Owner's Manual & Safety Instructions

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 (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. 23d

Bauer™ 231210C-B

20v LITHIUM-ION

For Best Results, Use 3.0 Amp Hour Battery or Greater. (Sold Separately)



VARIABLE-SPEED
ROTARY TOOL WITH FLEXIBLE SHAFT

Visit our website at: http://www.harborfreight.com
Email our technical support at: productsupport@harborfreight.com **58672**

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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⚠WARNING

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

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WARNING SYMBOLS AND DEFINITIONS	
⚠	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	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

General Power 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.
The term "power tool" in the warnings refers to your battery-operated (cordless) power tool.

Work Area Safety

1. **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
3. **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

Electrical Safety

1. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with grounded power tools.** *Unmodified plugs and matching outlets will reduce risk of electric shock.*
2. **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** *There is an increased risk of electric shock if your body is earthed or grounded.*
3. **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
4. **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.** *Damaged or entangled cords increase the risk of electric shock.*
5. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** *Use of a cord suitable for outdoor use reduces the risk of electric shock.*
6. **If operating a power tool in a damp location is unavoidable, use a ground fault circuit interrupter (GFCI) protected supply.** *Use of an GFCI reduces the risk of electric shock.*

Personal Safety

1. **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*
2. **Use personal protective equipment. Always wear eye protection.** *Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*
3. **Prevent unintentional starting. Ensure the switch/trigger is in the off-position before picking up or carrying the tool.** *Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.*
4. **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
5. **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
6. **Dress properly. Do not wear loose clothing or jewelry. Keep your hair, clothing and gloves away from moving parts.** *Loose clothes, jewelry or long hair can be caught in moving parts.*
7. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of these devices can reduce dust-related hazards.*
8. 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.
9. This product is not a toy. Keep it out of reach of children.
10. 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.

11. 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.

Power Tool Use and Care

1. **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*
2. **Do not use the power tool if the switch/ trigger does not turn it on and off.** *Any power tool that cannot be controlled with the switch/trigger is dangerous and must be repaired.*
3. **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
4. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
5. **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** *Many accidents are caused by poorly maintained power tools.*
6. **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*
7. **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*
8. **Keep handles and grasping surfaces dry, clean and free from oil and grease.** *Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.*

Service

1. **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*
2. **Never service damaged BATTERY packs.** *Service of BATTERY packs should only be performed by the manufacturer or authorized service providers.*
3. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.

Battery tool use and care

1. **Prevent unintentional starting.** *Ensure the switch is in the off-position before connecting to battery pack, picking up or carrying the power tool. Carrying the power tool with your finger on the switch or energizing power tool that have the switch on invites accidents.*

2. **Disconnect the battery pack from the power tool before making any adjustments, changing accessories, or storing power tool.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*

3. **Recharge only with the charger specified by the manufacturer.** *A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.*

4. **Use power tools only with specifically designated battery packs.** *Use of any other battery packs may create a risk of injury and fire.*

5. **When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws or other small metal objects, that can make a connection from one terminal to another.** *Shorting the battery terminals together may cause burns or a fire.*

6. **Under abusive conditions, liquid may be ejected from the battery; avoid contact.** *If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help. Liquid ejected from the battery may cause irritation or burns.*

7. **Do not use a battery pack or power tool that is damaged or modified.** *Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.*

8. **Do not expose a battery pack or power tool to fire or excessive temperature.** *Exposure to fire or temperature above 140°F may cause explosion.*

9. **Follow all charging instructions and do not charge the battery pack or power tool outside of the temperature range specified in the instructions.** *Charging improperly or at temperatures outside of the specified range may damage the battery and increase the risk of fire.*

10. **Have servicing performed by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the product is maintained.*

11. **Do not modify or attempt to repair the power tool or the battery pack except as indicated in the instructions for use and care.**

12. 
The battery Charger gets hot during use. The Charger's heat can build up to unsafe levels and create a fire hazard if it does not receive adequate ventilation, due to an electrical fault, or if it is used in a hot environment. Do not place the Charger on a flammable surface. Do not obstruct any vents on the Charger. **Especially avoid placing the Charger on carpets and rugs; they are not only flammable, but they also obstruct vents under the Charger.** Place the Charger on a stable, solid, nonflammable surface (such as a stable metal workbench or concrete floor) at least 1 foot away from all flammable objects, such as drapes or walls. Keep a fire extinguisher and a smoke detector in the area. Frequently monitor the Charger and Battery Pack while charging.

Lithium Battery Safety Warnings



LITHIUM BATTERIES STORE A LARGE AMOUNT OF ENERGY AND WILL VENT FIRE OR EXPLODE IF MISTREATED:

1. **Keep Battery Pack dry.**
2. **DO NOT DO ANY OF THE FOLLOWING TO THE BATTERY PACK:**
   - **Open,**
   - **Drop,**
   - **Short-circuit,**
   - **Puncture,**
   - **Incinerate, or**
   - **Expose to temperatures greater than 140°F.**
3. Charge Battery Pack only according to its Charger's instructions.
4. Inspect Battery Pack before every use; do not use or charge if damaged.

Safety Warnings Common for Grinding, Sanding, Wire Brushing, Polishing, or Abrasive Cutting-off Operations

1. **This power tool is intended to function as a grinder, sander, wire brush, polisher, or cut-off tool. Read all safety warnings, instructions, illustrations and specifications provided with this power tool.** *Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.*
2. **Do not use accessories which are not specifically designed and recommended by the tool manufacturer.** *Just because the accessory can be attached to your power tool, it does not assure safe operation.*
3. **The RATED SPEED of the grinding accessories must be at least equal to the maximum speed marked on the power tool.** *Grinding accessories running faster than their RATED SPEED can break and fly apart.*
4. **The outside diameter and the thickness of your accessory must be within the capacity rating of your power tool.** *Incorrectly sized accessories cannot be adequately controlled.*
5. **The arbour size of wheels, sanding drums or any other accessory must properly fit the spindle or collet of the power tool.** *Accessories that do not match the mounting hardware of the power tool will run out of balance, vibrate excessively and may cause loss of control.*
6. **Mandrel MOUNTED WHEELS, sanding drums, cutters or other accessories must be fully inserted into the collet or chuck.** *If the mandrel is insufficiently held and/or the overhang of the wheel is too long, the MOUNTED WHEEL may become loose and be ejected at high velocity.*
7. **Do not use a damaged accessory. Before each use inspect the accessory such as abrasive wheels for chips and cracks, sanding drum for cracks, tear or excess wear, wire brush for loose or cracked wires. If power tool or accessory is dropped, inspect for damage or install an undamaged accessory. After inspecting and installing an accessory, position yourself and bystanders away from the plane of the rotating accessory and run the power tool at maximum no-load speed for one minute.** *Damaged accessories will normally break apart during this test time.*

8. **Wear personal protective equipment. Depending on application, use face shield, safety goggles or safety glasses. As appropriate, wear dust mask, hearing protectors, gloves and workshop apron capable of stopping small abrasive or workpiece fragments.** *The eye protection must be capable of stopping flying debris generated by various operations. The dust mask or respirator must be capable of filtrating particles generated by your operation. Prolonged exposure to high intensity noise may cause hearing loss.*

9. **Keep bystanders a safe distance away from work area. Anyone entering the work area must wear personal protective equipment.** *Fragments of workpiece or of a broken accessory may fly away and cause injury beyond immediate area of operation.*

10. **Hold power tool by insulated gripping surfaces only, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** *Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.*

11. **Always hold the tool firmly in your hand(s) during the start-up.** *The reaction torque of the motor, as it accelerates to full speed, can cause the tool to twist.*

12. **Use clamps to support workpiece whenever practical. Never hold a small workpiece in one hand and the tool in the other hand while in use.** *Clamping a small workpiece allows you to use your hand(s) to control the tool. Round material such as dowel rods, pipes or tubing have a tendency to roll while being cut, and may cause the bit to bind or jump toward you.*

13. **Never lay the power tool down until the accessory has come to a complete stop.** *The spinning accessory may grab the surface and pull the power tool out of your control.*

14. **After changing the bits or making any adjustments, make sure the collet nut, chuck or any other adjustment devices are securely tightened.** *Loose adjustment devices can unexpectedly shift, causing loss of control, loose rotating components will be violently thrown.*

15. **Do not run the power tool while carrying it at your side.** *Accidental contact with the spinning accessory could snag your clothing, pulling the accessory into your body.*

16. **Regularly clean the power tool's air vents.** *The motor's fan will draw the dust inside the housing and excessive accumulation of powdered metal may cause electrical hazards.*

17. **Do not operate the power tool near flammable materials.** *Sparks could ignite these materials.*

18. **Do not use accessories that require liquid coolants.** *Using water or other liquid coolants may result in electrocution or shock.*

19. Avoid unintentional starting. Prepare to begin work before turning on the tool.

20. Do not depress the spindle lock when starting or during operation.

21. Do not leave the tool unattended when the Battery Pack is connected. Turn off the tool, and remove the Battery Pack before leaving.

22. Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control and personal injury.

Kickback and Related Warnings

Kickback is a sudden reaction to a pinched or snagged rotating wheel, backing pad, brush or any other accessory. Pinching or snagging causes rapid stalling of the rotating accessory which in turn causes the uncontrolled power tool to be forced in the direction opposite of the accessory's rotation at the point of the binding.

For example, if an abrasive wheel is snagged or pinched by the workpiece, the edge of the wheel that is entering into the pinch point can dig into the surface of the material causing the wheel to climb out or kick out. The wheel may either jump toward or away from the operator, depending on direction of the wheel's movement at the point of pinching. Abrasive wheels may also break under these conditions.

Kickback is the result of power tool misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

1. **Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces.** *The operator can control kickback forces, if proper precautions are taken.*
2. **Use special care when working corners, sharp edges etc.** *Avoid bouncing and snagging the accessory. Corners, sharp edges or bouncing have a tendency to snag the rotating accessory and cause loss of control or kickback.*
3. **Do not attach a toothed saw blade.** *Such blades create frequent kickback and loss of control.*
4. **Always feed the bit into the material in the same direction as the cutting edge is exiting from the material (which is the same direction as the chips are thrown).** *Feeding the tool in the wrong direction causes the cutting edge of the bit to climb out of the work and pull the tool in the direction of this feed.*
5. **When using rotary files, cut-off wheels, high-speed cutters or tungsten carbide cutters, always have the work securely clamped.** *These wheels will grab if they become slightly canted in the groove, and can kickback. When a cut-off wheel grabs, the wheel itself usually breaks. When a rotary file, high-speed cutter or tungsten carbide cutter grabs, it may jump from the groove and you could lose control of the tool.*

Safety Warnings Specific For Grinding and Abrasive Cutting-Off Operations

1. **Use only wheel types that are recommended for your power tool and only for recommended applications. For example: do not grind with the side of a cut-off wheel.** *Abrasive cut-off wheels are intended for peripheral grinding, side forces applied to these wheels may cause them to shatter.*
2. **For threaded abrasive cones and plugs use only undamaged wheel mandrels with an unrelieved shoulder flange that are of correct size and length.** *Proper mandrels will reduce the possibility of breakage.*
3. **Do not "jam" a cut-off wheel or apply excessive pressure. Do not attempt to make an excessive depth of cut.** *Overstressing the wheel increases the loading and susceptibility to twisting or snagging of the wheel in the cut and the possibility of kickback or wheel breakage.*
4. **Do not position your hand in line with and behind the rotating wheel.** *When the wheel, at the point of operation, is moving away from your hand, the possible kickback may propel the spinning wheel and the power tool directly at you.*

5. **When wheel is pinched, snagged or when interrupting a cut for any reason, switch off the power tool and hold the power tool motionless until the wheel comes to a complete stop.** *Investigate and take corrective action to eliminate the cause of wheel pinching or snagging.*

6. **Do not restart the cutting operation in the workpiece. Let the wheel reach full speed and carefully re-enter the cut.** *The wheel may bind, walk up or kickback if the power tool is restarted in the workpiece.*

7. **Support panels or any oversized workpiece to minimize the risk of wheel pinching and kickback.** *Large workpieces tend to sag under their own weight. Supports must be placed under the workpiece near the line of cut and near the edge of the workpiece on both sides of the wheel.*

8. **Use extra caution when making a "pocket cut" into existing walls or other blind areas.** *The protruding wheel may cut gas or water pipes, electrical wiring or objects that can cause kickback.*

Safety Warnings Specific For Wire Brushing Operations

1. **Be aware that wire bristles are thrown by the brush even during ordinary operation. Do not overstress the wires by applying excessive load to the brush.** *The wire bristles can easily penetrate light clothing and/or skin.*

2. **Allow brushes to run at operating speed for at least one minute before using them. During this time no one is to stand in front or in line with the brush.** *Loose bristles or wires will be discharged during the run-in time.*

3. **Direct the discharge of the spinning wire brush away from you.** *Small particles and tiny wire fragments may be discharged at high velocity during the use of these brushes and may become imbedded in your skin.*

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.

Grounding

⚠WARNING



TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING: Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the power cord plug provided with the charger. Never remove the grounding prong from the plug. Do not use the charger if the power cord or plug is damaged. If damaged, have it repaired by a service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Extension Cords

Note: Extension cords must not be used with this item's Charger.

Symbology

V	Volts
⎓	Direct Current
A	Amperes
n_0 xxxx/min.	No Load Revolutions per Minute (RPM)
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.

	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Fire. Do not cover ventilation ducts. Charge on fireproof surface only.
	WARNING marking concerning Risk of Electric Shock. Properly connect Charger's power cord to appropriate outlet.
	WARNING marking concerning Risk of Explosion. Do not puncture, short, or open battery packs and do not charge damaged battery packs.

Specifications

Battery	Bauer 20V Li-Ion 57007 (sold separately)
Charger	Bauer 20V Li-Ion 57006 (sold separately)
Maximum Accessory Diameter	Ø1-1/4" (32.5mm)
Rated No Load Speed	n 5000 - 33000/min
Collet Size	1/8", M8 Nut

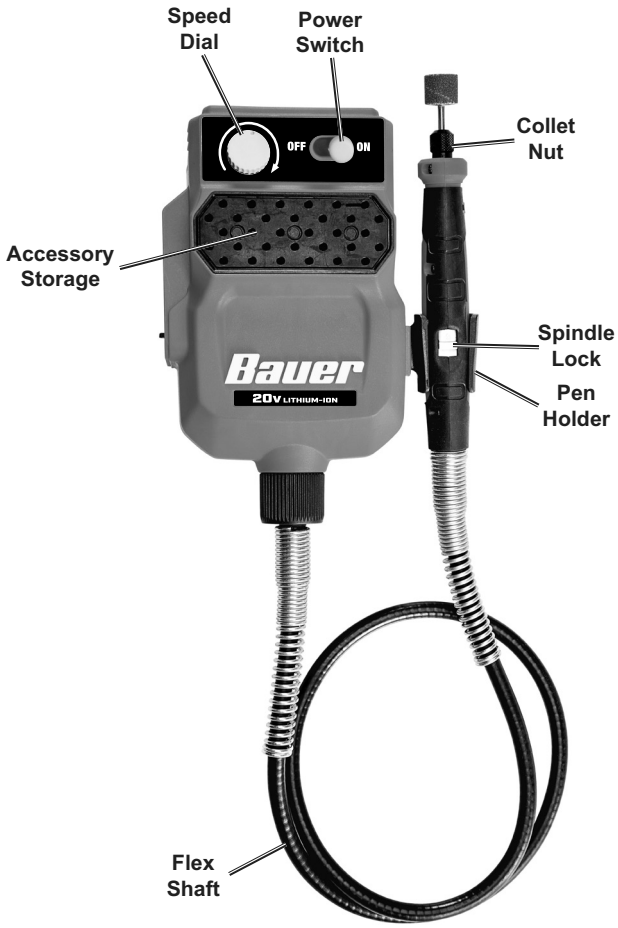
Setup - Before Use:

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Make sure that the Power Switch is in the off-position and unplug the tool from it's electrical outlet before performing any procedure in this section.

Functions



Recommended Accessory Speeds

When adjusting the Speed Dial, a distinct change in sound will occur at select intervals:

- 1 - 5,000 RPM
- 2 - 11,000 RPM
- 3 - 16,000 RPM
- 4 - 22,000 RPM
- 5 - 26,000 RPM
- 6 - 33,000 RPM

Part Description	Soft Wood	Hard Wood	Plastics, Laminates	Steel (ferrous metals)	Aluminum, Brass, (non-ferrous metals)	Stone/ Shell	Ceramic	Glass
Carving Burrs								
Ø1/4" Spherical or Semi-Spherical	25-33K	25-33K	12-17K	12-17K	18-24K	Not Recommended		
Ø5/16" Spherical or Semi-Spherical		12-17K	9-11K		12-17K			
Ø1/8" - Ø3/16" Spherical, Pointed or Cylindrical		25-33K			25-33K			
Ø1/4" - Ø7/32" Cylindrical		12-17K			12-17K			
Ø5/16" Cylindrical		25-33K						
Ø3/8" Cylindrical		18-24K						
Engraving Accessories								
Ø1/32" Spherical or Cylindrical	25-33K	25-33K	18-24K	9-11K	12-17K	Not Recommended		
Ø1/16" - Ø1/32" Spherical or Cylindrical		12-17K	12-17K					
Ø1/36" Cylindrical		25-33K	18-24K					
Ø1/16" Cylindrical		12-17K	12-17K					
Diamond Coated Points								
All Diameters	25-33K	18-24K	Not Recommended			25-33K	25-33K	25-33K
Aluminum Oxide Grinding Stones (Pink, White, Orange, Brown)								
All Sizes	25-33K		N/R	18-24K	9-11K	12-17K	25-33K	N/R
Silicon Carbide Grinding Stones (Blue, Green)								
All Sizes	Not Recommended		12-17K	25-33K	9-11K	12-17K	25-33K	
Cut-Off Wheels								
Ø1-1/4" Fiberglass	Not Recommended		5-11K	25-33K			Not Recommended	
Ø1" Carbide	25-33K	18-33K		Not Recommended				
Cutting Accessories								
Ø1/8" Drywall	30K							
Ø1/8" Multi-Purpose	12-33K		5-11K	N/R	25-33K	Not Recommended		
Ø1/8" Tile	Not Recommended						25-33K	N/R

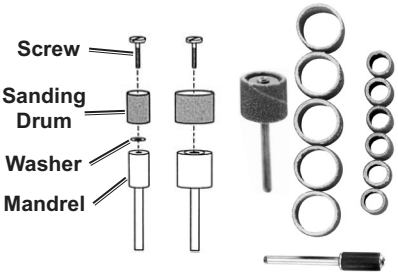
Part Description	Soft Wood	Hard Wood	Plastics, Laminates	Steel (ferrous metals)	Aluminum, Brass, (non-ferrous metals)	Stone/ Shell	Ceramic	Glass
Steel Saw Blades								
Ø1-1/4"	15-20K	20K	15-20K	Not Recommended				
Ø1"	15-18K	19-20K	15-18K					
Ø7/8"	20K	15-20K	15-20K					
Polishing Accessories								
Rubber Points	Not Recommended			18-24K				
Ø1" Felt Wheel or Bob				12-17K				
Cloth Wheel	Not Recommended		4.5K			Not Recommended		
Wire Brushes								
Ø3/4" Nylon	9-11K	9-11K	5-11K	12-17K	5-8K	N/R	Not Recommended	
Ø3/4" Steel			5-8K	9-11K	9-11K			
Ø3/4" Stainless Steel	N/R		N/R		N/R			
Ø3/4" - Ø1-1/4" Stainless Steel	4.5K			4.5K				
Ø3/4" Brass	9-11K			9-11K				
Ø3/4" - Ø1-1/4" Brass	4.5K			4.5K				
Sanding								
Ø1/4" - Ø1/2" Drum (All Grits)	5-33K		5-17K	25-33K		5-33K		N/R
Disc	12-17K		5-8K	N/R	5-8K	Not Recommended		
Flap Wheels								
All Grits	25-33K	18-24K	5-8K	25-33K	18-33K	Not Recommended		
All Sizes	Not Recommended		12-17K	25-33K	9-11K	12-17K	25-33K	

Accessories

- **Mounted Stones -** Use for sharpening cutting tools, etc, deburring metal after cutting, and removing excess material on metal and ceramics.



- **Sanding Drums** - Install sanding sleeves on drum. Use for smoothing out rough areas. Replace sleeves as they wear and lose grit. Tighten the screw on the Mandrel to increase the tension of the rubber drum to the Sanding drum.



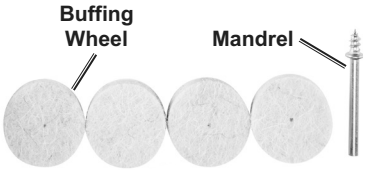
- **Carbide Burr Accessories** - Use Carbide Burr to carve and engrave wood, laminates, plastics and non-ferrous metals.



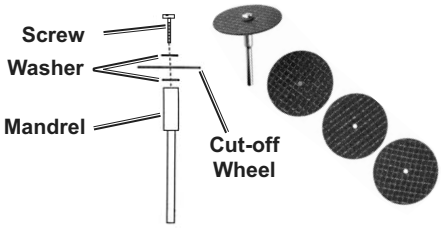
- **Steel Wire Brush** - Use to clean dirty or rusted metal surfaces.



- **Buffing Wheels** - Use for polishing. Use Mandrel with shank and threads on the end for polishing wheels.



- **Cut-off Wheels** - Use Mandrel with flat screw tip. Unscrew and place cut-off wheel on mandrel. Tighten tip to secure wheel. Do not overtighten. For cutting, carving and slotting materials.



- **Buffing Compound** - Use Buffing Compound with Buffing Wheels for polishing Metals and Plastics.



- **Drill Accessories** - Use to bore small holes.



- **Wrench** - Use Wrench to loosen or tighten the Collet Nut.



Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch of the tool off, wait for the motor to stop, before adjusting tool or installing accessories.

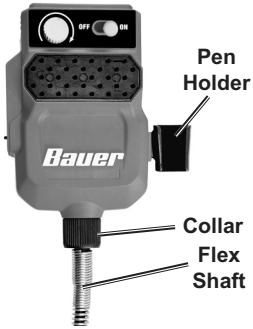
TO PREVENT SERIOUS INJURY FROM ACCESSORY FAILURE:
Only use accessories that are rated at or above the RPM rating of the Cordless Rotary Tool.

Battery Charging

Charge Battery Pack after unpacking and before using this tool. Follow instructions included with Battery Pack and Charger.

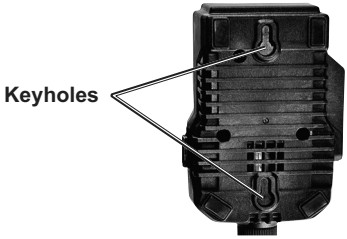
Assembly

1. Insert Pen Holder into the slot and slide it down until it clicks into place.
2. Insert Flex Shaft into bottom of unit, tighten collar securely.



Mounting

1. Mount to a surface capable of supporting the weight of the tool.
   WARNING! TO PREVENT SERIOUS INJURY: Verify that installation surface has no hidden utility lines before drilling or driving screws.
   a. Drill two holes 4" apart into mounting surface. Drive two screws (sold separately) into holes, leaving 1/4" of screws showing.
   b. Place the Keyhole openings over the screws and slide the unit down.



Accessory Installation

WARNING! TO PREVENT SERIOUS INJURY: Use only rotary accessories of the correct shank diameter for the collet. Use only rotary accessories suitable for the speed of the tool.

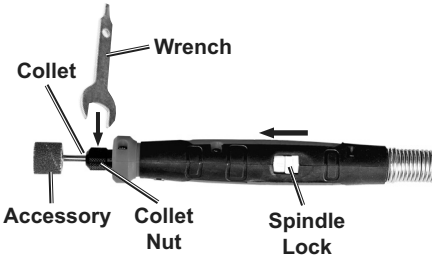
WARNING! TO PREVENT SERIOUS INJURY: Carefully inspect accessories for cracks, chips, or other damage before installing. Do not use accessories that have been dropped, cracked, or damaged. The accessory may shatter causing serious injury.

CAUTION! TO PREVENT INJURY: When changing an accessory immediately after use, be careful not to touch the accessory. It may be very hot from use, possibly causing injury. Allow the accessory time to cool before handling it.

1. Slide the Spindle Lock forward and hold. Rotate Collet Nut until shaft is engaged by the lock.
2. Loosen the Collet Nut by turning it counterclockwise, using the Wrench provided.
3. ***To insert an accessory:*** Insert the shank end of the accessory into the Collet once the Collet Nut is loose.
   To remove an accessory: Pull the accessory straight out of the Collet once the Collet Nut is loose.

CAUTION! TO PREVENT INJURY AND PROPERTY DAMAGE: Do not force a wrong sized accessory into the Collet, and do not modify a mismatched Collet or accessory.

4. Tighten Collet Nut securely using the provided wrench. Release Spindle Lock; confirm it is disengaged.



Workpiece and Work Area Set Up

1. Designate a work area that is clean and well-lit. The work area must not allow access by children or pets to prevent distraction and injury.
2. Secure loose workpieces using a vise or clamps (not included) to prevent movement while working.
3. There must not be objects, such as utility lines, nearby that will present a hazard while working.

⚠WARNING

TO PREVENT SERIOUS INJURY WHILE IN OPERATION:
Use personal protective equipment. Always wear eye protection.
Wear ANSI-approved safety goggles with side shields.

1. Slide Power Switch to OFF position, then insert a fully charged Battery Pack making sure it clicks into place.
2. Select an appropriate accessory for the job. Install accessory.
3. Start the tool by Sliding the Power Switch to ON position.
4. Use the Speed Dial to increase or decrease speed. Use a speed appropriate to the accessory and the material being worked on. Reference table in *Recommended Accessory Speeds* on page 12.
5. Apply the accessory to the work material, do not apply pressure, let the tool do the work.
6. When finished, stop the tool by sliding Power Switch to OFF position. Wait for accessory to completely stop spinning before setting tool down. Remove the accessory after it has cooled. Store accessories in the Accessory Storage compartment.
7. To prevent accidents, remove tool's Battery Pack after use. Clean, then store the tool indoors out of children's reach.



Maintenance and Servicing

Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Turn the Power Switch off and wait for tool to completely stop before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:
Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

Cleaning, Maintenance, and Lubrication

1. **BEFORE EACH USE,** inspect the general condition of the tool. Check for:
   - leaking, swollen, or cracked battery pack,
   - loose hardware,
   - misalignment or binding of moving parts,
   - cracked or broken parts, and
   - any other condition that may affect its safe operation.
2. **AFTER USE,** wipe external surfaces of the tool with clean cloth.
3. Li-Ion BATTERY MUST BE RECYCLED OR DISPOSED OF PROPERLY.
   Do not short, incinerate or open battery.
4. Disconnect battery pack and store battery pack, charger, and tool in dry, indoor area out of reach of children and away from metal objects (i.e., paperclips, coins) to prevent shorting.

Troubleshooting

Problem	Possible Causes	Likely Solutions
Tool will not start.	1. Battery Pack not properly connected.	1. Remove Battery Pack, make sure there are no obstructions, reinsert the Battery Pack according to its shape (it should only fit one way), and press firmly until the Battery Pack locks in place.
	2. Battery Pack not properly charged.	2. Make sure Charger is connected and operating properly. Give enough time for Battery Pack to recharge properly.
	3. Battery Pack stopped working.	3. Dispose of old Battery Pack properly or recycle. Replace Battery Pack.
	4. Internal damage or wear. (Carbon brushes or Switch, for example.)	4. Have technician service tool.
Tool operates slowly.	1. Forcing tool to work too fast.	1. Allow tool to work at its own rate.
	2. Battery Pack wearing out.	2. Dispose of old Battery Pack properly or recycle. Replace Battery Pack.
Performance decreases over time.	1. Accessory dull or damaged.	1. Keep cutting accessories sharp. Replace as needed.
	2. Carbon brushes worn or damaged.	2. Have qualified technician replace brushes.
Excessive noise or rattling.	Internal damage or wear. (Carbon brushes or bearings, for example.)	Have technician service tool.
Overheating.	1. Forcing tool to work too fast.	1. Allow tool to work at its own rate.
	2. Blocked motor housing vents.	2. Wear ANSI-approved safety goggles and NIOSH-approved dust mask/ respirator while blowing dust out of motor using compressed air.

Follow all safety precautions whenever diagnosing or servicing the tool. Disconnect power supply before service.

Record Product's Serial Number Here:_____

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

Note: Replacement parts may be available for this item.
Visit **harborfreight.com/parts** for a list of in stock parts. Reference UPC 193175443670.

Limited 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 this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, 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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26677 Agoura Road • Calabasas, CA 91302 • 1-888-866-5797