



Item# 3343109  
3" VARIABLE SPEED BENCH GRINDER  
USER'S MANUAL



Read carefully and understand RULES FOR SAFE OPERATION and instructions before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.  
Assembly and Operation Instructions

Made in China

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For technical questions and replacement parts, please call 1-800-222-5381.

Thank you very much for choosing a NORTHERN TOOL + EQUIPMENT CO., Product! For future reference, please complete the owner's record below:

Model: \_\_\_\_\_ Purchase Date: \_\_\_\_\_

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

This product is designed for certain applications only. Northern Tool + Equipment strongly recommends that this product is not modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DONOT use the product until you have first contacted Northern Tool + Equipment to determine if it can or should be performed on the product.

Before using this product, please read the following instructions carefully.

## SPECIFICATIONS

Electrical Requirements	Power Input: 110V AC/ 60Hz
	Power Cord Length: 70-7/8" (180cm)
	Power Cord Plug Type: 3-Prong, Grounded
Speed	Variable speed 0 ~ 10,000 RPM
Grinding Wheel	3" Diameter x 3/4" Thick
Buffing Wheel	3" Diameter x 3/4" Thick
Arbor Size	1/2" (12mm) Diameter

## SAVE THIS MANUAL

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

## Safety Warnings and Precautions

### WARNING:

When using this tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment. Read all instructions before using this product.

1. Avoid working alone. Should an accident occur, an assistant can bring help.
2. Disconnect power. Unplug tool when not in use, before servicing and when changing accessories such as grinding wheels. Never walk away and leave the tool running.
3. Keep work area clean. Cluttered areas invite injuries.
4. Keep children and pets away. Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords. Never allow unsupervised or untrained personnel to operate the machine.
5. Store idle equipment. When not in use, tool must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
6. Dress properly. Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective electrically nonconductive clothes and nonskid footwear are recommended when working. Wear restrictive hair covering to contain long hair. Wear an ANSI-approved dust mask or respirator.
7. Use eye protection. Always wear ANSI-approved impact-resistant safety goggles.
8. Do not overreach. Keep proper footing and balance at all times. Do not reach over or across electrical cables or frames.
9. Maintain tools with care. Inspect grinding wheels and power cord periodically for cracks and other damage. If necessary, have them repaired by an authorized technician.
10. Use the right tool 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 tool was designed. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
11. Stay alert. Watch what you are doing and use common sense. Do not operate any tool when you are tired or under the influence of alcohol or drugs. Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.

12. Check for damaged parts. Before using this tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform as intended. Check for alignment and binding of moving parts, broken parts or mounting fixtures and any other conditions that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn on and off properly.

13. Replacement parts and accessories. When servicing use only identical replacement parts.

Use of other parts will void the warranty. Only use accessories intended for use with this tool.

14. Use proper size and type extension cord. If an extension cord is required. It must be of the proper size and type to supply the correct current to the tool without heating up; otherwise, the extension cord could melt and catch fire or cause electrical damage to the tool. This tool requires use of an extension cord of 0 to 10 Amps capability (up to 50 feet), with wire size rated at 18 AWG. Longer extension cords require a larger size wire. If you are using the tool outdoors, use an extension cord rated for outdoor use (signified by "WA" on the jacket).

15. Take caution as some woods contain preservatives such as copper chromium arsenate (CCA) which can be toxic. When using these materials, extra care should be taken to avoid inhalation and minimize skin contact. Wear an approved dust mask or respirator.

16. Maintenance. For your safety, service and maintenance should be performed regularly by a qualified technician.

## ADDITIONAL SPECIFIC SAFETY INSTRUCTIONS FOR BENCH GRINDERS

1. When grinding any metals, the grinder can produce sparks which may land on your clothing or hit your face. You should use a full face mask and appropriate protective clothing. Also ensure that you are not operating the grinder around flammable materials or liquids. Always make sure the safety shields and wheel guards are in place at all times. Keep guards in place and in good working order.

2. Make sure the grinding wheels are of the proper speed (RPM) rating for the grinder.

3. Frequently quench the workpiece in water to prevent overheating; be careful not to get water on the bench grinder.

4. Use the tool rest to steady the workpiece. If the tool rest is not used the torque of the spinning grinding wheel may pull the workpiece from your hands.

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

6. When buffing material, always hold the material on the lower side of the buffing wheel. Always keep fingers clear of the grinding wheel and the tool rest.

Note: Performance of this tool may vary depending on variations in local line voltage. Extension cord usage may also affect tool performance.

## WARNING

The warnings, cautions, 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.

## UNPACKING

When unpacking, check to make sure the following parts are included:

- (1) 3" Bench Grinder
- (1) Flex Shaft
- (1) Wrench
- (1) Grinder wheel
- (1) Fiber Wheel
- (2) Grinding Stone Bits

## OPERATION

Turning the Bench Grinder ON and OFF

- 1. Insert the plug into an electrical outlet.
- 2. Turn the speed control knob (46) clockwise to turn the motor ON and adjust its speed.
- 3. To turn OFF, turn the knob counter-clockwise until it clicks.
- 4. Never leave the bench grinder running unattended. Always turn off the tool when not in use.

## USING THE GRINDER

### WARNING

The grinding wheel can fly apart and cause injury. Grinding wheels must always be checked for cracked for cracks or 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 ring. If a dull thud occurs, do not use the wheel. The wheel may be damaged and could come apart during operation.

**CAUTION:** Always wear ANSI-approved safety glasses when grinding.

1. Always bring the workpiece into the wheel gently, without jarring.
2. The workpiece will quickly become heated; therefore, frequent quenching in water is required.
3. When grinding high speed steels such as drill and tool bits, avoid high temperature buildup as this can affect the temper of the steel.
4. For small workpieces such as drill bits or chisels, avoid applying pressure to the wheel at a high angle that could cause the workpiece to become lodged between the tool rest and the wheel.
5. When using the Flexible Shaft, be sure the Grinder is turned OFF and wait for it to stop before setting down the Flexible Shaft.

## MAINTENANCE

### Dressing the Grinding Wheel

Note: New wheels frequently are not true and during operation will often become grooved, glazed (build up), out of round, or misshapen. You will need a grinding wheel dresser for this operation.

1. Stand to the side of the wheel for this operation.
2. If the wheel is new let it run for a minute with no load. If the wheel runs straight and true you will not need to dress it prior to operation. If it does not, proceed with the following instructions.
3. If you are using a "pistol grip" dresser, grip the handle firmly with one hand and the arm of the dresser with the other. Allow the wheel to reach full speed. Use the tool rest to support your hand and the dresser, and evenly apply the dresser to all surfaces of the wheel. The wheel can be dressed in a few minutes.
4. If you are using an "inline" dresser, hold the handle firmly, put the dresser on the tool rest so that its wheels can move freely (i.e., the exposed part of the wheel should be facing up). Let the wheel reach full speed and apply the dresser evenly to all surfaces.

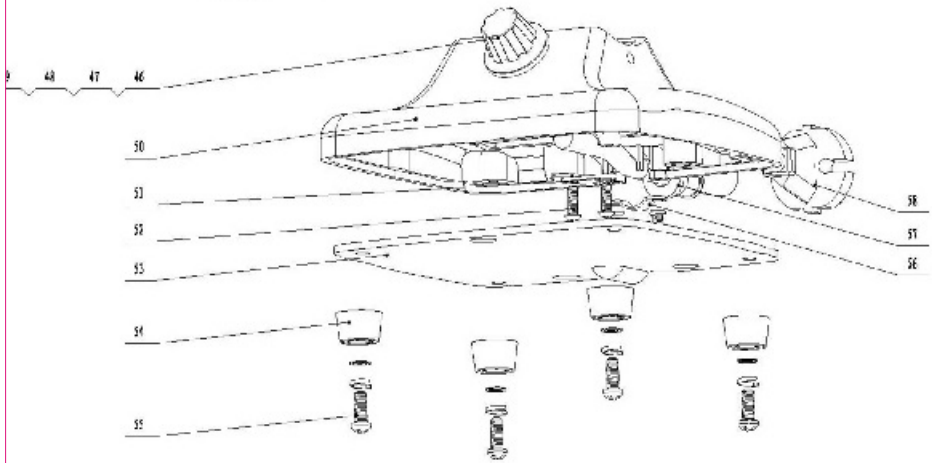
## PART LIST

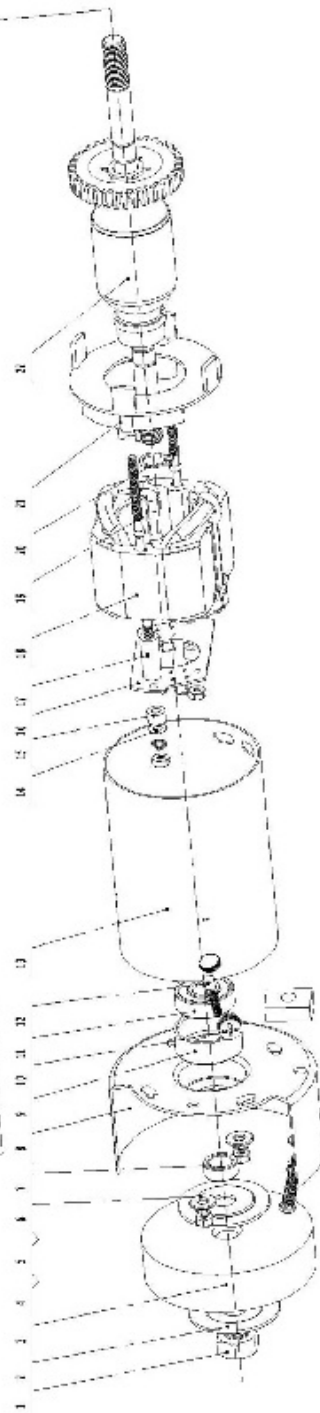
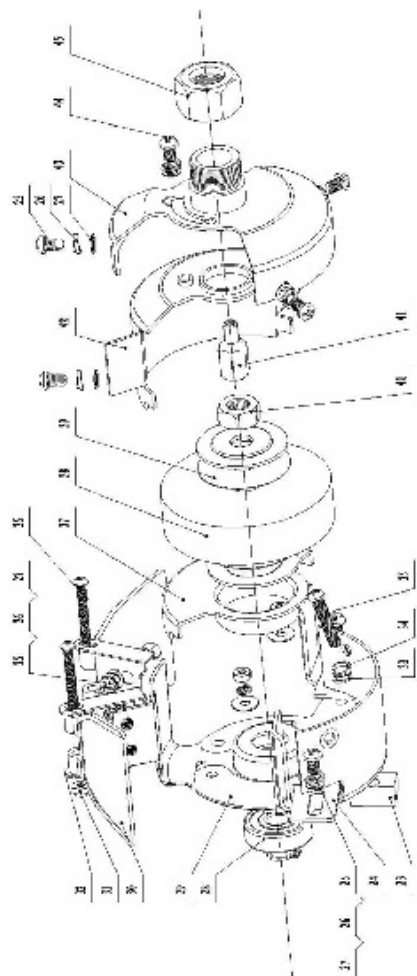
Part No.	Description	Quantity
1	Left Nut M10	1
2	Wheel Pushing Ring	4
3	Polishing Wheel	1
4	Nut M4	6
5	Spring Washer M4	13
6	Flat Washer (4.3x12x1)	4
7	Steel Sleeve	2
8	Wheel Cover	1
9	Bearing Cover	1
10	Brush Cover	2
11	Bearing	1
12	Brush	2
13	Motor Housing	1
14	Flat Washer (4.3x8x0.5)	9
15	Short Sleeve	2
16	Brush Holder	1
17	Long Sleeve	2
18	Stator	1
19	Stator Bolt	2
20	Snap Ring	2

Part No.	Description	Quantity
30	Plastic Shield	2
31	Lock Nut M4	2
32	Plastic Shield Mounting Plate	2
33	Flat Washer	2
34	Spring Washer	2
35	Pan Head Screw M6x20	2
36	Pan Head Screw M4x40	2
37	Cover	1
38	Grinding Wheel	1
39	Gasket	2
40	Nut M10	1
41	Flexible Shaft Connector	1
42	Rotating Guard	1
43	Wheel Cover	1
44	Pan Head Screw M5x10	1
45	Flexible Shaft Connector Nut	1
46	Knob	1
47	Nut M10	1
48	Washer	1
49	Switch	1

Part No.	Description	Quantity
21	Fan Shroud	1
22	Rotor	1
23	Rubber Gasket	2
24	Workpiece Holder	2
25	Pan Head Screw M5x8	11
26	Spring Washer M5	16
27	Flat Washer	16
28	Bearing	1
29	Grinding Wheel Cover	1

Part No.	Description	Quantity
50	Base	1
51	Circuit Board	1
52	Pan Head Screw M4x10	5
53	Plastic Cover	1
54	Rubber Feet	4
55	Pan Head Screw M5x18	4
56	Sleeve Plate	1
57	Circuit Sleeve	1
58	Cord	1





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