34) from the Grinder. Unscrew and remove the Hex Nut (36). **IMPORTANT:** The Hex Nut on the Buffing Wheel is a **LEFT** threaded Hex Nut. To remove, turn the Hex Nut *clockwise*. To tighten, turn the Hex Nut *counterclockwise*. Remove the Left Safety Guard Cover (35). Remove the Flange (37) and Shaft Sleeve (38). Then, remove the old Buffing Wheel. Install the new Buffing Wheel. Then, replace the Shaft Sleeve, Flange, Left Safety Guard Cover, Hex Nut, and Seal Ring. **(See Assy. Diagram.)**
4. **To install a Grinding Wheel (40):** To install a new Grinding Wheel (40), remove the Seal Ring (34) from the Grinder. Unscrew and remove the Hex Nut (41). **IMPORTANT:** The Hex Nut on the Grinding Wheel is a **RIGHT** threaded Hex Nut. To remove, turn the Hex Nut *counterclockwise*. To tighten, turn the Hex Nut *clockwise*. Remove the Right Safety Guard Cover (42). Remove the Flange (37) and Shaft Sleeve (38). Then, remove the old Grinding Wheel. Install the new Grinding Wheel. Then, replace the Shaft Sleeve, Flange, Right Safety Guard Cover, Hex Nut, and Seal Ring. **(See Assy. Diagram.)**
5.  **CAUTION!** When replacing the Buffing Wheel (39) and/or Grinding Wheel (40), make sure each wheel has a minimum **3500 RPM rating**. When replacing the Grinding Wheel (40), do not overtighten the Hex Nut (41). Excessive tightening can cause the Grinding Wheel to crack during operation.

6. **To clean:** Wipe with a damp cloth, vacuum or use compressed air. Do not use solvents. Do not immerse any part of the Grinder in liquids.
7. **When storing:** Store the Grinder in a safe, clean, dry, location out of reach of children and other unauthorized people.
8.  **CAUTION!** All maintenance, service, or repairs not listed in this manual are only to be attempted by a qualified service technician.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

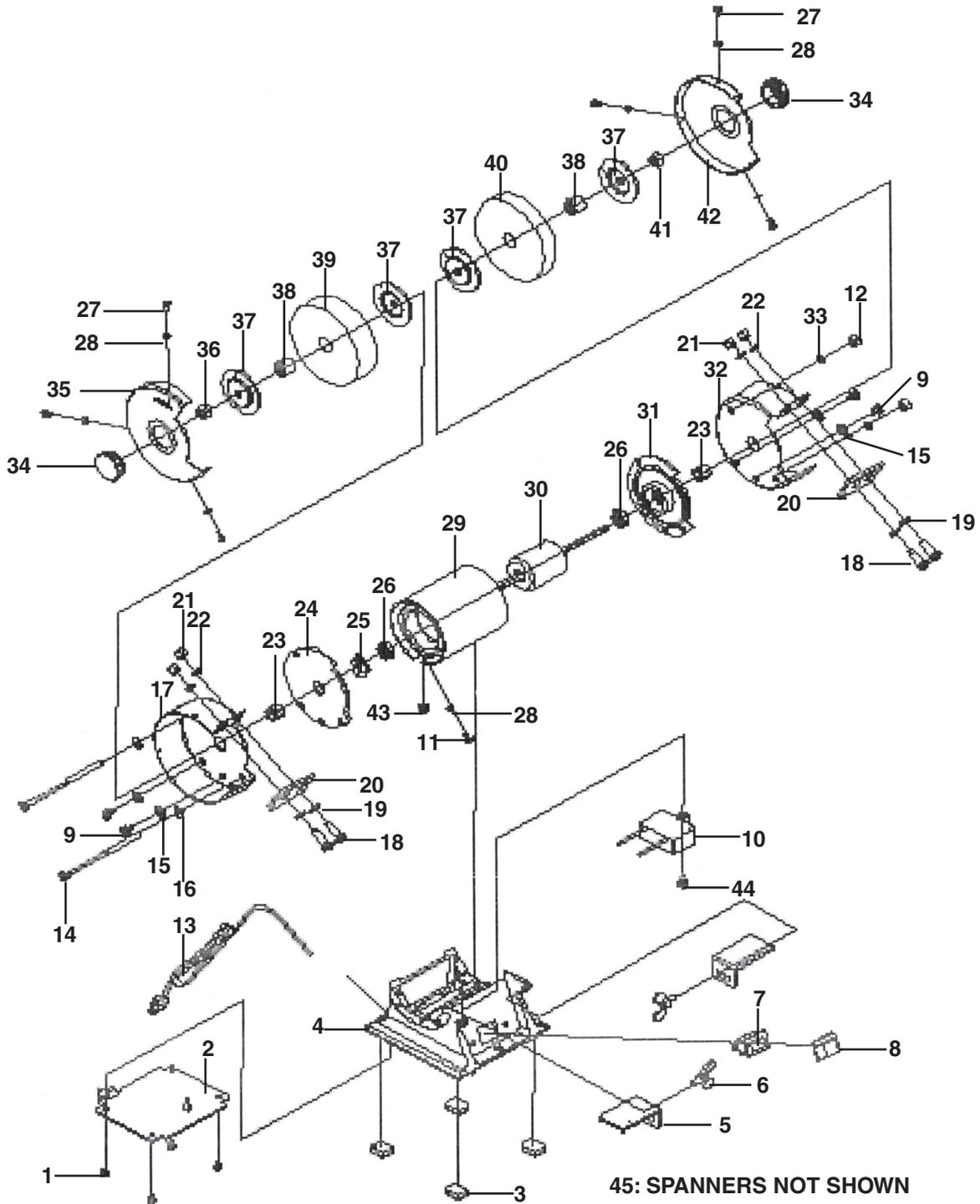
PARTS LIST

Part #	Description	Qty.	Part #	Description	Qty.
1	Philips Screw (ST2.9x5)	4	24	Left End Cap	1
2	Base Plate	1	25	Spring Wave Washer (D19)	1
3	Rubber Foot	4	26	Bearing	2
4	Base	1	27	Philips Screw (M3x5)	6
5	Moveable Tool Rest	2	28	Star Washer (D3)	7
6	Wing Nut	2	29	Stator	1
7	Power Switch	1	30	Rotor	1
8	Switch Cover	1	31	Right End Cap	1
9	Philips Screw (ST3.9x12)	4	32	Right Safety Guard Plate	1
10	Capacitor	1	33	Spring Washer (D4)	2
11	Philips Screw (M3x4)	1	34	Seal Ring	2
12	Hex Nut (IM4)	2	35	Left Safety Guard Cover	1
13	Power Cord/Plug	1	36	Hex Nut (IM6 Left)	1
14	Philips Screw (M4x87)	2	37	Flange	4
15	Star Washer (D4)	4	38	Shaft Sleeve	2
16	Flat Washer (D4)	2	39	Buffing Wheel	1
17	Left Safety Guard Plate	1	40	Grinding Wheel	1
18	Philips Screw (M5x12)	4	41	Hex Nut (IM6)	1
19	Flat Washer (D5)	4	42	Right Safety Guard Cover	1
20	Spark Shield	2	43	Cord Bushing	1
21	Hex Nut (IM5)	4	44	Philips Screw (ST4.2x10)	1
22	Spring Washer	4	45	Spanner	2
23	Collar	2			

NOTE:

Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.

ASSEMBLY DIAGRAM



NOTE:

Some parts are listed and shown for illustration purposes only,
and are not available individually as replacement parts.