



MODEL CX904

3" Mini Grinder with Rotary Shaft



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Version 1

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General Safety Instructions:

Operating a bench top grinder can be dangerous if safety precautions and common sense are not followed. The operator of the machine should be familiar with and understand the manual before operation of the tool. Do not operate this bench top grinder if you have not read the manual and are understanding of the limitations of this machine. **DO NOT** modify this machine in any way.

Before Operation of Grinder:

WARNING!!!
In order to avoid any potential serious injury or property damage, read and follow the safety and operating instructions laid out in this manual.

1.) Some debris and dust generated by use of this bench top grinder may contain chemicals like:

- Lead from lead-based paint
- From Crystalline silica from bricks, cement, and other masonry products.
- Arsenic and chromium from chemically treated lumber

Your risk of exposure to the above listed chemicals varies based on the type of work being performed. Always work in a well ventilated area and with the proper approved safety equipment. Use of a dust mask capable of filtering out microscopic particulates should be worn during operation of the bench grinder.

2.) Read through the owner's manual thoroughly and understand how to use this machine for its intended applications.

3.) Ground all machines. If the machine has a 3 prong plug, it must be used in conjunction with a 3 prong electrical receptacle. The purpose of the third prong is to provide grounding for the machine and to prevent accidental electrical shock. **DO NOT** under any circumstance remove the third prong.

4.) Avoid possible hazardous working environments. Avoid using any electrical tools or machines and wet or damp locations. Do not expose to rain.

5.) DO not use electrical machines or tools in the presences of flammable gasses or liquids.

6.) Always keep the work are clutter free and clean. Work area should be free from debris, slippery floors, grease, and wax.

7.) Keep children away during operation of the machine and keep everyone out of your immediate work area.

8.) Do not use the machine for purposes that are not intended for which the machine was designed.

9.) Do not wear loose fitting clothing, neck ties, gloves, or jewelry. These items increase the risk of serious injury as they may be caught by the machine during operation and pull the operator in towards the machines moving parts. Long hair should also be covered and kept away from the machine during operation to avoid getting caught as well.

10.) Childproof the workshop area by removing all switch keys from machinery, unplugging all equipment, or by use of padlocks.

11.) Always remove or unplug machine from power source before performing any maintenance or making any adjustments.

12.) Keep all protective guards in place and in proper working order to avoid potential injury.

13.) Make sure the on/off switch is in the off position to avoid accidental starting of the machine when connecting to its power source.

14.) Remove all tools from work area used for maintenance before turning machine.

15.) Use only recommended or original accessories. Use of accessories not meant for this machine can lead to serious injury or even property damage. Please check the manuals for accessories to ensure that they can be safely used with your machine.

16.) Never leave a running machine unattended. Wait until the machine has come to a full stop after turning the power switch off before leaving the area.

17.) Do not stand on tool as it could result in serious injury or property damage.

18.) Do not store items above or around the tool or where anyone may try and stand on the machine to reach the items.

19.) Keep your balance. Never overextend yourself around the machine. Make sure work area is free from grease, oil, and other slip hazards.

20.) Maintain your machine. Always keep machine clean and in proper working order.

Dress the grinding wheels and replace other abrasive accessories when worn out.

21.) Before operating machine check for any damaged parts or accessories. Thoroughly check all safety guards are operating as they should and are not damaged. Also check for the alignment, binding, breaking of moving parts.

22.) Do not operate machine under the influence of drugs, alcohol, medication, or while tired.

23.) Make sure to secure all work using clamps or jigs to secure the work piece. This is much safer then attempting to secure the work piece using your hands.

24.) Pay attention and stay alert while operating machine. A second of distraction or inattention can result in serious injury or property damage.

25.) You should always wear a dust mask when operating machine to avoid inhaling any hazardous dust or airborne particulates. Machine should be operated in a properly well-ventilated area and in use with dust collection when available. Long term exposure to dust may result serious and permanent respiratory and health conditions such as silicosis, cancer, and even death. Always use a NIOSH/OSHA approved respiratory protection.

26.) If machine is used in conjunction with an extension cord it must be heavy enough to carry the current the machine will draw during operation. Using a cord with a wire gauge that is too small or too long can result in voltage drop causing loss of power and overheating of the motor. Use only 3 prong extension cords that have grounding pin.

Specific Safety Instructions For Bench Top Grinders

- 1.)** Read the instructions thoroughly and understand before use or operation of grinder.
- 2.)** Use eye shields and wheel guards provided with the grinder.
- 3.)** The Grinding wheels will decrease in diameter with use. As the diameter changes make sure to adjust the tool rest to keep and maintain a distance of 1/16" from the grinding wheel.
- 4.)** Remove and replace any cracked or damaged grinding wheels immediately. A cracked or damaged wheel can cause debris to be discharged towards the operator at a high velocity. When replacing the grinding wheel tighten the spindle nut just enough to secure the wheel in place. Do not over tighten the grinding wheel as excessive force can damage the wheel. When choosing replacement grinding wheels only use properly sized wheels that are rated for the RPM of your machine.
- 5.)** Always stand to the side of the bench grinder when starting the machine. Stand to the side of the machine until it has reached full operating speed to avoid any possibility of being hit by debris from a damaged grinding wheel.
- 6.)** Do not force your work piece into the grinding wheel. Approach the grinding wheel with the work piece slowly so that the wheel may have an opportunity to warm up reducing the chances of wheel damage. Do not grind on the sides of the grinding wheels or use coolant or cutting liquids directly on the surface of the grinding wheel.
- 7.)** The Grinding wheel should be dressed often to keep the wheel surface flat and free of contaminates like residue or glaze.
- 8.)** Tool rest should be kept securely in place and used to position your work piece for grinding.
- 9.)** Do not operate grinder around flammable materials as the grinder will generate sparks and debris. Back of the grinder should be cleaned regularly.
- 10.)** Never bring grinding wheels to a stop by forcing your work piece into the grinding wheels. Let the grinder come to a stop by itself.
- 11.)** Allow for the grinding wheels to reach full speed before beginning work on your material.
- 12.)** Only use a wheel dresser to resurface the face of the grinding wheels.
- 13.)** Keep all safety guards in place. Do not use the grinder if any of the guards are damaged or missing.
- 14.)** Secure the grinder to a workbench or stand using bolts to avoid tipping or sliding of the machine during operation.
- 15.)** Make sure all wrenches and adjustment keys are clear of the machine before turning the grinder on.
- 16.)** Regularly clean all dust and debris from inside and beneath the safety guards while machine is unplugged.
- 17.)** Never grind small pieces of material without being properly supported by the tool rests or held by clamps to avoid personal injury or property damage.

POWER SUPPLY

AVAILABILITY OF POWER

Before Installation of this machine, you will need to consider the proximity of your power supply circuit. If available circuits do not meet the requirements for this machine you will have to get a new circuit installed by a licensed electrician. Use of a licensed electrician will minimize the risks of fire, electrocution, damage to equipment, and will insure everything is wired in accordance to the applicable codes and standards.



FULL LOAD CURRENT RATING

This is the amount of Amps a machine draws under 100% of the rated output power.

FULL LOAD RATING FOR 120V 15AMPS

The full load current is not the maximum amount of amps the machine will draw. The machine has potential to draw current beyond the full load rating if it is overloaded. Overloading of the machine for an extended period of time can cause damage, overheating, or even fire. The risk is higher if the machine is on an undersized circuit. To help avoid these issues insure you are connected to a circuit in which meets the specified circuit requirements for this piece of machinery.

WARNING!

Do not connect machine to power before setup has been fully completed to avoid risk of personal injury or property damage.

CIRCUIT REQUIREMENTS FOR CX904 3" MINI GRINDER BUFFER

The CX904 has been prewired at the factory for operation on an electrical circuit that has a verified ground and meets the below requirements:

Voltage: 110V – 120V
Cycle: 60Hertz
Phase: Single
Circuit Breaker Size: 15Amps

Please Note:

1. An electrical circuit includes all electrical equipment between the breaker panel and the machine. This is why it is important to have the proper circuit size so it can safely accommodate this machine under full load for an extended period of time.
2. The circuit requirements laid out in this manual are for a dedicated circuit in which only one machine will be operational or installed at a time. If you choose to connect to a shared circuit where more than one machine may be running at a time please consult with a qualified electrician to insure the circuit is properly sized for safe operation.

PLUG AND GROUNDING REQUIREMENTS

This machine must be grounded so that in the event of certain malfunctions it will reduce the chances of electrical shock by providing a path of least resistance for the electric current to travel through. For this reason the CX904 comes with a cord equipped with an equipment grounding wire that leads in to the grounding prong on the plug.

NOTE

The three-prong plug is only to be plugged in to matching receptacle that is properly installed according to the local electrical codes and standards. Under no circumstances should you modify the plug to make it fit in a receptacle that it is not meant for this configuration. (see figure A)

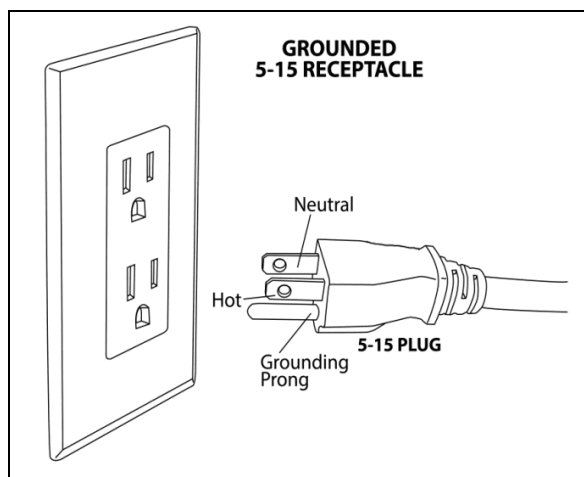


Figure A

If there is an improper connection of a machine grounding wire it may result in a heightened risk of electric shock. If repair or replacement of the power cord is necessary in the future please consult a licensed electrician.

NOTE

If ever you notice damage or wear to either the cord or plug disconnect it immediately from the power supply and have it replaced by a licensed electrician or service tech before any further use of the machine.

USE WITH EXTENSION CORDS

If you absolutely must require the use of an extension cord with your machine do so, on a temporary short-term basis only.

NOTE

We recommend that you do not use an extension cord with this machine. Also the longer the extension cord the greater the possibility of voltage drop that can cause the motor to work harder as it will be under powered which in turn will cause it to draw more amps. This may cause the thermal overload to trip or even the breaker in your electrical panel. It may also cause the extension cord to heat up which can be a potential fire hazard.

If an extension cord is used with this machine it must have a ground wire with a plug that attaches to the one currently installed on your machine. The extension cord must also meet the following specifications below:

Minimum Wire Gauge: 16 AWG
Maximum Cord Length: 50 ft.

Unpacking Your CX904

The CX904 will require minimal assembly.

- 1.) Remove the contents from the carton and place all items on a clean clutter free work surface.
- 2.) Remove all packing, protective materials, and protective coatings from machine. Use WD40 to help breakdown the protective coating. Just spray the WD40 on coated areas and wipe clean with a cloth. You may need to repeat this step a couple times to remove all protective coating.

NOTE
Do not use gasoline, acetone, or paint thinner to remove protective coating as they may damage the painted areas.

- 3.) Compare all the items from the carton with Figure 1. Make sure all items in the inventory are accounted for before throwing away carton and packaging materials.

WARNING!!!
If any parts of the machine appear to be missing DO NOT plug in or operate the machine. The bench grinder can only be turned on once all the guards and accessories have been properly installed.

Specifications:

Product Dimensions:

Weight..... 5 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 6-3/4 x 5-1/4 x 6-1/4
in. Footprint (Length x Width).....3-1/4 x 3-1/4 in.

Shipping Dimensions:

Type.....Cardboard
Content.....Machine
Weight.....6 lbs.
Length x Width x Height..... 10 x 8 x 7 in.

Electrical:

Power Requirement..... 120V, Single-Phase, 60 Hz
Full-Load Current Rating.....0.4A
Minimum Circuit Size.....15A
Connection Type..... Cord & Plug Power Cord
Included..... Yes
Power Cord Length..... 6-1/2 ft.
Plug Included.....Yes
Plug Type..... 5-15
Switch Type..... Toggle ON/OFF Switch

Motors

Main Type..... Induction
Horsepower..... 1/14 HP
Phase..... Single-Phase
Amps..... 0.4A
Speed..... 3450 RPM
Power Transfer Direct Drive
Bearings.....Shielded & Permanently Lubricated

Main Specifications:

Operation Info Right Wheel Type..... Aluminum Oxide
Left Wheel Type..... Wool Wheel
Bore..... 1/2 in.
Wheel Speed at Maximum Wheel Diameter..... 3450 RPM

Construction:

Base..... Aluminum
Work Rest..... Steel
Eye Shields..... Polycarbonate

Control & Components

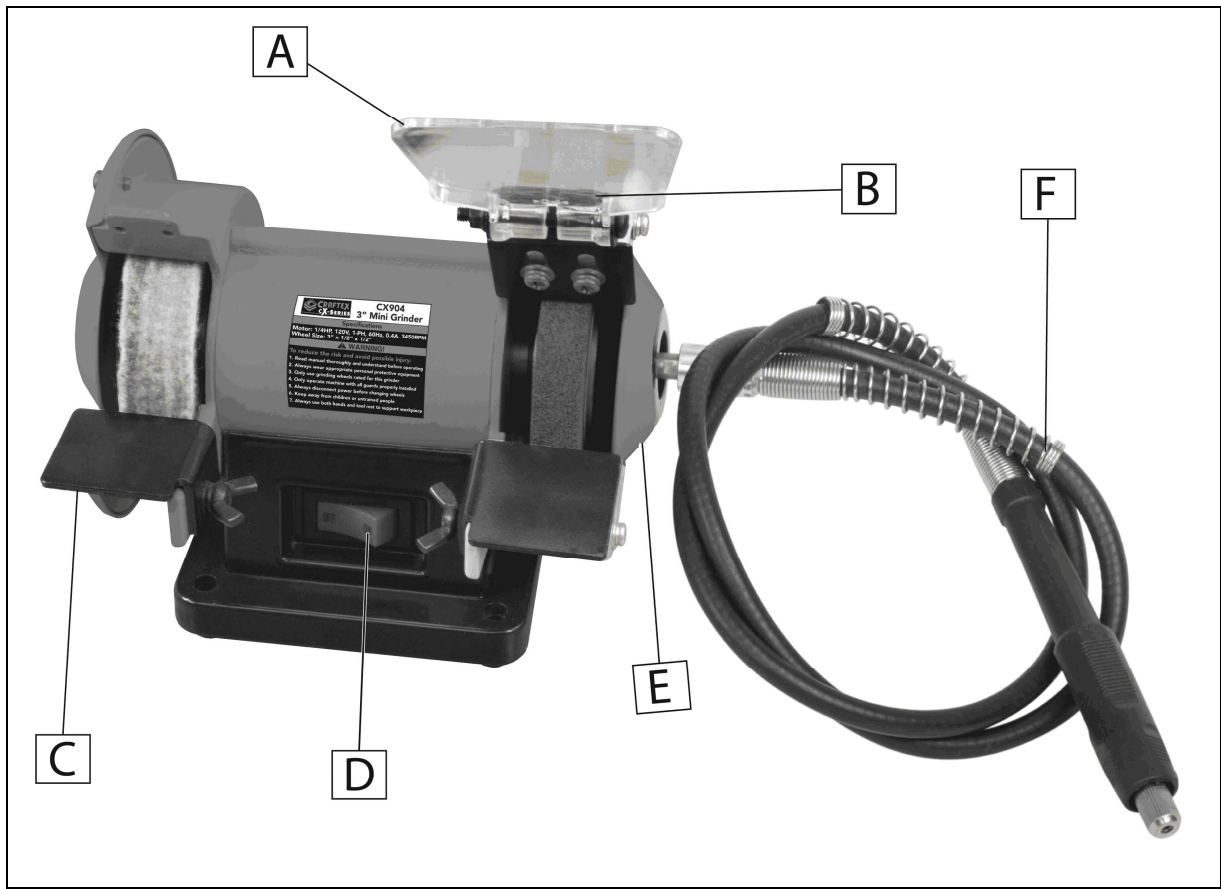


Figure 1

- A.** Safety Shield: Protective barrier that shields user from flying sparks and debris during grinding operations. Eye protection still must be worn at all times.
- B.** Spark Deflector: Prevents and reduces the amount of sparking thrown back at operator during grinding operations.
- C.** Tool Rest: Flat surface for resting the workpiece during operation.
- D.** ON/OFF Switch: Turns the motor on when pushed to the right and off when pushed to the left.
- E.** Wheel Guard: Protects the operator from accidental contact with the grinding wheel and helps to contain sparks while performing any grinding operations.
- F.** Rotating Shaft: Rotary tool attachment that connects to the right side of the grinder providing additional functionality.

Inventory

The list of items below were shipped with your machine. Before beginning setup of your new machine, it is wise to lay these items out and inventory them.

Note:

If you have trouble finding an item on the list carefully check around inside the packaging materials. Sometimes these items get lost in the packaging material whilst unpacking the machine. Items may also be pre-installed at the factory.

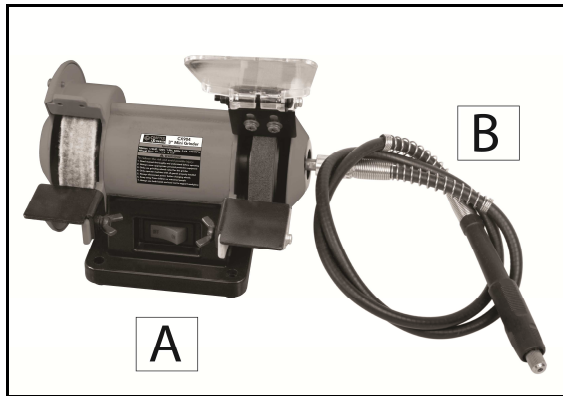


Figure 2

	Qty
A. 3" Mini Grinder.....	1
B. Rotary Attachment.....	1

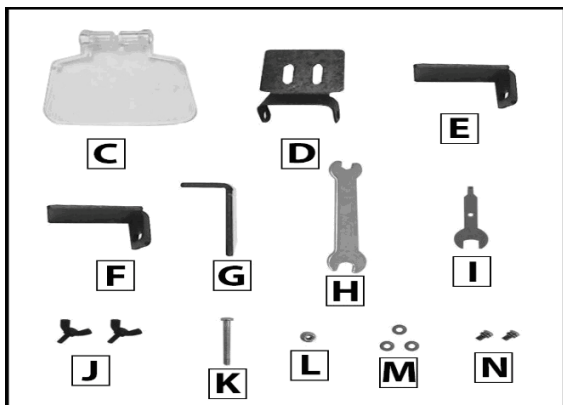


Figure 3

	QTY
C. Safety Shield.....	1
D. Spark Deflector.....	1

E. Tool Rest Left.....	1
F. Tool Rest Right.....	1
G. Pin Wrench.....	1
H. Open End Wrench 10mmx7mm.....	1
I. Collet Wrench.....	1
J. Wing Bolts M4-0.7.....	3
K. Phillips Head Screw M4-.07x40.....	2
L. Flange Nut M4-0.7.....	1
M. Flat Washers.....	3
N. Phillips Head Screw M4-0.7x8.....	2

MOUNTING

The grinder features four pre-drilled holes on its base which allow mounting it to the workbench.

There are two ways to mount the grinder onto the workbench; through mount and direct mount.

"Through Mount" is the strongest mounting option where the holes are drilled all the way through the workbench. Hex bolts, washers and hex nuts are used to secure the grinder to the workbench. (Figure 4) (Hardware not supplied)

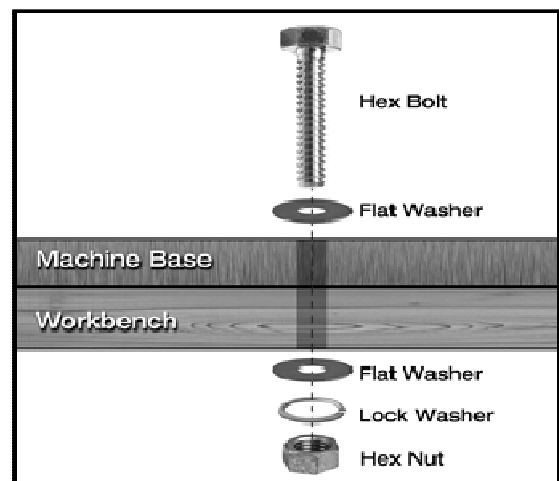


Figure 4 Through Mount

"Direct Mount" is to simply secure the grinder to the workbench using lag

screws. See figure 5. (Hardware not supplied)

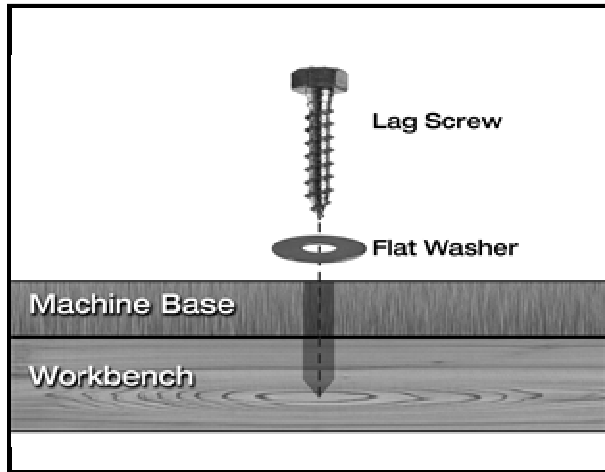


Figure 5 Direct Mount

Assembly

With the hardware listed in the inventory section, completely assemble the CX904 by attaching the tool rest and safety shield.

1. Connect safety shield to spark deflector using (1) M4-.7 x 40 Phillips head screws and (1) 4mm flat washer, securing it in place with (1) flange nut as shown in figure 6 below.

2. Connect the safety shield assembly to right side of grinder using (2) M4-.7 x 8 Phillips head screws with captive flat lock washers as seen in figure 6 below.

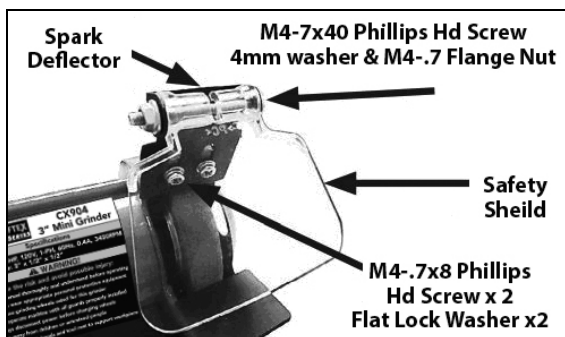


Figure 6

3. Connect each tool rest to the grinder using (2) 4mm flat washers and (2) M4-.7 x 10 wing bolts as seen in figure 7 below.

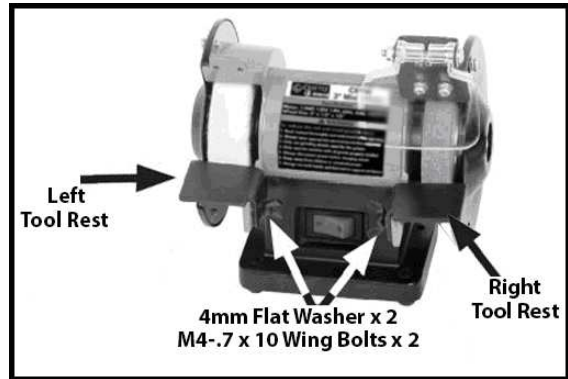


Figure 7

Adjusting Tool Rests

The tool rest supports the workpiece when grinding hence it is important to adjust the tool rest correctly.

The tool rest should be positioned at 1/16" - 1/8" from the grinding wheel. As the grinding wheel wears, and the gap between the grinding wheel and tool rest increases, adjust the tool rest closer to the grinding wheel.

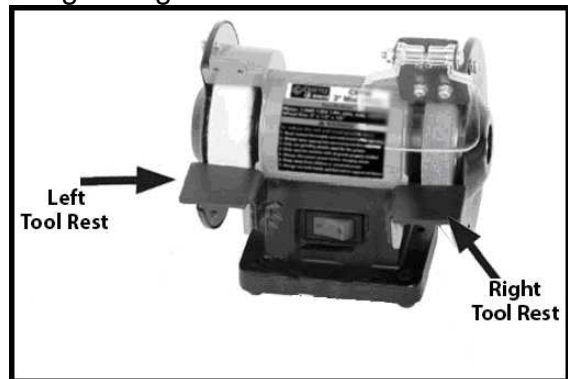


Figure 8

WARNING!

Do not grind without the tool rest in place. The grinding wheel must be positioned in place before operation. Free hand grinding or a large gap between tool rest and grinding wheel will increase the possibility of kickback.

Adjusting Spark Deflector

The purpose of the spark deflector is to prevent the workpiece from being showered with sparks along with the operator's hands. As the wheel wears over time, loosen the mounting screws shown in figure 9, and adjust the spark deflector so that it is closer to the grinding wheel. Please note that a gap of 1/8"-1/4" must be maintained. Once adjusted retighten the mounting screws.

Note:

If gap reaches 1/4" and there is no more room for adjustment the grinding wheel must be replaced at this time.

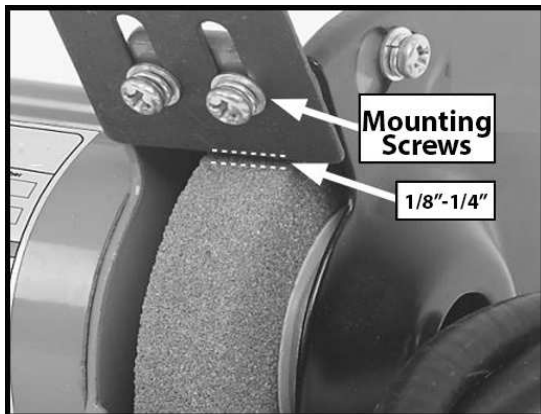


Figure 9

Test Running Machine

Once you have assembled the grinder and verified that grinding wheel is secured, it is then time to do a test run and see that the machine powers up and runs properly.

To test run the grinder:

Remove and clear away all the tools and objects used for assembling the machine.

Make sure you have read and understood the instructions given in this user manual and your grinder is set up properly.

Connect the cord to the power source.

Stand to the side of the grinding wheel and turn the machine ON.

The grinder should run smoothly with little or no vibration.

During the test run if there is any unusual noise or vibration turn machine off and disconnect the grinder from the power source immediately. Check all the parts you have assembled, once again and try to find out the problem.

OPERATION

In this section of the manual, we are providing you with the basic understanding of the grinding operation on this machine.

Warning!

Always wear safety glasses or a face shield and respirator when operating the machine. Failure to do so can result in serious damage or injury to your eyes and lungs.

To Operate CX904

Check the work-piece and make sure it is suitable for grinding and select the correct grinding wheel for the work-piece you want to grind.

Adjust the tool rest so that it is perpendicular to the grinding wheel and the gap is 1/16" - 1/8"

Adjust the spark deflector so that the gap is 1/8" - 1/4".

Make sure eye shields are in position.

Wear safety goggles or face shield and a respirator and stand to the side of the grinding wheel.

Connect the cord to the power source and turn the switch to ON position.

Allow the grinding wheel to reach its full speed and gently feed the workpiece into the grinding wheel.

Keep the workpiece moving across the face of the grinding wheel. Grinding continuously on the same spot on the wheel will cause grooves to be worn into the wheel. The wheel may crack or become damaged more easily and

grinding of the other objects will be difficult.

If the workpiece becomes hot, dip it into the water or oil to cool it preventing surface hardening or temper loss.

If the surface of the grinding wheel is no longer square, the wheel should be reshaped using a wheel dressing tool or replaced.

GRINDING WHEEL INSPECTION

The CX904 comes with an aluminum oxide grinding wheel. The grinding wheel should be inspected properly before installation.

Clean the dust and/or dirt from the surface of the wheel and inspect it for any cracks, dents, chips, or any kind of external damage.

To inspect the wheel for any internal damages:

Inspect the grinding wheel and make sure it passes the "ring-test".

Hold the wheel up with a finger through the hole located in the middle of the wheel and tap it using a wooden mallet or a light non-metallic object as shown in figure 10.

Wheels should be tapped gently with a light wood or non-metallic instrument. A stable grinding wheel will give a clear metallic tone or "ring."

That distinctive ring comes from the hardness of the material in the wheel and its ability to transmit sound vibrations. If the wheel is cracked, the vibrations stop at the crack and there is no ring. However, a ring test may not detect all defects in a wheel, so a

Careful visual inspection is also necessary.

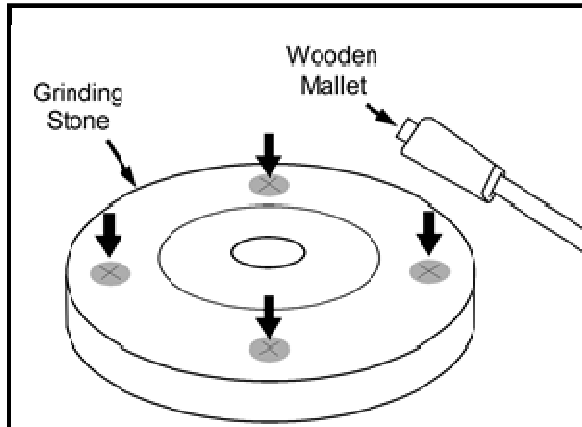


Figure 10

Warning!

Tapping wheel with heavy or metallic objects can damage the grinding wheel.

WHEEL DRESSING

When the grinding wheel becomes loaded and dull or the diameter of the grinding wheel is not longer round, the wheel should be reshaped using a dressing tool.

Turn the grinder ON.

Position the wheel dresser on the tool rest.

Slowly move the dressing wheel towards the grinding wheel maintaining slight pressure until you see a clear grinding surface on the wheel.

Turn OFF the grinder.

Adjust the tool rest and the spark deflector as instructed.

Wheel Care

When performing grinding operations your safety largely depends on the condition of the grinding wheel. A wheel in poor condition has the possibility of breaking apart during operation and injuring the operator or others in the area.

Tips to Help Avoid Breaking a Wheel

- Always store and transport the wheels with care. Wheels can become damaged if dropped or if heavy objects are placed on top of them.
- Only use wheels that are compatible and are rated for the RPM of your grinder.
- Use the proper grinding wheel for the application. Do not grind material on a wheel that is not meant for the application.
- Make sure that the grinding wheel is mounted properly on the machine before operation.
- Do not force the tooling into the grinding wheel with such force that it causes the grinder to slow down.
- Do not apply pressure to the grinding wheel to stop it from rotating after machine has been shut off.
- Prevent wheel from becoming glazed by dressing it when necessary.
- Wheels should not be stored in damp locations.
- Be careful not to over tighten the nut when mounting the grinding wheel.

Installing/Removing Grinding Wheel

Warning!

Always visually inspect and perform a "ring test" on a wheel before installation. Do not use damaged wheels for any reason.

Installing/Removing Grinding Wheel

1. Make sure that machine is disconnected from its power source.
2. Remove outer guard by loosening (3) M4-.7 x 10 Phillips head screws with captive flat and lock washers holding the guard in place. See figure 11 on the next page.
3. Remove the wheel guard by twisting guard clockwise until screws align with the access holes.

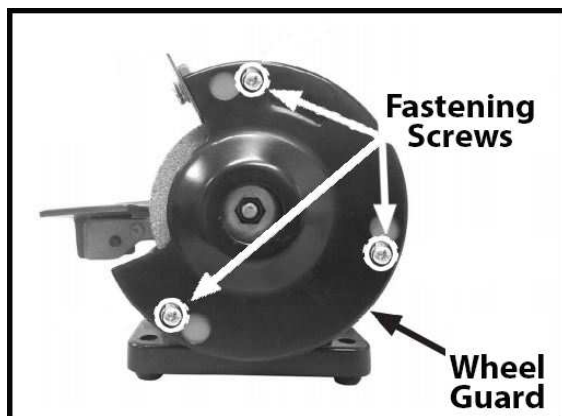


Figure 11

4. Remove M6-1 hex nut. See Figure 12 below.

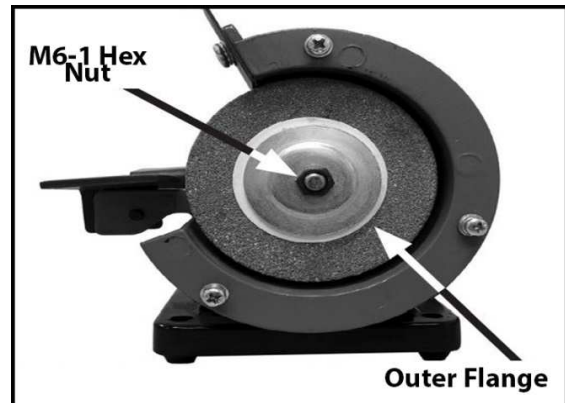


Figure 12

5. Remove outer wheel flange along with the paper disc. Note: hold grinding wheel with free hand to stop the spindle from turning while removing the hex nut.
6. Now remove the grinding wheel and bushing from the spindle. Pay attention to the fiber or paper disc between the wheel flange and wheel. The paper disc is there to cushion the pressure of the wheel flanges and help to be distribute the pressure evenly. See figure 13.

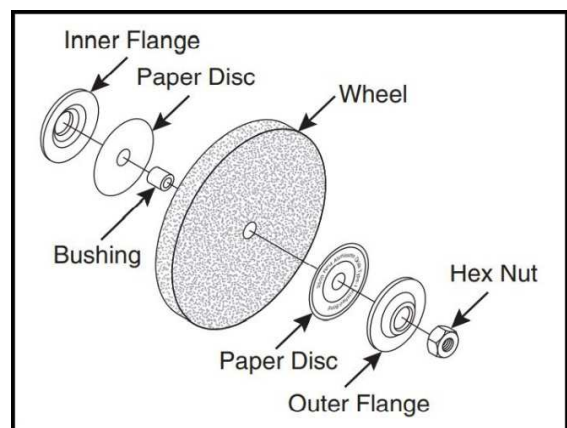


Figure 13

7. Place the inner and outer flanges on a flat surface to verify their flatness. If either flange appears to be warped or damaged it must be replaced.
8. Mount the new grinding wheel and bushing in the order displayed in figure 13. Tighten the M6-1 hex nut firmly,

however you must be careful not to overtighten. Overtightening can cause the grinding wheel to crack.

9. Re-attach the outer wheel guard using the hardware removed in step 2.
10. While standing safely to the side of the grinder, turn the grinder on and run the new grinding wheel for about 1 or 2 minutes before standing in front of it. This will protect you in the event the wheel is damaged and comes apart. Only use the grinding wheel if it is running smoothly and not wobbling.

Buffing

Here are some tips below on how to get the most out of your CX904 and buffing wheel. Learning to effectively use your machine and properly hold your workpiece and knowing the amount of pressure to apply as well as how to move the workpiece against the wheel and which compound to use requires a certain amount of discovery.

- Clean all parts thoroughly that you intend on buffing. All oil, dust, rust, paint, or other residue must be removed with water or chemically. Always dry workpiece with rag after cleaning.
- Use buffing compounds in tiny amounts at a time. Add paste like compounds with a wand or directly to the part. For waxed based polishing or stick type compounds you will need to press the compound against the wheel for a couple seconds while the machine is running. Be careful not to use too much compound.
- Place your workpiece under the wheel when you are applying the compound on to the buffing wheel.

By doing this should any of the compound drop it will land on the workpiece and won't be wasted on the floor.

- To start buffing you will need to place your workpiece on to the tool rest and slowly start moving it towards the buffing wheel. You must always hold the workpiece firmly while performing any buffing operations. Remember placing one hand near the contact point will increase your control.
- Have buffing wheel raked out before each use or when build up becomes heavy. This will require you to clean the wheels with a wheel rake to remove any buildup of compounds as well as metal particles. Always use light pressure when using rake to avoid damaging the buffing wheels.
- For best results when buffing do not mix different compounds on the same wheel. Use different wheels for different compounds.
- When buffing you should always wear proper protective equipment. If the buffer forces the workpiece from your hand it most likely will be coming right at you. Therefore it is necessary to be prepared by wearing goggles or face shield as well as a heavy leather apron. A respirator or dust mask should also be worn to protect your lungs from fine metal particles.

Warning!

Always hold workpiece firmly against tool rest while buffing as failure to do so will cause the workpiece to be thrown from operator's hands resulting in possible personal injury.

Types of Buffing Compounds

Most colours of the compounds have similar applications; however, it is always wise to check with the manufacturer of the particular compound you decide to use.

Red - Generally made for fine polishing on brass or gold. This provides a superior shine when using a loose muslin buffing wheel.

Green (Extra Fine) – Generally used for extra fine polishing on various metals to help bring out the mirror like finish. Best applied with loose muslin and spiral sewn buffing wheels.

Green (Fine) - Slightly more abrasive than the Green (Extra Fine) above. This compound is great for a medium to fine polish on most metals.

White – This compound is great for ivory, plastics and resins when used in conjunction with a soft spiral sewn and soft airway buffing wheels.

Black – Meant to be used with sisal and airway hard buffing wheels. The black compound is perfect for the initial rough cut on stainless steel and iron.

Tripoli – This is a middle of the road abrasive that provides a great medium cut for aluminum, brass, or zinc alloy.

Installing/Removing Buffing Wheels

The CX904 has a left and right shaft to allow for the option of mounting grinding or buffing accessories dependent on the application.

Warning!

Safety shield must always be installed for all grinding operations. Failure to do so can result in serious personal injury.

How to Install/Remove Buffing Wheel:

1. Machine must be disconnected from its power source.
2. Loosen the (3) M4-.7 x 10 Phillips head screws with captive flat and lock washers that hold the wheel guard in place.
3. Remove the outer guard.
4. Remove the M6-1 hex nut.
5. Remove the outer flange of the buffing wheel and bushing from spindle.
6. Now install the new buffing wheel, bushing and wheel flange. Then reinstall the M6-1 hex nut and tighten firmly.

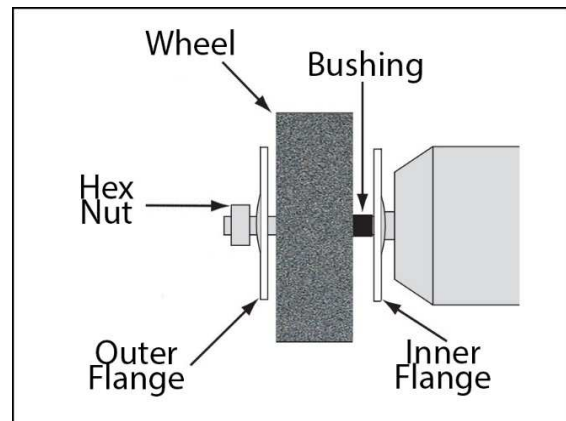


Figure 14

Using the Buffing Wheel:

1. Use safety glasses and respirator.
2. Select the desired polishing compound and buffing wheel for the application.
3. Turn the machine on and apply the compound to the rotating face of the buffing wheel.
4. Position workpiece for buffing.
5. Perform buffing operations outlined in Buffing section of manual.
6. When desired results have been achieved turn machine off.

Rotary Shaft Operations

The rotary shaft installs onto your CX904 3" Mini Grinder to allow you to operate in tight spaces with greater control. Do not operate the rotary shaft with sharp bends.

Installing Rotary Shaft:

1. Make sure machine is disconnected from its power supply.
2. Remove cover and screw or thread rotating shaft onto spindle located on the right-hand side of the grinder. (See figure 15)

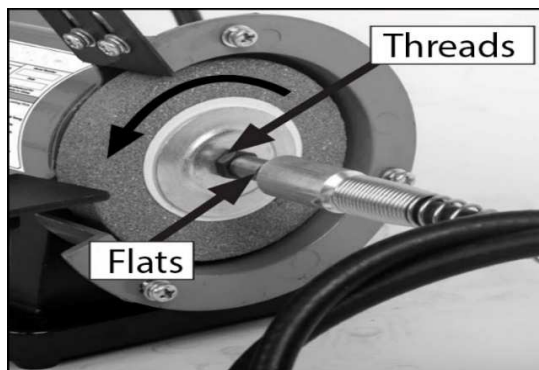


Figure 15

NOTE

Hold the wrench on flats of the rotating shaft, then rotate the grinding wheel counter-clockwise with spare hand to tighten.

Installing Bits in Rotary Shaft:

CX904's rotary shaft uses cutter and bits with a 1/8" shaft diameter.

How to Install a Bit:

1. Make sure machine is disconnected from its power source.
2. Now rotate the collet nut until the locking holes in the rotary shaft are aligned with the grip, then insert the pin wrench. (See figure 16 below)

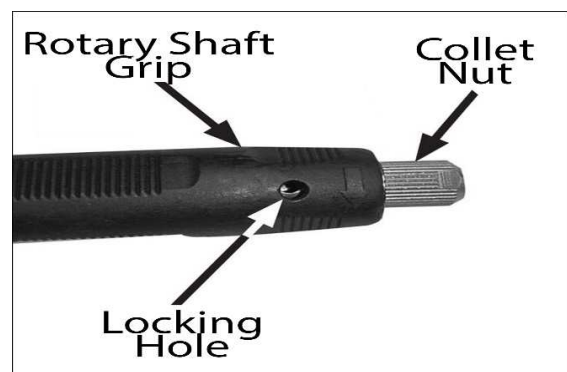


Figure 16

3. Turn the collet nut counter-clockwise to loosen. **Do not remove nut from shaft completely.**
4. Insert shank of bit into the collet. At least 1/2" of shank on bit should be mounted into end of the collet.

5. Tighten collet nut with the pin wrench inserted into the locking hole.
6. Carefully tighten 1/3 of turn with collet wrench. Do not over tighten.

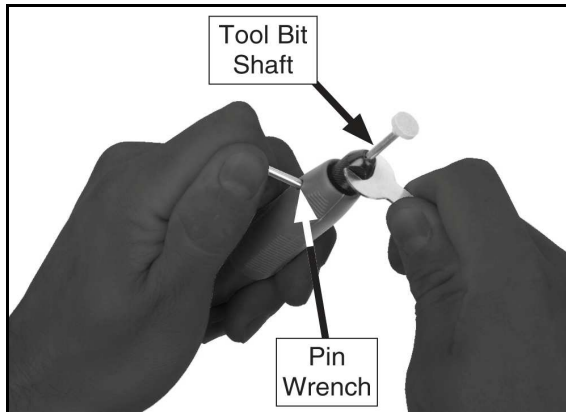


Figure 17

MAINTENANCE:

During the life of your machine, you will need to practice some regular maintenance to keep your grinder in peak performance condition. Check your grinder routinely for damaged or loose grinding wheels, worn power cord or worn switch as well as any loose hardware. The grinding wheel should be checked regularly from any internal or external damages. The bearings are pre-lubricated and require no additional lubrication.

Warning!

All maintenance should be done while machine is turned off and removed from its power source. Failure to do so could result in property damage or even serious personal injury.

Daily Maintenance:

- Check for loose mounting bolts
- Check for cracked, loose or damaged grinding wheel
- Check for torn, damaged, loose or severely worn buffing wheel
- Check chord for any wear or damage.

Grinding Wheels:

Grinding wheels must be inspected before each use. You can use a method called the ring test that was mentioned in the wheel inspection section of this manual. When storing grinding wheels you have to be mindful to keep them from potential damages by being dropped or having other items stacked on top of them.

Grinding wheels should be replaced when the spark deflector or the tool rest have not more room for adjustment and the gap has exceeded the safe limit.

Wheel Dressing:

Your grinding wheels will require dressing periodically dependent on the type of grinding you do.

There are a few different types of wheel dressing tools available. By dressing the wheel, you are helping to restore the abrasive qualities as well as returning the wheel edge back to square.

Wheel Storage:

Grinding wheels are easily damaged for that reason it is important that they are stored properly. Grinding wheels should be stored in a location that is dry and safe from potential damage from being dropped or having other items stacked

on top of them. They should not be store near solvents or in extreme cold or heat.

Buffing Wheels:

Buffing wheels must be raked out before each use and when buildup becomes heavy during operation. Raking is cleaning the buffing wheels with a wheel rake to remove any build up of compounds or metal debris. When using a wheel rake always use light pressure.

Trouble Shooting

Trouble Shooting For Electrical & Motor:

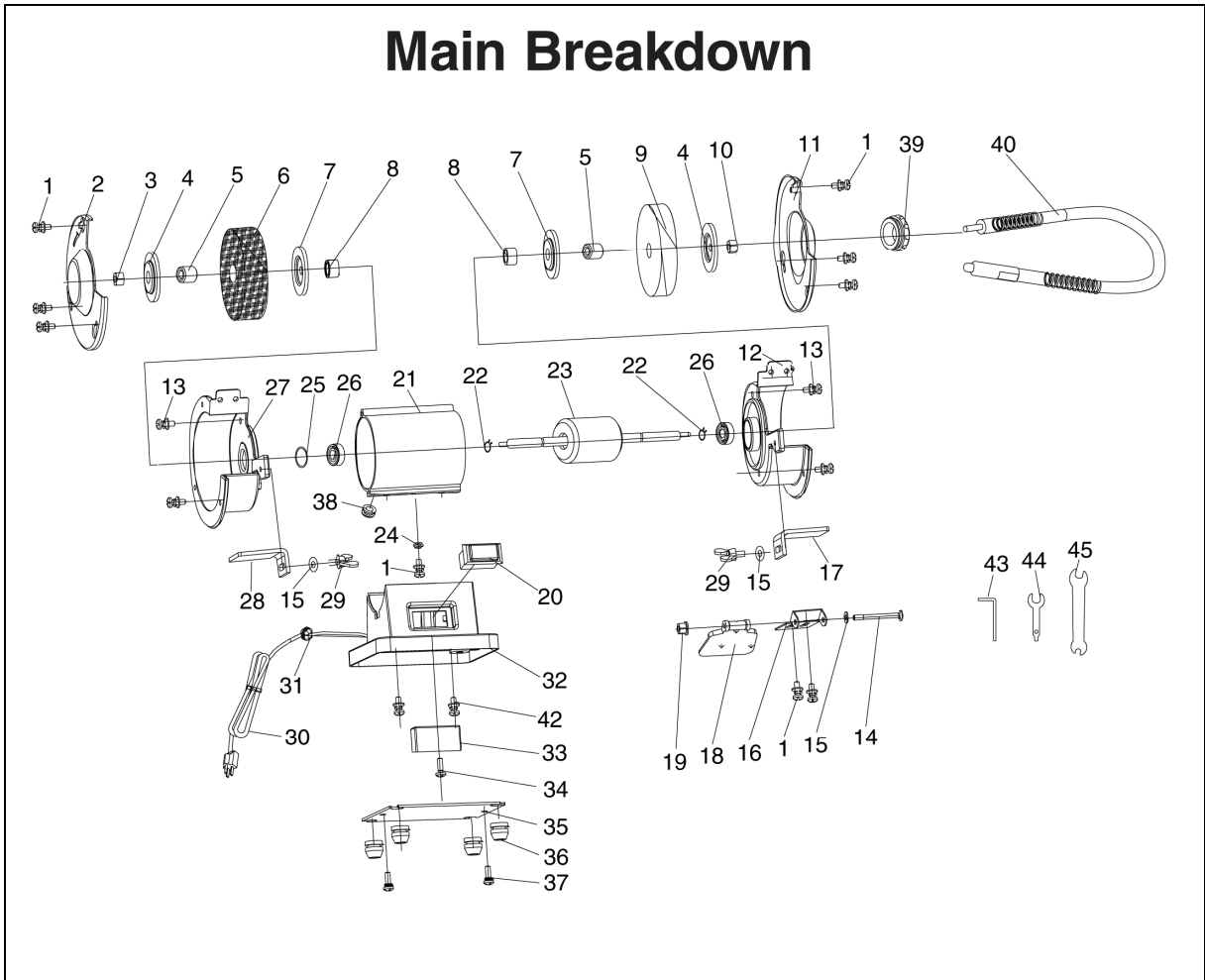
Problem	Possible Cause	Possible Cause
Machine causes breaker to trip or does not start.	<ol style="list-style-type: none"> 1. Disabling key has been removed from switch. 2. Fuse has blown or circuit breaker has been tripped. 3. Wrong voltage or circuit size at power source. 4. Wires from motor have been connected wrong. 5. Motor is at fault. 	<ol style="list-style-type: none"> 1. Install disabling key back into switch. 2. Change the fuse or flip breaker back on and insure there are no shorts. and circuit size is correct. 3. Ensure the circuit size and voltage are correct. 4. Correct the wiring connections for the motor. 5. Check motor and repair or replace.
Machine is underpowered and stalls	<ol style="list-style-type: none"> 1. Machine is too small for the application. 2. Motor is overheating. 3. Bearings for motor are at fault. 4. Run capacitor is at fault. 5. Motor has been wired incorrectly. 	<ol style="list-style-type: none"> 1. Try new grinding or buffing wheel and slow your feed rate. 2. Let motor cool down. Clean motor and reduce the workload. 3. Test bearings. Repair or replace. 4. Test capacitor. Repair or replace. 5. Re-wire motor correctly.
Machine is noisy or vibrates during operation	<ol style="list-style-type: none"> 1. Component or motor is loose. 2. Grinding wheel at fault or arbor hole not round. 3. Shaft for motor has been bent. 4. Machine is not properly mounted to workbench or floor. 5. Bearings for motor are at fault. 	<ol style="list-style-type: none"> 1. Inspect and replace any damage nuts, bolts and retighten using lock tight. 2. Dress grinding wheel or replace with new one if damaged. 3. Test with dial indicator and replace motor if needed. 4. Adjust feet and shim or tighten all the mounting hardware. 5. Test by rotating the shaft. If you hear grinding or shaft is loose replace bearings.

Trouble Shooting for Operations:

Problem	Possible Cause	Possible Solution
Machine slows or stalls when operating.	<ol style="list-style-type: none"> 1. Feed rate is too fast or operator is using too much pressure. 	<ol style="list-style-type: none"> 1. Reduce the feed rate and use less pressure.
Workpiece has wavy look on surface.	<ol style="list-style-type: none"> 1. Workpiece is not being held tightly. 2. Wheel edge or face is not square. 3. Machine is vibrating during use. 4. Grinding wheel is too hard. 	<ol style="list-style-type: none"> 1. Utilize a holding device to securely retain workpiece. 2. Grinding wheel requires dressing. 3. Ensure machine is securely and rigidly mounted to solid surface. 4. Reduce feed rate and use softer wheel.
Workpiece has line on surface.	<ol style="list-style-type: none"> 1. Workpiece not being held firmly. 2. Wheel surface has an impurity. 	<ol style="list-style-type: none"> 1. Utilize a holding device to securely retain workpiece. 2. Grinding wheel requires dressing.
Workpiece has burnt spots or cracks.	<ol style="list-style-type: none"> 1. Using the wrong type of grinding wheel for the application. 2. Workpiece/Material requires quenching. 3. Improper feed rate. 	<ol style="list-style-type: none"> 1. Use a grinding wheel that is a softer style or coarser grit. 2. Use water to quench and cool down workpiece. 3. Slow down your feed rate.
Wheel dulls fast and grit is falling off.	<ol style="list-style-type: none"> 1. Grinding wheel is too soft. 2. Diameter of wheel is too small. 3. Depth of cut is too great. 4. Defective grinding wheel. 5. Wheel dressed improperly. 	<ol style="list-style-type: none"> 1. Wheel too soft for material being ground. Use a harder grinding wheel. 2. Replace wheel with proper diameter for machine. 3. Slow down feed rate. 4. Replace the grinding wheel. 5. Grinding wheel requires additional dressing.

Parts

Main Breakdown

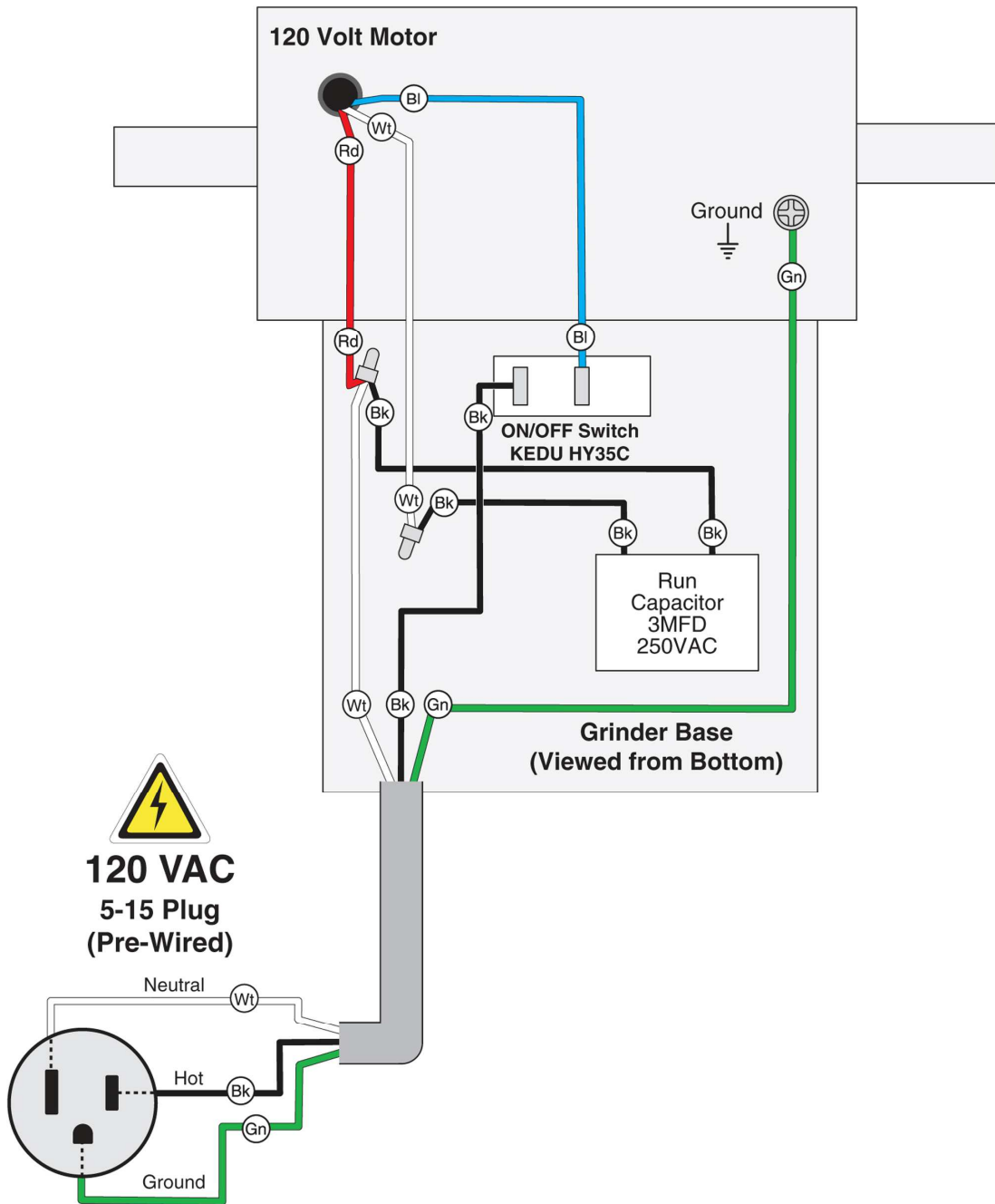


Part List

Key	Part #	Description
1	PCX90401	SCREW - PH HD M4-0.7 X 8 W/ WASHER
2	PCX90402	LEFT WHEEL GUARD
3	PCX90403	NUT - HEX M6-1.0 L.H.
4	PCX90404	WHEEL FLANGE (OUTER)
5	PCX90405	WHEEL BUSHING
6	PCX90406	BUFFING WHEEL 3" X 3/4" X 1/2"
7	PCX90407	WHEEL FLANGE (INNER)
8	PCX90408	SPACER
9	PCX90409	GRINDING WHEEL 3" X 1/2" X 1/2" 80g
10	PCX90410	NUT - HEX M6-1.0
11	PCX90411	WHEEL GUARD (RIGHT)
12	PCX90412	INNER WHEEL GUARD (RIGHT)
13	PCX90413	SCREW - PH HD M4-0.7 X 10 W/ WASHER
14	PCX90414	SCREW - PH HD M4-0.7 X 40
15	PCX90415	WASHER - FLAT M4
16	PCX90416	SPARK DEFLECTOR
17	PCX90417	TOOL REST (RIGHT)
18	PCX90418	SAFETY SHIELD
19	PCX90419	NUT - HEX FLANGE M4-0.7
20	PCX90420	SWITCH ON / OFF KEDU HY35C
21	PCX90421	STATOR
22	PCX90422	EXT RETAINING RING 10MM
23	PCX90423	ROTOR
24	PCX90424	WASHER - TOOTHED M4
25	PCX90425	WASHER - WAVY 21MM
26	PCX90426	BEARING 6900ZZ
27	PCX90427	INNER WHEEL GUARD (LEFT)
28	PCX90428	TOOR REST (LEFT)
29	PCX90429	WING BOLT M4-0.7 X 10

30	PCX90430	POWER CORD 18AWG
31	PCX90431	STRAINING RELIEF 6MM TYPE -1
32	PCX90432	GRINDER BASE
33	PCX90433	CAP R 3MFD 250VAC 1 1/2 X 1/2"
34	PCX90434	SCREW - PH HD M4-0.7 X 10 W/ WASHER
35	PCX90435	GRINDER BASE COVER
36	PCX90436	RUBBER FOOT
37	PCX90437	SCREW - PH HD M4-0.7 X 6 W/ WASHER
38	PCX90438	GROMMET 6MM
39	PCX90439	ROTATING SHAFT COVER
40	PCX90440	ROTATING SHAFT
42	PCX90442	SCREW - PH HD M4-0.7 X 12 W/ WASHER
43	PCX90443	PIN WRENCH 3MM
44	PCX90444	COLLET WRENCH
45	PCX90445	WRENCH 10MM X 7MM OPEN END

Wiring Diagram





Craftex Machinery Warranty

Busy Bee Tools warrants every Craftex machine to be free from defects in materials and agrees to correct such defects where applicable. This warranty covers **two years** for Craftex machines and **three years** for Craftex CX-Series Machines and 90 days for labour (unless specified otherwise), to the original purchaser from the date of purchase but does not apply to malfunctions arising directly or indirectly from misuse, abuse, improper installation or assembly, negligence, accidents, repairs or alterations or lack of maintenance. *Proof of purchase is necessary.*

All warranty claims are subject to inspection of such products or part thereof and Busy Bee Tools reserves the right to inspect and all items before a refund or replacement may be issued. A Machinery Return Form must be filled out by the original purchaser requesting a return. Authorization may take up to 72 hours for inspection and approval.

This warranty shall not apply to consumable products such as blades, bits, belts, cutters, chisels, punches etc...

Busy Bee Tools shall in no event be liable for injuries, accidental or otherwise, death to persons or damage to property or for incidental contingent, special, or consequential damages arising from the use of our products.

RETURNS, REPAIRS AND REPLACEMENTS

To return, repair, or replace a Craftex Machine, a Machinery Return Form must be filled out by the original purchaser requesting a return. Visit the appropriate Busy Bee Tools showroom or call 1-800-461-BUSY. Craftex is a brand of equipment that is exclusive to Busy Bee Tools.

For replacement parts directly from Busy Bee Tools, for this machine, please call 1-800-461-BUSY (2879), and have your credit card and part number handy. You can find the part number in the back of your owner's manual under the parts list & exploded diagram.

- All returned merchandise will be subject to a minimum charge of 15% for re-stocking and handling.
- A Machinery Return Form must be filled out by the original purchaser requesting a return and it must be approved by Busy Bee Tools in writing before accepting a return.
- We do not accept *collect* shipments.
- Items returned for warranty purposes must be insured and shipped pre-paid to the nearest warehouse.
- Returns must be accompanied with a copy of your original invoice as proof of purchase. Incurred shipping and handling charges are not refundable.
- Busy Bee Tools will repair or replace the item at our discretion and subject to our inspection.
- Repaired or replaced items will be returned to you pre-paid by our choice of carriers.
- Busy Bee Tools reserves the right to refuse reimbursement or repairs or replacement if a third party without our prior authorization has carried out repairs to the item.
- Repairs made by Busy Bee Tools are warranted for 30 days on parts and labour.
- Any unforeseen repair charges will be reported to you for acceptance prior to making the repairs.
- Replacement motors purchased from Busy Bee Tools carry a 90 manufactures defect warranty.
- The Busy Bee Tools Parts & Service Departments are fully equipped to do repairs on all products purchased from us with the exception of some products that require the return to their authorized repair depots. A Busy Bee Tools representative will provide you with the necessary information to have this done.