

iron ton™

6" BENCH GRINDER

Owner's Manual



! **WARNING:** Read carefully and understand all ASSEMBLY AND OPERATION INSTRUCTIONS before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item #4975075

READ & SAVE THESE INSTRUCTIONS

Thank you very much for choosing an Ironton™ product!

For future reference, please complete the owner's record below:

Serial Number/Lot Date Code: _____

Purchase Date: _____

Save the receipt, warranty, and this manual. It is important that you read the entire manual to become familiar with this product before you begin using it.

This angle grinder kit is designed for certain applications only. Northern Tool and Equipment is not responsible for issues arising from modification or improper use of this product such as an application for which it was not designed. We strongly recommend that this product not be modified and/or used for any application other than that for which it was designed.

For technical questions, please call **1-866-915-8626**.

IMPORTANT SAFETY INSTRUCTION

WARNING: *When using electric tools, machines or equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury.*



READ ALL INSTRUCTIONS BEFORE USING THIS TOOL

- 1. KEEP WORK AREA CLEAN.** Cluttered areas invite injuries.
- 2. CONSIDER WORK AREA ENVIRONMENT.** Don't use power tools in damp, wet, or poorly lit locations. Don't expose your tool to rain. Keep the work area well lit. Don't use tools in the presence of flammable gases or liquids.
- 3. KEEP CHILDREN AND BYSTANDERS AWAY.** All children should be kept away from the work area. Don't let them handle machines, tools or extensions cords. Visitors can be a distraction and are difficult to protect from injury.
- 4. GROUNDED TOOLS** must be plugged into an outlet that itself is properly installed and grounded. Grounding provided a low-resistance path to carry electricity to ground away from the operator, should the tool malfunction electrically. Do not remove the grounding prong from the plug or alter the plug in any way. If in doubt as to whether the outlet is properly grounded according to code, check with a qualified electrician.
- 5. OBSERVE PROPER PRECAUTIONS REGARDING GROUNDED PLUG.** Plug power cord into a 110-120V properly grounded type outlet protected by a 12 amp time delay, a circuit saver fuse or circuit breaker.
- 6. GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces: pipes, radiators, ranges, and refrigerator enclosures. When your body is grounded the risk of electric shock increases. When working wherever "live" electrical wires may be encountered, try to ascertain whether there is a danger of shock. Even so, **DO NOT TOUCH ANY METAL PARTS OF THE TOOL** while using it. Hold the tool only by the plastic grip to prevent electric shock if you contact a live wire.
- 7. HANDLE THE CORD CAREFULLY.** Never carry your bench grinder by the cord or pull on the cord to unplug it. Protect the cord from potential sources of damage: heat, oil & solvents, sharp edges, or moving parts. Replace damaged cords immediately.
- 8. WHEN WORKING OUTDOORS, USE AN OUTDOOR-RATED EXTENSION CORD.** An extension cord rated for outdoor use must be marked "W-A" or "W".
- 9. DO NOT EXPOSE ELECTRICAL POWER TOOLS TO MOISTURE.** Rain or wet conditions can cause water to enter the tool and lead to electric shock.
- 10. ENSURE THE EXTENSION CORD YOU USE IS OF SUFFICIENT GAUGE FOR ITS LENGTH.**

Recommended Minimum Wire Gauge for Extension Cords

Amps from Tool Nameplate	25'(7 m) length	50'(15 m) length	75'(23 m) length	100'(30 m) length	150'(46 m) length	200'(61 m) length
0-5 amps	16 ga.	16 ga.	16 ga.	14 ga.	12 ga.	12 ga.
5.1-8 amps	16 ga.	16 ga.	14 ga.	12 ga.	10 ga.	Do Not Use
8.1-12 amps	14 ga.	14 ga.	16 ga.	10 ga.	Do Not Use	Do Not Use
12.1-15 amps	12 ga.	12 ga.	10 ga.	10 ga.	Do Not Use	Do Not Use
15.1-20 amps	10 ga.	10 ga.	10 ga.	Do Not Use	Do Not Use	Do Not Use

- 11. STORE IDLE EQUIPMENT.** Store equipment in a dry area to inhibit rust. Equipment also should be in a high location or locked up to keep out of reach of children.
- 12. DON'T FORCE THE TOOL.** It will do the job better and more safely at the rate for which it was intended.
- 13. USE THE RIGHT TOOL.** Don't force a small tool or attachment to do the work of a larger industrial tool. Don't use a tool for a purpose for which it was not intended.

IMPORTANT SAFETY INSTRUCTION

14. **DRESS PROPERLY.** Don't wear loose clothing or jewelry; they can be caught in moving parts. Protective, non-electrically conductive gloves and non-skid footwear are recommended when working. Wear protective hair covering to contain long hair and keep it from harm.
15. **USE EYE PROTECTION.** Use a full-face mask if the work you're doing produces metal filings, dust or wood chips. Goggles are acceptable in other situations. Wear a clean dust mask if the work involves creating a lot of fine or coarse dust.
16. **SECURE WORK.** Use clamps or a vise to hold the work. It's safer than using your hands and it frees both hands to operate the tool.
17. **DON'T OVERREACH.** Keep proper footing and balance at all times. Do not reach over or across tools that are running.
18. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and safe performance. Follow instructions for lubricating and changing accessories. Keep handles dry, clean and free from oil and grease.
19. **AVOID UNINTENTIONAL STARTING.** Be sure the switch is in the **OFF** position before plugging in.
20. **ALWAYS CHECK AND MAKE SURE TO REMOVE ANY ADJUSTING KEYS OR WRENCHES** before turning the tool on. Left attached, these parts can fly off a rotating part and result in personal injury.
21. **DO NOT USE THE TOOL IF IT CANNOT BE SWITCHED ON OR OFF.** Have your tool repaired before using it.
22. **DISCONNECT THE PLUG FROM POWER BEFORE MAKING ANY ADJUSTMENTS.** Changing attachments or accessories can be dangerous if the tool could accidentally start.
23. **STAY ALERT.** Watch what you are doing & use common sense. Don't operate any tool when you are tired.
24. **CHECK FOR DAMAGED PARTS.** Before using this tool, any 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, mountings, and other conditions that may affect its operation. Inspect screws and tighten any ones that are loose. Any part that is damaged should be properly repaired or replaced by an authorized service centre unless otherwise indicated elsewhere in the instruction manual. Have defective switches replaced by an authorized service centre. Don't use the tool if switch does not turn it on and off properly.
25. **REPLACEMENT PARTS.** When servicing, use only identical replacement parts.
26. **SERVICE AND REPAIRS.** should be made by qualified repair technicians at an authorized repair centre. Improperly repaired tools could cause serious shock or injury.

ADDITIONAL SAFETY RULES

NEVER LEAVE THE TOOL RUNNING WHILE UNATTENDED

MAKE THE WORKSHOP CHILDPROOF – Lock the shop. Disconnect master switches. Store the tool away from children, and others not qualified to use the tool.

1. Replace a cracked wheel immediately
2. Always use guards and eye shields
3. Do not over-tighten the wheel nut.
4. Use only flanges supplied with this grinder.
5. Adjust the distance between the wheel and work rest to maintain 1/8" (3.2 mm) or less separation as the diameter of the wheel decreases with use.
6. Frequently clean the grinding dust from beneath the wheel.

ADDITIONAL SAFETY RULES

Protect Your Eyes

The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear eye protection during operation of the tool.

Electricity Requirements

CONNECTING THE TOOL TO A POWER SOURCE OUTLET

This machine source must be grounded while in use to protect the operator from electric shock. In case of malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electrical shock. This tool is equipped with an electric cord having an equipment grounding conductor outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Improper connections of the equipment-grounding conductor can result in a risk of electrical shock. The conductor with insulation having an outer surface that is green (with or without yellow strips) 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.

Plug power cord into a 110-120V properly grounded type outlet protected by a 12 amp time delay, a circuit saver fuse or circuit breaker.

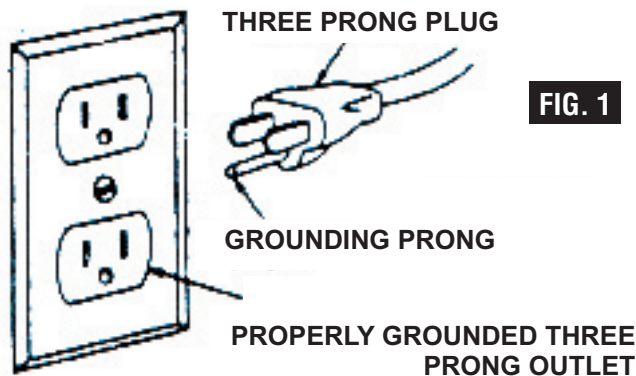
WARNING - Do not let your fingers touch the terminals of the plug when installing or removing the plug to or away from the outlet.



WARNING - If not properly grounded, this tool can incur the potential hazard of electrical shock particularly when used in damp locations or in proximity to plumbing. If an electrical shock occurs, there is the potential of a secondary hazard like your hands contacting the grinder tool.



This tool is intended to use on a circuit that has an outlet that looks like the one in Figure 1.

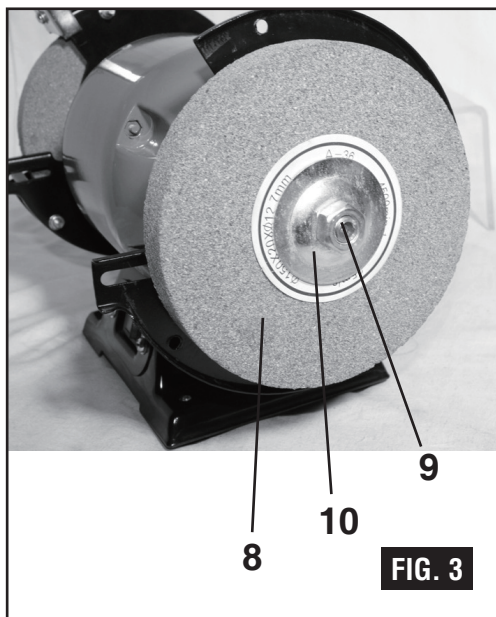
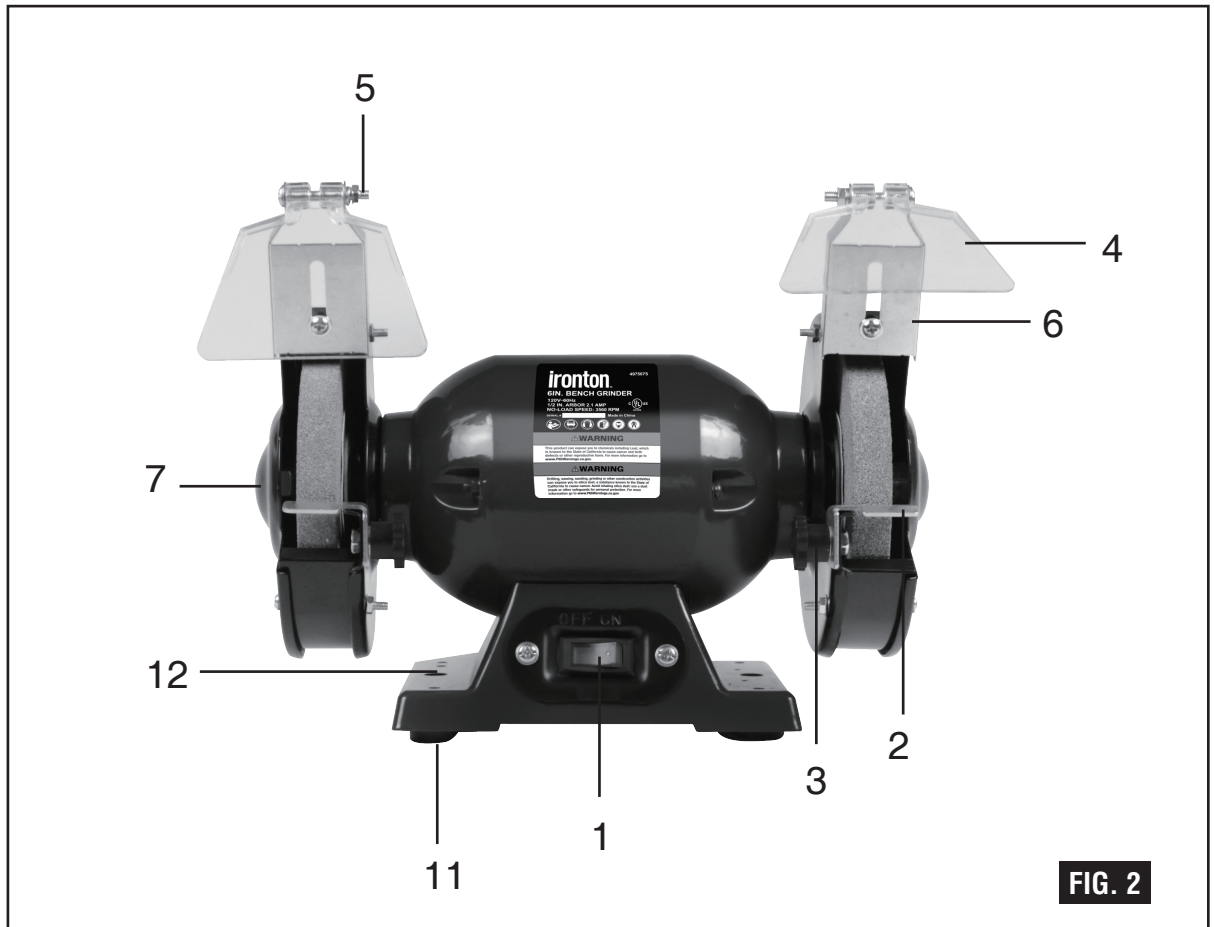


Do not modify the plug provided. If the plug does not fit the proper outlet, have a proper outlet installed by a qualified electrician.

SPECIFICATIONS

- Motor: 120V ~ 60Hz
- Amperes: 2.1A
- Power: 1/2HP
- No load speed: 3560RPM
- Wheel Size: 6"x 3/4"x1/2"

FUNCTION DESCRIPTION



1. On/off switch
2. Tool rest
3. Tool rest locking knob
4. Eye shield
5. Eye shield locking screw
6. Spark guard
7. Wheel guard
8. Grinding wheel
9. Grinding wheel locking nut
10. Outer grinding wheel flange
11. Base
12. Mounting holes

ASSEMBLY AND ADJUSTMENTS

WARNING: To reduce the risk of injury, never connect plug to power source outlet until all assembly steps are completed.



Fitting and adjusting the spark deflectors and eye shields

IMPORTANT: Prior to fitting the eye shields and spark deflectors, ensure the grinder is turned off and the power plug is removed from the socket.

Note: Always check to ensure the eye shields are correctly fitted and the eye shield spark deflectors are correctly adjusted each time the grinder is used. Eye shields and spark deflectors must be fitted over each grinding wheel.

1. Position the spark guard (6) to the top of the wheel guard as shown in figure 2.
2. Reinsert the bolt and the washer through the spark deflector and wheel guard, followed by, lock washer, and nut.
3. Tighten to secure the spark deflector onto the wheel guard.
4. Tighten the eye shield locking screw (5) in a clockwise direction to secure the eye shield onto the spark deflector bracket as shown in figure 2.

WARNING: To reduce the risk of injury, never use a bench grinder on which the tool rest has not been fitted or where the tool rest has not been correctly adjusted.

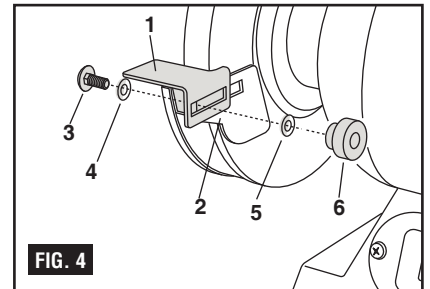


Fitting the tool rests

The tool rests are required for each high speed grinding wheel to assist in the grinding operation.

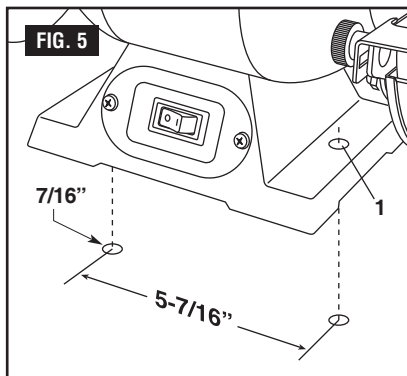
Note. The tool rests are right and left handed. Follow the diagrams to ensure the correct tool rest is fitted to the correct side.

IMPORTANT. Prior to fitting the tool rests, ensure the grinder is turned off and the power plug is removed from the socket.



1. Hold the tool rest (1) in the correct position against the tool rest bracket (2).
2. Insert bolt (3) through tool rest bracket and toolrest, followed by two washers (4&5), and locking knob (6).
3. Tighten the locking knob sufficiently to support the tool rest but still allowing the tool rest to slide inwards and outwards.
4. Slide the tool rest to within a maximum of 0.06inch from the wheel. Rotate the wheel one full revolution by hand to ensure the wheel does not contact the tool rest.
5. Tighten the locking knob firmly to retain the assembly.
6. Repeat the assembly operation for the second tool rest.

ASSEMBLY AND ADJUSTMENTS

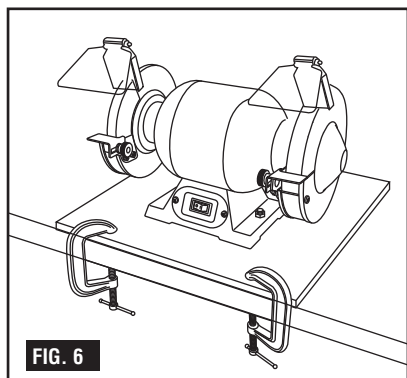


Mounting Bench Grinder to Workbench

If bench grinder is to be used in a permanent location, it should be fastened securely to a firm supporting surface such as a stand or workbench using the two mounting holes (1), one of which is shown in figure 5.

When mounting grinder to a workbench, holes should be drilled through the supporting surface of the workbench using the dimensions illustrated (Fig. 5).

1. Each of the two mounting holes should be bolted securely using 5/16" hex nuts (not included). Screw lengths should be 1-1/2" longer than the thickness of the bench top.
2. Locate and mark where the grinder is to be mounted.
3. Drill two (2) 7/16" diameter holes through workbench.
4. Place bench grinder on workbench aligning holes in base with holes drilled in workbench.
5. Insert two (2) 5/16" screws and tighten.



Mounting to Plywood

An alternative method of securing your bench grinder is to fasten the grinder base to a mounting board 12" x 18" minimum size to prevent grinder from tipping while in use. Any good grade of plywood with a 3/4" minimum thickness is recommended (Fig. 6).

1. Follow instructions for mounting to workbench, substituting a plywood board 12" x 18" minimum size and using 5/16" flat head screws, lockwashers and hex nuts (not included). Screw length must be at least 1-1/2" more than the thickness of the mounting board.

NOTE: For proper stability, holes must be countersunk so screw heads are flush with the bottom surface of the supporting board.

2. Securely clamp board to workbench using two or more "C" clamps (Fig. 6).

Supporting surface where grinder is to be mounted should be examined carefully after mounting to insure that no movement can occur during use. If any tipping or walking is noted, secure the workbench or stand before operating the bench grinder.

OPERATION

WARNING: *Risk of injury due to accidental starting. Do not use in an area where children may be present.*



IMPORTANT: Prior to using the grinder, check that the eye shields, spark deflectors, and tool rests are fitted and correctly adjusted and that you are wearing safety gear including eye, hearing and breathing protection.

1. Turn the wheel by hand to make sure it does not touch the guard, eye shields, spark deflectors or tool rests and runs freely.
2. Stand to one side, turn the switch on and allow the motor to reach full speed.

To start grinder: push the right hand side of the switch. To turn the grinder off, push the left hand side of the switch. The "ON" and "OFF" positions are stamped on the switch plate (Fig. 7). If the grinder does not immediately start, switch the grinder "OFF", disconnect the power cord and check voltage at power source.

WARNING: *To reduce the risk of injury, no adjustments to tool rests, spark shields or other components should be made while the grinder wheels are turning.*



3. Support the workpiece on the tool rest and gradually feed the workpiece onto the wheel. Use pliers to hold small workpieces.

Note. Traverse the workpiece across the full width of the wheel to prolong its flat surface.

4. If the grinding operation causes the motor speed to noticeably decrease, pull back the workpiece, allow the motor to regain full speed and restart the grinding operation, but apply less force.

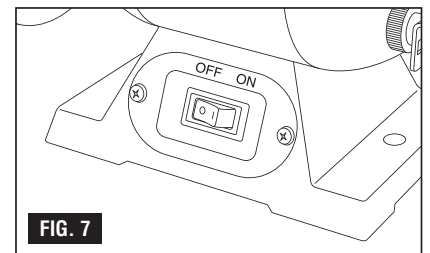
WARNING: *To reduce the risk of injury, only use the front face of the grinding wheel, not the sides. Note that the workpiece can get very warm. It may be necessary to cool a workpiece by dipping it in a coolant or in water. Do not apply coolant or water to the grinding wheel.*



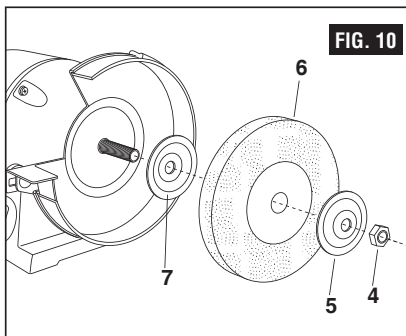
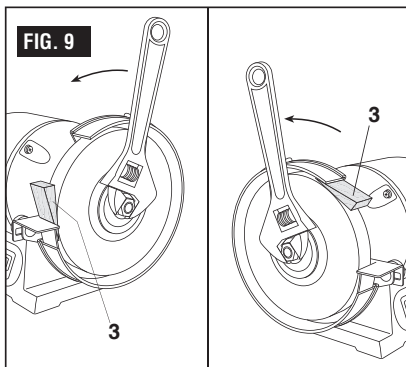
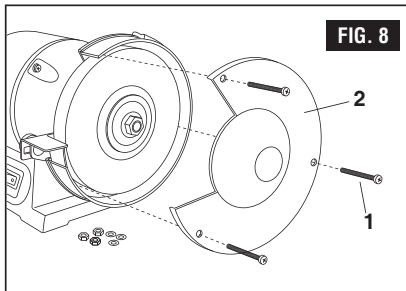
How to true and dress the wheels

Dressing a wheel cleans and levels the front surface to increase efficiency of operation and prevent vibration.

1. Dressing a wheel involves the use of a wheel dresser which is not supplied with the grinder. Follow the manufacturers instructions of the wheel dresser.
2. Adjust the tool rest to allow the front part of the wheel dresser to fit between the tool rest and wheel.
3. Start the motor and move the dresser across the front of the wheel a sufficient number of times until the surface is level. It is not necessary to apply excessive force in an attempt to dress the wheel in one pass of the wheel dresser.
4. Adjust the tool rest so that it is no more than 0.06inch from the wheel.
5. Adjust the spark deflector to ensure the gap between the deflector and wheel is less than 0.24inch.



OPERATION



Grinder adjustments

During the life of the grinder some adjustments are required to maintain a safe working environment.

Please ensure the following:

- Always adjust the eye shields to the most comfortable and most effective angle to suit the task being performed.
- As the wheels wear, the spark deflector must be adjusted to ensure the gap between the spark deflector and wheel does not exceed 0.24inch.
- As the wheels wear the tool rests must also be adjusted so there is never a gap of greater than 0.06inch between the wheel and the edge of the tool rest.

Changing a grinding wheel

IMPORTANT: Prior to changing a wheel, ensure the grinder is turned off and the power plug is removed from the socket. Make sure that the replacement wheel is rated at 3560 RPM or higher.

1. Loosen and remove the 3 bolts (1) on the wheel guard (2), as shown in figure 9.
2. Remove the wheel guard.
3. To prevent wheel rotation, place a wood wedge (3) between the grinding wheel and the tool rest (Figure 8).
4. Remove the locking nut (4) (see note below for correct direction of rotation), outer flange (5) and the wheel (6).

Note: The wheel on the left-hand side of the bench grinder has a left-hand thread and is unscrewed in a clockwise direction. The wheel on the right-hand side of the bench grinder has a right-hand thread and is unscrewed in an anti-clockwise direction.

5. Fit the replacement wheel (6) and outer flange (5) on the shaft ensuring that there is a spacer between the wheel and the flanges on each side of the wheel. Ensure the wheel is a slide fit (not loose) on the spindle (Figure 10).
6. Replace the grinding wheel nut (4) and tighten. (See the note above regarding the direction of rotation of the nut).
7. Replace the wheel guard.
8. Reinsert the 3 bolts (1), washers, lock washers, nuts, and tighten wheel guard in place.
9. Re-adjust the tool rest, spark deflector and eye shield.
10. Rotate the wheel by hand to check for free movement and proper adjustments.
11. Plug in the bench grinder, put on eye protection, stand to one side and run the grinder at full speed for several minutes.

MAINTAINING YOUR BENCH GRINDER

Maintenance



WARNING: To reduce the risk of injury, turn power switch "OFF" and remove plug from the power source outlet before maintaining or lubricating your grinder.

MAINTAINING YOUR BENCH GRINDER

GENERAL

Frequently blow out any dust that may accumulate inside the motor.

An occasional coat of paste wax on the tool rest will allow your work piece to move smoothly across the surface.

CAUTION: *Certain cleaning agents and solvents damage plastic parts. Including: gasoline, carbon tetrachloride, chlorinated cleaning solvents, ammonia and household detergents that contain ammonia. Avoiding use of these and other types of cleaning agents minimizes the probability of damage.*



WARNING: *To avoid shock or fire hazard, if the power cord is worn, cut or damaged in any way, have it replaced immediately.*



WARNING: *All repairs, electrical or mechanical, should be attempted only by trained repairmen. Use only Authorized replacement parts; any other may create a hazard.*



Lubrication

All of the BALL BEARINGS are packed with grease at the factory. They require no further lubrication.

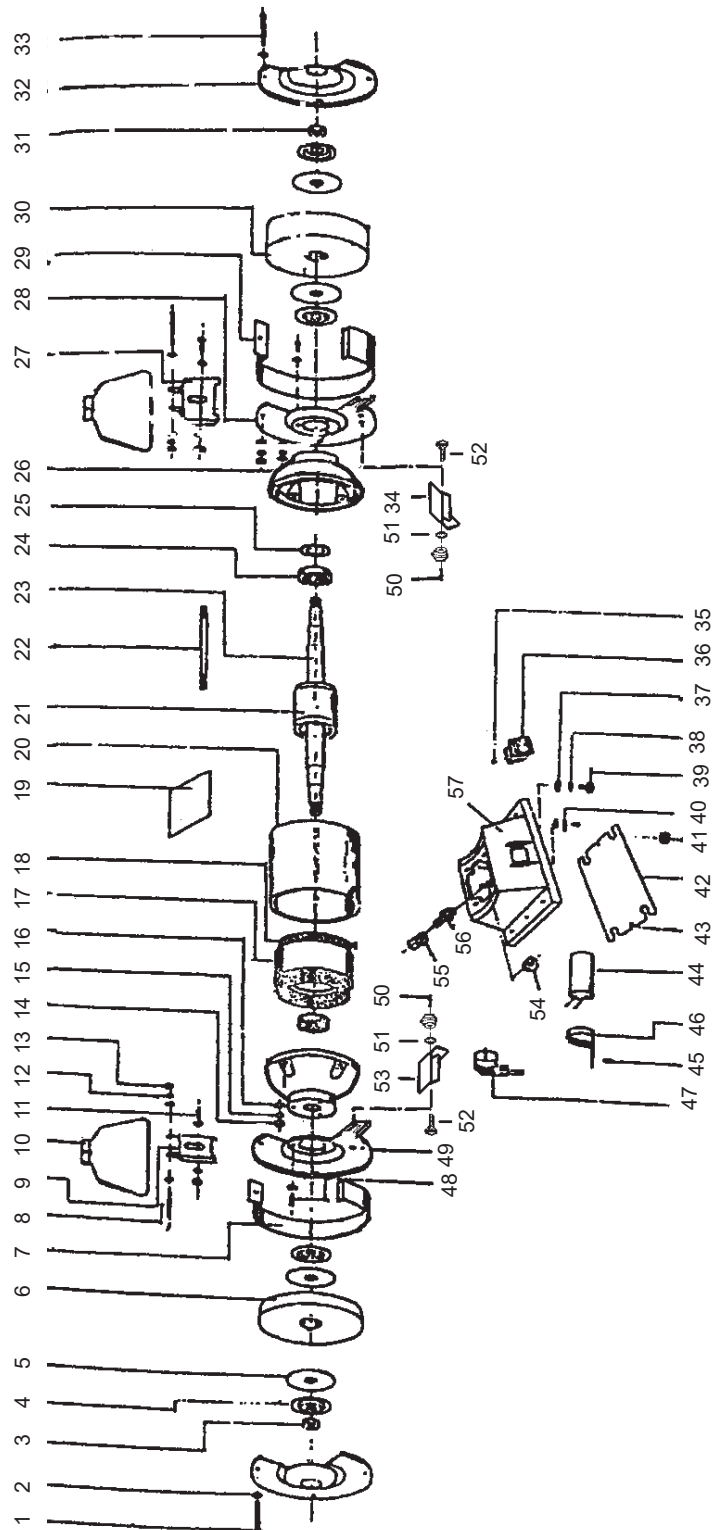
Accessories

Use only recommended accessories. Follow instructions that accompany accessories. Use of improper accessories may cause hazards.

PARTS LIST AND SCHEMATIC DRAWING

NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION
1	bolt	22	bolt	43	bolt
2	washer	23	axis	44	capacitor
3	wheel lock nut	24	bearing	45	capacitor bracket
4	wheel flang	25	waved spring	46	bolt
5	nameplate of wheel	26	end cover	47	Power cord
6	wheel	27	eyeshield bracket	48	bolt
7	middle ring	28	right inner cover	49	left outer cover
8	bolt	29	middle ring	50	screw
9	eyeshield bracket	30	wheel	51	washer
10	eyeshield	31	screw	52	bolt
11	bolt	32	outer cover	53	left tool rest
12	washer	33	bolt	54	screw
13	crew	34	right tool rest	55	cable nut
14	crew	35	bolt	56	cable adaptor
15	washer	36	switch	57	base
16	washer	37	washer		
17	stator	38	washer		
18	winding	39	bolt		
19	label	40	grounding		
20	stator housing	41	rubber feet		
21	rotor	42	base plate		

PARTS LIST AND SCHEMATIC DRAWING



REPLACEMENT PARTS

- For replacement parts and technical questions, please call Customer Service at **1-866-915-8626**.
- Not all product components are available for replacement. The illustrations provided are a convenient reference to the location and position of parts in the assembly sequence.
- When ordering parts, the following information will be required: item description, item model number, item serial number/item lot date code, and the replacement part reference number.
- The distributor reserves the rights to make design changes and improvements to product lines and manuals without notice.

LIMITED WARRANTY

Northern Tool and Equipment Company, Inc. ("We" or "Us") warrants to the original purchaser only ("You" or "Your") that the Ironton product purchased will be free from material defects in both materials and workmanship, normal wear and tear excepted, for a period of **one year** from date of purchase. The foregoing warranty is valid only if the installation and use of the product is strictly in accordance with product instructions. There are no other warranties, express or implied, including the warranty of merchantability or fitness for a particular purpose. If the product does not comply with this limited warranty, Your sole and exclusive remedy is that We will, at our sole option and within a commercially reasonable time, either replace the product or product component without charge to You or refund the purchase price (less shipping). This limited warranty is not transferable.

Limitations on the Warranty

This limited warranty does not cover: (a) normal wear and tear; (b) damage through abuse, neglect, misuse, or as a result of any accident or in any other manner; (c) damage from misapplication, overloading, or improper installation; (d) improper maintenance and repair; and (e) product alteration in any manner by anyone other than Us, with the sole exception of alterations made pursuant to product instructions and in a workmanlike manner.

Obligations of Purchaser

You must retain Your product purchase receipt to verify date of purchase and that You are the original purchaser. To make a warranty claim, contact Us at 1-800-222-5381, identify the product by make and model number, and follow the claim instructions that will be provided. The product and the purchase receipt must be provided to Us in order to process Your warranty claim. Any returned product that is replaced or refunded by Us becomes our property. You will be responsible for return shipping costs or costs related to Your return visit to a retail store.

Remedy Limits

Product replacement or a refund of the purchase price is Your sole remedy under this limited warranty or any other warranty related to the product. We shall not be liable for: service or labor charges or damage to Your property incurred in removing or replacing the product; any damages, including, without limitation, damages to tangible personal property or personal injury, related to Your improper use, installation, or maintenance of the product or product component; or any indirect, incidental or consequential damages of any kind for any reason.

Assumption of Risk

You acknowledge and agree that any use of the product for any purpose other than the specified use(s) stated in the product instructions is at Your own risk.

Governing Law

This limited warranty gives You specific legal rights, and You also may have other rights which vary from state to state. Some states do not allow limitations or exclusions on implied warranties or incidental or consequential damages, so the above limitations may not apply to You. This limited warranty is governed by the laws of the State of Minnesota, without regard to rules pertaining to conflicts of law. The state courts located in Dakota County, Minnesota shall have exclusive jurisdiction for any disputes relating to this warranty.

iron ton[™]

Distributed by:

Northern Tool & Equipment Company, Inc.

Burnsville, Minnesota 55306

www.northerntool.com

Made in China