

CENTRAL MACHINERY®

10" BENCH GRINDER

Model 6510

SET UP AND OPERATING INSTRUCTIONS



Distributed exclusively by Harbor Freight Tools®.
3491 Mission Oaks Blvd., Camarillo, CA 93011
Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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

Manual Revised 09d

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SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.

General Tool Safety Warnings



WARNING Read all safety warnings and 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.

1. KEEP GUARDS IN PLACE and in working order.
2. REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
3. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
4. 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.
5. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
6. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.

- 7. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
- 8. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS (120 VOLT)				
NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH			
	25'	50'	100'	150'
0 – 6	18	16	16	14
6.1 – 10	18	16	14	12
10.1 – 12	16	16	14	12
12.1 – 16	14	12	Do not use.	

TABLE A

- 9. **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 A 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.
- 10. **WEAR PROPER APPAREL.** Do not wear loose clothing, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
- 11. **ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eye-


- glasses only have impact resistant lenses, they are NOT safety glasses.
- 12. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
- 13. **DON'T OVERREACH.** Keep proper footing and balance at all times.
- 14. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 15. **DISCONNECT TOOLS** before servicing; when changing accessories, such as blades, bits, cutters, and the like.
- 16. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in off position before plugging in.
- 17. **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
- 18. **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- 19. **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 guard

or other part that is damaged should be properly repaired or replaced.

20. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the wheel only.

GROUNDING INSTRUCTIONS

⚠ WARNING TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION READ AND FOLLOW THESE INSTRUCTIONS:

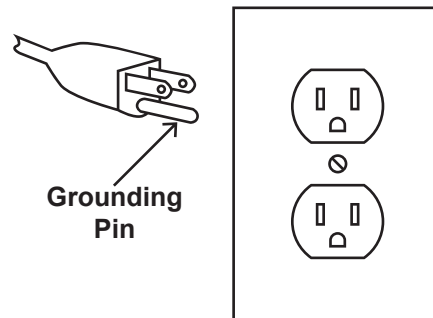


110-120 V~ Grounded Tools: Tools with Three Prong Plugs

1. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.
2. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician.
3. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the

equipment-grounding conductor to a live terminal.

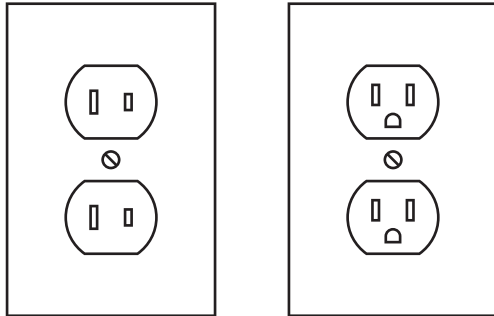
4. Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
5. Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
6. Repair or replace damaged or worn cord immediately.



125 V~ 3-Prong Plug and Outlet (for up to 125 V~ and up to 15 A)

7. This tool is intended for use on a circuit that has an outlet that looks like the one illustrated above in **125 V~ 3-Prong Plug and Outlet**. The tool has a grounding plug that looks like the plug illustrated above in **125 V~ 3-Prong Plug and Outlet**.
8. The outlet must be properly installed and grounded in accordance with all codes and ordinances.
9. Do not use an adapter to connect this tool to a different outlet.

110-120 V~ Double Insulated Tools: Tools with Two Prong Plugs



Outlets for 2-Prong Plug

1. To reduce the risk of electric shock, double insulated equipment has 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 the proper outlet. Do not change the plug in any way.
2. Double insulated tools may be used in either of the 120 volt outlets shown in the preceding illustration. **(See Outlets for 2-Prong Plug.)**
7. Adjust distance between wheel and work rest to maintain 0.125 inch or less separation as the diameter of the wheel decreases with use.
8. Frequently clean grinding dust from beneath grinder.
9. Wear a full face shield over ANSI-approved safety goggles during use.
10. Do not grind with side of wheel unless wheel is specifically designed for that type of grinding.
11. **DO NOT OPERATE WITH ANY GUARD DISABLED, DAMAGED, OR REMOVED. Moving guards must move freely and close instantly.**
12. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.
13. When servicing use only identical replacement parts.
14. Only use safety equipment that has been approved by an appropriate standards agency. Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.

Grinder Safety Warnings

For Your Own Safety Read Instruction Manual Before Operating Grinder

1. Wear eye protection.
2. Use grinding wheel suitable for speed of grinder.
3. Replace cracked wheel immediately.
4. Always use guards and eye shields.
5. Do not overtighten wheel nut.
6. Use only flanges furnished with the grinder.
15. Industrial applications must follow OSHA guidelines.
16. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

17. Avoid unintentional starting. Prepare to begin work before turning on the tool.
18. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
19. **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 or other masonry products
 - 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.
 (California Health & Safety Code § 25249.5, *et seq.*)
20. **WARNING:** Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.
 (California Health & Safety Code § 25249.5, *et seq.*)
21. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Vibration Safety

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any medical or physical symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.
2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.
3. Wear suitable gloves to reduce the vibration effects on the user.

4. Use tools with the lowest vibration when there is a choice between different processes.
5. Include vibration-free periods each day of work.
6. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
7. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.



**SAVE THESE
INSTRUCTIONS.**

SPECIFICATIONS

Electrical Input	120 V~ / 60 Hz / 8.4 A 1 HP (rated) / 2 HP (peak)
No Load Speed	1750 RPM
Accessory Dia.	10" Max.
Arbor Size	20mm

UNPACKING

When unpacking, make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at 1-800-444-3353 as soon as possible.

Ref	Description	Quantity
1	Bench Grinder Unit	1
3	Eye Shield	2
4	Shield Supports	2

ASSEMBLY

The 10" Bench Grinder requires minor assembly. The assembly instructions below are written for the left side but the right side is identical. Refer to the Parts List, at the back of this manual, for the individual part numbers.

Tool Rest Assembly

1. Bolt the BENCH GRINDER UNIT (1) to a stable workplace.

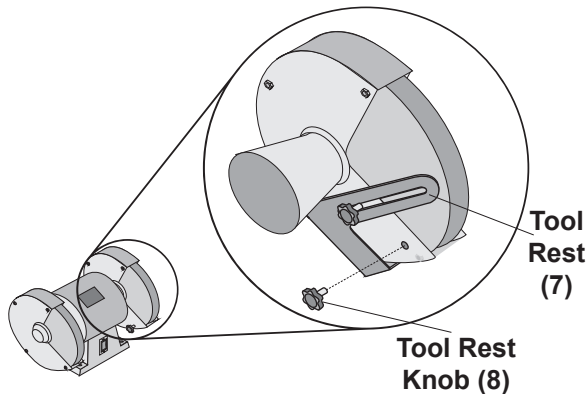


FIGURE 1 – Removing the Tool Rest Knob

2. Facing the front of the BENCH GRINDER UNIT, remove the front TOOL REST KNOB, and loosen the rear TOOL REST KNOB (8) as in Figure 1.

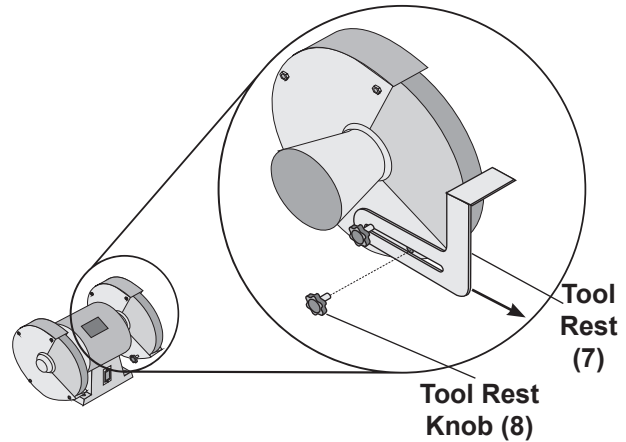
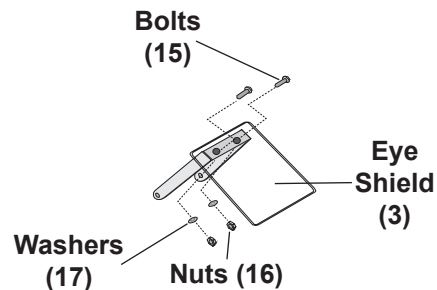


FIGURE 2 – Moving Tool Rest

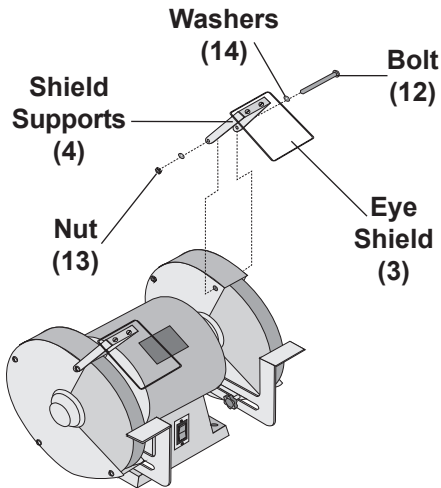
3. Pivot the tool rest down and forward so that it is in a horizontal position and replace the front TOOL REST KNOB as shown in Figure 2.
4. Adjust the TOOL REST (7) to the desired distance from the GRINDER WHEEL (2). In no circumstances should the TOOL REST be closer than 1/8" from the GRINDER WHEEL.
5. Tighten both TOOL REST KNOBS.

Eye Shield Assembly



**FIGURE 3 –
Attaching the Eye Shields
and Eye Supports**

1. Attach the EYE SHIELDS (3) to the SHIELD SUPPORTS (4) using BOLTS (15), NUTS (16), and WASHERS (17) as shown in Figure 3.



**FIGURE 4 –
Attaching the Eye Shield
to Wheel Cover**

2. Remove the BOLT (12) and NUT (13) from the upper grinder housing as shown in Figure 4.
3. Align the EYE SHIELD Assembly with holes and replace the WHEEL COVER BOLT and NUT.
4. Adjust the EYE SHIELD to the desired position and tighten the WHEEL COVER NUT.

GRINDING WHEEL ASSEMBLY

Remove Grinding Wheel

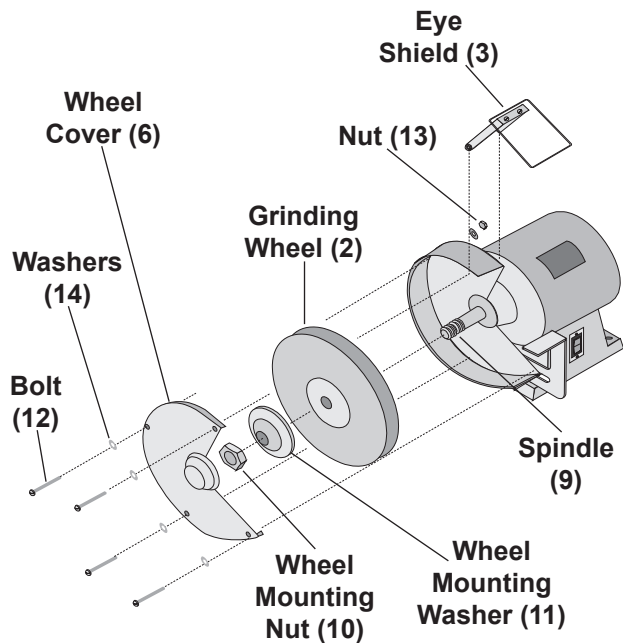


FIGURE 5 – Assembling the Grinder

1. Remove both GRINDING WHEEL COVERS (6) by unscrewing their BOLTS (12) and NUTS (13) as shown in Figure 5.
2. Place adjustable wrenches on both WHEEL MOUNTING NUTS (10).
3. To remove the right hand GRINDING WHEEL (2) turn its WHEEL MOUNTING NUT clockwise while keeping the left hand WHEEL MOUNTING NUT stationary. To remove the left hand GRINDING WHEEL turn its WHEEL MOUNTING NUT counterclockwise while keeping the right hand WHEEL MOUNTING NUT stationary.
4. Slide the WHEEL MOUNTING WASHER (11) off of the SPINDLE (9).
5. Slide the GRINDING WHEEL off of the SPINDLE (9).

Installing Grinding Wheel

Note: Do not use aluminum oxide grinding wheels when grinding nonferrous metals such as aluminum and brass. Use silicon carbide grinding wheels for all nonferrous metals

1. Make sure the inside WHEEL MOUNTING WASHER (11) is on the SPINDLE (9) with its concave side facing out as shown in figure 5.
 2. Place the GRINDING WHEEL (2) on the SPINDLE.
 3. Place the outside WHEEL MOUNTING WASHER (11) on the SPINDLE with its concave side facing in.
 4. Place the WHEEL MOUNTING NUT (10) on the SPINDLE and tighten. Caution; do not over tighten the WHEEL MOUNTING NUT as it may crack the GRINDING WHEEL.
 5. Replace both WHEEL COVERS (6) and secure with their BOLTS (12), NUTS (13), and WASHERS (14).
2. With the Bench Grinder running, grip the handle of the dresser firmly with one hand and the arm of the dresser with the other.
 3. Using the TOOL REST (7) as support, apply the dresser evenly to all surfaces of the GRINDING WHEEL.
 4. Continue step 3 until the GRINDING WHEEL is straight and true.

Dressing the Wheel

New wheels frequently are not true and during operation often become grooved, glazed, out of round, or misshapen. At these times, they will need dressing. You will need a grinding wheel dresser for this operation. Dressers are available from Harbor Freight Tools.

1. Standing to the side of the wheel, let the Bench Grinder run for a full minute with no load. If the GRINDING WHEEL runs straight and true, you will not need to dress it prior to operating. If it is not, proceed with the following steps.

OPERATION

Caution: The grinding wheels must always be checked for cracks of imperfections. This is done with the “ring test”. Tap the wheel gently near the outer rim with the handle of a screwdriver; you should hear a clear bell-like ringing. **If a dull thud occurs do not use the wheel!** This means the wheel has been damaged and will, most likely, come apart during normal operations.

Operation Notes

The 10” Bench Grinder comes assembled with a coarse GRINDING WHEEL (2) and a fine GRINDING WHEEL. Determine which wheel is which before attempting to use the Bench Grinder.

The workpiece will quickly become heated. Frequently quench the workpiece in water during the grinding process. If the metal becomes heated so much that it gets blue-colored, it will be too soft to be useful. You must grind off the part that is colored, cool the workpiece, and start again.

General Operation

1. Obtain a tray that is large enough for the workpiece to fit into, fill it with water and place it near the Bench Grinder.
2. Turn the Bench Grinder on.
3. Once the GRINDING WHEEL has reached full speed, bring the workpiece up to the wheel gently and without jarring.
4. Use the TOOL REST (7) to steady the workpiece.
5. The workpiece will become quickly heated. Frequently quench it in water.

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

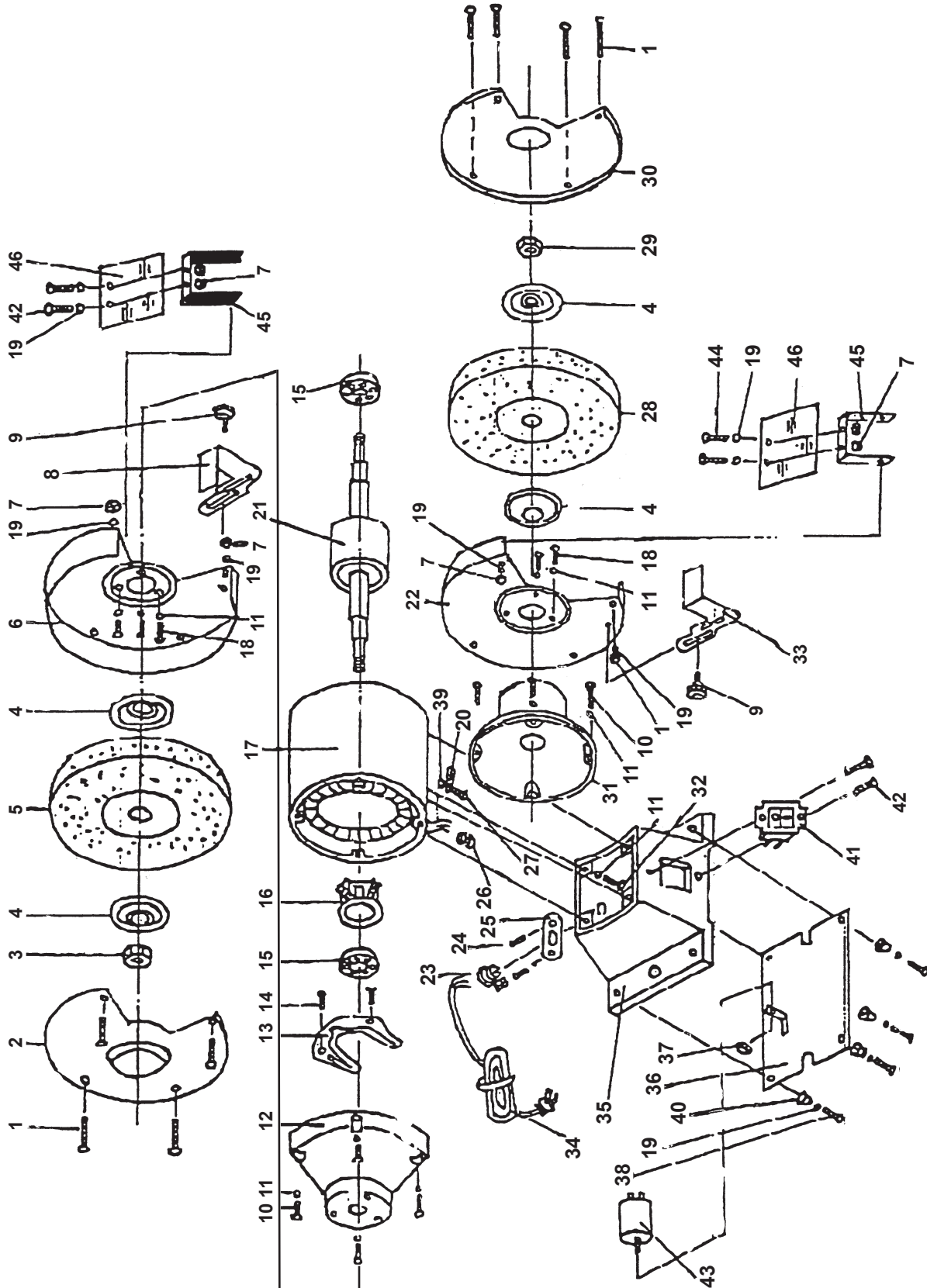
Part	Description	Part	Description
1	Screw	24	Screw
2	Left Wheel Cover	25	Cord Bushing Plate
3	Nut	26	Bushing
4	Clamp Washer	27	Screw
5	Left Wheel	28	Right Wheel
6	Left Wheel Guard	29	Right Hand Clamp Nut
7	Nut	30	Right Wheel Cover
8	Left Tool Rest	31	Right End Bell
9	Screw	32	Screw
10	Screw	33	Right Tool Rest
11	Lockwasher	34	Cord and Plug
12	Left End Bell	35	Base
13	Switch Plate	36	Base Plate
14	Screw	37	Nut
15	Bearing	38	Screw
16	Centrifugal Switch	39	Flat Washer
17	Stator	40	Rubber Foot
18	Screw	41	Switch
19	Flat Washer	42	Screw
20	Knurled Nut	43	Capacitor
21	Rotor	44	Screw
22	Right Wheel Guard	45	Eyeshield Holder
23	Cord Bushing	46	Eyeshield

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

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

ASSEMBLY DIAGRAM



LIMITED 1 YEAR / 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that for a period of ninety days from date of purchase that the engine/motor, the belts (if so equipped), and the blades (if so equipped) are free of defects in materials and workmanship. Harbor Freight Tools also warrants to the original purchaser, for a period of one year from date of purchase, that all other parts and components of the product are free from defects in materials and workmanship (90 days if used by a professional contractor or if used as rental equipment). This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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