



BURR KING MFG. CO., INC

1220 Tamara Lane

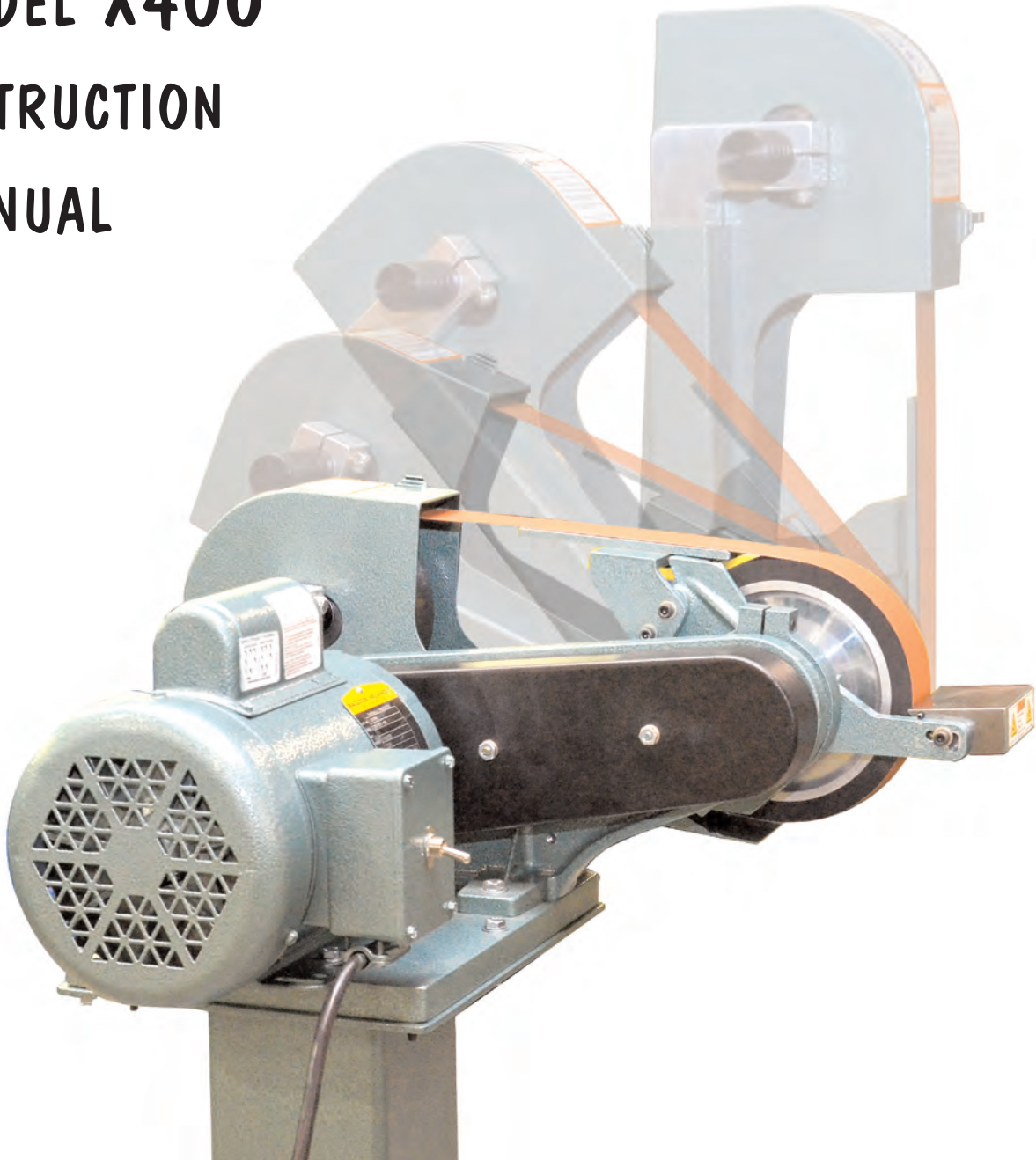
Warsaw, MO 65355

www.burrking.com

(660)438-8998 • 800-621-2748

Fax (660)438-8991

MODEL X400 INSTRUCTION MANUAL



BURR KING MODEL X400 TWO WHEEL GRINDER



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June, 2007

Burr King Manufacturing Company, Inc. warrants the below product to be free of defects in material and workmanship. The period of warranty is 1 year (90 days for vibratory bowls of 20 quart and lesser volume) from the date of purchase. No warranty is provided for products that have been modified, abused, handled carelessly, where repairs have been made or attempted by others, or for freight damage. No warranty is provided for three phase electric motors, controllers, etc. when the motors, controllers are not protected by magnetic starters that were supplied and installed by Burr King Manufacturing Company, Inc. No other warranty, written or verbal is authorized by Burr King Manufacturing Company, Inc.

During the warranty period Burr King Manufacturing Company, Inc (or its authorized suppliers or agents) will replace or repair the below product without charge if the product is found by Burr King Manufacturing Company, Inc. to be defective. To receive warranty services you must contact Burr King Manufacturing Company, Inc. and receive authorization for warranty service. Unless otherwise authorized by Burr King Manufacturing Company, Inc. Products (see * below) must be returned to the factory to receive warranty service.

*Motors, speed controllers, and certain other accessories are warranted by their respective manufacture. To receive warranty service on these items you must contact a brand label service center that supports the product in need of service. Burr King Manufacturing Company, Inc. will assist you in locating a service center.

For the first thirty days after purchase, and when Burr King Manufacturing Company, Inc. authorizes warranty service, we will pay normal and necessary surface freight charges both ways (except for items in *). After thirty days the customer is responsible for all freight charges. Where possible Burr King Manufacturing Company, Inc. may elect to make on site service and/or repairs necessary to return the product to serviceable condition.

To assure prompt warranty service it is necessary that you complete and return the below warranty information to Burr King Manufacturing Company, Inc. please **FAX** or **MAIL** at your convenience.

Product model: _____ Serial number: _____
Date Purchased: _____ Purchased from: _____
Address: _____ City: _____ State/Prov: _____ Postal code _____

Your company name: _____
Address: _____ City: _____ State/Prov: _____ Postal code _____
Phone: _____ Fax: _____ Email: _____
Your name: _____ Title: _____

How did you learn about Burr King products?

Trade show ___ Web ___ Industrial Distributor ___ Advertisement ___ Other _____ Which one: _____

What is the intended use of this product? _____

Please indicate the general work types performed at your company, check all that apply:

Fabrication ___ Machining ___ Casting ___ Molding ___ Welding ___ Finishing ___ Assembly ___ Research ___ Other ___

Please indicate the primary product focus of your company; check all that apply,

Aircraft/Missile ___ Automotive ___ Contract machine ___ Contract Fabrication ___ Agricultural ___ Maintenance ___ Recreational ___

Job shop ___ Foundry ___ Construction ___ Arts ___ Orthopedic ___ Dental ___ Medical ___ Other _____

Please tell us what we can do to improve our products:

May we contact you? Yes ___ No ___

Thank you for purchasing Burr King products!

**REGISTER ONLINE @
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October 11, 2011

LETTER OF AUTHENTICITY

This letter is to certify that all Burr King Belt grinders, Disc grinders, Polishing machines Vibra King Chambers and Bowls are manufactured and assembled in the United States of America.

(Tariff number 847990 criterion A)

A handwritten signature in black ink, appearing to read "Don Mac Carthy".

Don Mac Carthy
President

See our catalog at www.burrking.com

contact us at info@burrking.com

Burr King Model X400

Congratulations on your purchase of a Burr King grinder. Please take a moment to complete and mail your product warranty registration card. Doing so will validate your machine's warranty period and ensure prompt service if needed. Thank you for purchasing a product from Burr King Manufacturing.

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WARNING!

Do not operate machine if warning and/or instruction labels are missing or damaged. Contact Burr King for replacement labels.

Product Specifications

The Burr King policy of continuous improvement determines the right to change specification without notice

Stock/Model Number	
Product Family	x400
Voltage.....	120v/60HZ
Motor.....	1 HP / .75 KW
Motor RPM	3450
Spindle RPM	4140
Contact Wheel Dimensions	7" / 177mm
Arbor/Shaft	5/8" / 16mm
Grinding Belt Supplied 120 grit.....	2"x48" / 50mm x 1.2 m
Weight	50 lbs.



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X400 Important Safety Instructions OPERATOR, and OPERATING AREA SAFETY



WARNING!

WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE RISK OF FIRE, ELECTRIC SHOCK AND PERSONAL INJURY.

READ AND SAVE ALL INSTRUCTIONS FOR FUTURE REFERENCE

Subject equipment includes Grinders, buffers, polishers, and other rotating equipment. Serious injury or death may occur if minimum safety precautions are not understood, and obeyed by operators and those other persons who may be in the immediate vicinity of the subject equipment. Persons who operate, or are in the immediate vicinity of the subject equipment must be properly trained in, and use, minimum safety precautions and procedures for such machinery.

1. READ ALL INSTRUCTIONS

- Read and understand all operating instruction, manuals, labels, and other information provided with the equipment.

2. KEEP WORK AREA CLEAN

- Cluttered areas and benches invite injuries.

3. CONSIDER WORK AREA ENVIRONMENT

- Do Not expose power tools to rain
- Do Not use grinder in damp or wet locations.
- Keep work area well lit.
- Do Not use grinder in presence of flammable liquids or gases

4. GUARD AGAINST ELECTRICAL SHOCK

- Prevent body contact with grounded surfaces. For example: pipes, radiators. Disconnect from power source when not in use. Never use if electrical cord is damaged or wet. Always keep electrical cords clear of rotating parts and belt while in motion. Electrical installation shall be in accordance with applicable codes and regulations.

5. KEEP CHILDREN AWAY

- Do Not let visitors contact tool or cord
- All visitors should be kept away from work area

6. DRESS PROPERLY

- Do Not wear loose clothing or jewelry.
- Non-Skid footwear is recommended when working with equipment.
- Wear protective hair coverings to contain long hair.
- Wear proper attire to protect eye, hand, face, arm, leg, feet and body that is adequate to protect against flying debris, forcibly ejected work pieces, broken abrasive belts, ect.

7. USE SAFETY GLASSES

- Everyday eyewear does not feature impact resistance lenses, and they are NOT safety glasses

8. WEAR DUST MASK

- Some dust created by grinding activities may contain chemicals known to cause cancer, birth defects or other harm. Provide adequate ventilation.

9. SPARK AND DEBRIS ARRESTING APPARATUS

- To further reduce the exposure you may wish to connect an apparatus to the machine to contain dust and debris/spark arresting device to suppress sparks thereby limiting human inhalation risk, and risk of fire or explosion

10. KEEP ALL GUARDS IN PLACE AND PROPERLY ADJUSTED

- Keep all guards in place and in working order.
- Do not reach inside the safety guards while the machine is running.
- Do not operate this machine if the gap (nip point) between a moving belt, wheel or disc and the work support surface exceeds 1/8 inch or 3.175 mm
- Never position the work rest table at an acute angle between the top of the work rest table and the moving belt or wheel. Doing so will create “nip point” that can cause serious injury should an operators body part become entangled (pulled into) the nip point created by this acute angle.
- Do not operate this machine if the gap between the moving abrasive belt, disc or wheel and the adjacent face of the work rest (or table) will permit passage of the work piece through the gap (nip point). Note, however, that certain alloys such as titanium may create conditions where grinding debris can accumulate in a tight gap creating a potential fire hazard. When in doubt consult with your safety officer. Failure to observe this warning may result in the work piece or other item being caught in this gap. And/or being forcibly ejected. Failure to heed this warning may cause serious bodily harm to the operator and/or bystanders. Never use this equipment if you are not properly trained in its operation and/or safe use. If in doubt stop and ask for guidance.

11. AVOID CONTACT WITH THE BELT

- The abrasive belt when running is an aggressive cutting tool.

Use work piece holding devices when ever possible that diminish the possibility that persons will come in contact with moving machine pieces, or spark/debris output from the machine.

12. SECURE THE GRINDER

- Bolt the grinder securely to the stand or other stable surface to avoid tipping when unit is in operation.

13. BEFORE SERVICING

- Disconnect the grinder from the power source.

14. NEVER LEAVE TOOL RUNNING UNATTENDED

- Turn power off. Don't leave until the grinder comes to a complete stop.

15. DO NOT USE NEAR FLAMMABLE MATERIALS

- Sparks from the grinder can cause fires.

16. HOLD MATERIAL TIGHTLY

- Always hold the work piece firmly when grinding and apply steady pressure.
- Use work piece holding devices when ever possible that diminish the possibility that persons will come in contact with moving machine pieces, or spark/debris output from the machine.

17. DO NOT USE DAMAGED BELTS

- Belts that show wear should be discarded.

18. AVOID USING DIRECTIONAL BELTS

- Using belts with a butt joint will out perform belts that have a lap joint and also do not require directional installation.
- Lap joint style belts are prone to separation.

19. USE ABRASIVE BELTS FROM RESPECTED BELT MANUFACTURES

- Not all abrasive belts are created equal. Belts that are very inexpensive are usually manufactured cheaply.
- Use abrasive belts of proper size

20. KNOW WHAT YOUR GRINDING

- Avoid mixing different metals, alloys, and materials. To mix such materials might create a fire or explosion hazard
- Exotic materials such as titanium, magnesium, and other chemically active materials will present fire and explosion hazards that if ignored can result in grave personal injury and/or property damage.
- Consult with your material supplier or other qualified expert regarding the materials on which you wish to work.

21. KEEP GRINDER MAINTAINED

- Ensure contact wheels and idler wheels are in good condition and are free from cuts or splits. If damaged parts are found, immediately discontinue use of the grinder and order replacement parts.
- Never perform maintenance on the grinder with its electrical power source connected.

22. DO NOT USE STONE WHEELS

- The use of stone or vitreous wheels on any Burr King grinder is prohibited. The machine guarding is not suitable for these types of wheels. To do so will create an operator safety hazard.

23. ROTATIONAL SPEED WARNING, CONTACT WHEELS

Scope: Contact wheels manufactured by Burr King Manufacturing Company, Inc., which have rubber or urethane tires. Examples include but are not limited to stock codes 202, 302, 402, 502,702, 802, 902, 1002, 1202 and variants. Variants have stock codes that begin with the base number; i.e. 802-S-55 is an 802 variant.

Users are warned not to exceed the below listed revolutions per minute (RPM) on the subject wheels. Failure to heed this warning may lead to tire de-bonding, fragmentation, or other mechanical failure. Such failures may cause serious personal injury to operators or bystanders, and/or cause property damage. All Burr King products are warranted for various time periods to be free of material and/or workmanship defects. Burr King Manufacturing Companies standard warranty policy is summarized as follows for contact wheels. 1 year from date of purchase if mounted on a Burr King machine purchased on the same date or 90 days if purchased as a spare or replacement part. Our warranty does not apply to wheels that are mounted on products not manufactured by Burr King Manufacturing Company, Inc. Users who mount Burr King manufactured contact wheels on product not manufactured by Burr King Manufacturing Company, Inc. do so at their own risk and assume all liability for having so mounted the contact wheel(s).

Remember good safety practice demands guarding to protect operators and bystanders from wheel failure and/or debris. Never use the subject contact wheels without proper guarding that meets commonly accepted safe practice. See OSHA, U/L, CSA, CE, ISO and other respected safety standards.

Stock code	
Contact Wheel	Maximum Safe RPM
202, 302	10000
402, 502, 702 802	4400
902, 1002	3000
1202	2200

24. OCCUPATIONAL NOISE EXPOSURE

Burr King products produce levels of noise consistent with their intended purposes. The level and spectral content of noise produced is dependent on the product type, the degree that the product is maintained in proper operating condition, the abrasive/media and accessories used, the specific application, and the surrounding environment. Noise levels produced by various Burr King grinders and polishers, as measured at the Burr King factory, range from 80 to 93 decibels. Product

operators and persons in the immediate product vicinity should be protected from excessive noise levels as prescribed in OSHA regulation 29, piece 1910.95 titled "Occupational Noise Exposure".

ROTATING EQUIPMENT CAN BE DANGEROUS TO OPERATORS AND THOSE WHO MAY BE IN ITS IMMEDIATE OPERATING VICINITY. IT IS THE ABSOLUTE AND DIRECT RESPONSIBILITY OF PURCHASERS, MANAGERS, AND OPERATORS OF THIS EQUIPMENT TO UNDERSTAND AND OBEY THE FOREGOING MINIMUM OPERATING SAFETY REQUIREMENTS. IF YOU HAVE QUESTIONS OR SAFETY CONCERNS REGARDING OPERATING THE SUBJECT EQUIPMENT PLEASE CALL YOUR AUTHORIZED BURR KING DISTRIBUTOR, OR BURR KING MANUFACTURING AT 1-800-621-2748. YOUR SAFETY IS OUR FOREMOST CONCERN!

Burr King Manufacturing disclaims any and all responsibility for injuries, damage, loss of income, or other adverse consequence as might be incurred by purchasers, managers, and operators of this equipment.

25. TRAINING

- Do train operators and others in safe operating practices
- Post these instructions so they are available for future reference and new operators.



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X400 INSTRUCTIONS



Use caution when lifting grinder. Use two people when removing from shipping box.

Operating instructions for the Model X400 belt grinder

Over view: The model X400 belt grinder is a two-wheel belt grinder that uses a 2 x 48-inch continuous loop abrasive belt. For maximum efficiency and your safety we recommend you read and understand all operating instructions, manuals, labels, and other information provided with the equipment.

Various model x400 versions are available including models with fixed and variable abrasive belt speed, and various horse power options. Several accessories are also available including small diameter contact wheels, combination platen and small contact wheel assemblies, full abrasive belt guards, dust collection apparatus, and other contact wheel options. Your Burr King distributor will assist you in selecting value adding options and accessories to meet your needs.

Receipt and initial machine set-up

1. Insure that you have received all of the items that you ordered. Compare the packing slip with your purchase order, and of course with the physical items received.
2. Verify that there is no obvious shipping damage. If shipping damage is discovered notify the freight carrier of your intention to file a freight damage claim. They will assist you.
3. Verify that the AC power that is identified on the machine as received matches the AC power that you intend to operate the machine with. Do not modify the machine's wiring without first contacting your distributor or Burr King Manufacturing.
4. Do not modify or defeat any electrical wiring safety feature. For example, do not remove the grounding pin on the AC electrical plug.
5. Verify that you have received a warranty card, parts lists, catalog, and **Operator, and Operating Area Safety Instructions**.
6. Complete the warranty card and return it to Burr King Manufacturing via fax or mail.
7. Verify that the safety guards for the machine are in place and functional. See the parts list and schematic for the below indicated part numbers.
 - a. The contact wheel guard (703) and backup platen (704) are mounted and adjusted such that the platen lightly touches the back of the abrasive belt.
8. Prior to operating the model X400 read the **Operator, and Operating Area Safety Instructions** carefully. Insure that all persons who will operate the machine or who will work in the vicinity of the machine read, understand, and comply with these safety instructions.
9. Insure that the grinder is located in an area that provides operators with clear and unobstructed access to the machine. The work place should be free from floor obstructions, trip points, and other faults that could reduce operator safety.
10. Bolt the machine to a structurally sound surface or pedestal. If a pedestal is used bolt the pedestal securely to the floor.
11. Insure that your AC electrical power source is properly sized and properly fused for the machine you purchased. Consult with a competent electrician to determine the proper specifications for your electrical service prior to connecting your model belt grinder.

Functional machine operating instructions

Perform the following steps before each use of your model belt grinder:

1. Insure that the gap (nip point) between the face of the abrasive belt and the work rest is adjusted so that your work piece will not pass through this gap. See Figure 2.1



Warning: Failure to properly adjust the nip point may cause your part to become lodge, ejected and may lead to bodily harm.

2. Locate the 5/16 inch allen that secure the grinder arm to the frame. The machine can be adjusted to positions between vertical to horizontal by loosening this fastener, pivoting the machine and securing the nuts. Also you must loose the 3/16 allen that secures the contact wheel guard. When tightening take precaution in not over tightening the allen. As a rule of thumb a ¼ turn past snug will suffice. See Figure 2.2
3. Check the nut that secures the contact wheel to its mount. Insure this nut is tightened to 10 to 15 foot pounds of torque. (1.4 - 2 kg force metres) See Figure 2.3
4. To install or remove abrasive belt apply force to collapse the spring inside of the square frame. See figure 2.4. The spring will lock in to a key slot located inside of the belt guard. When the spring tension is captured by the locking mechanism open the door of the guard and remove the abrasive belt. Pull the handle located inside the door to allow the spring to apply pressure to the belt. See figure 2.5 By hand turn the contact wheel in the direction of belt travel to align the belt. Close guard door. See the tracking section on the next page to learn how to track the belt.
5. When selecting where to grind on your machine remember that the X400 has 3 designated grinding areas. The contact wheel, slack belt area and the platen area. You may wish to create a larger slack belt area by removing the backup platen. Remove the two allens that secure the platen to the contact wheel guard. Then rotate the guard forward to cover the pinch point between.
6. Insure that your hands and other body parts and electrical cords are completely clear of the grinding belt, and pinch points.
7. Protect your face and eyes and other body tissue from grinding debris.



Wear proper clothing and personal protection equipment we operating



Fig. 2.1



Fig. 2.2

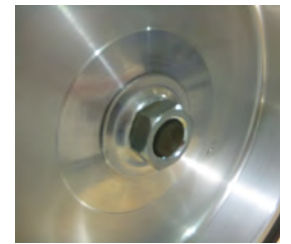


Fig. 2.3



Fig. 2.4



Fig. 2.5



The X400 can run in horizontal or vertical position or any where in-between.



Fig. 3.1 -Correct



Fig. 3.2 –
Tracked Left



Fig. 3.3 –
Tracked Right

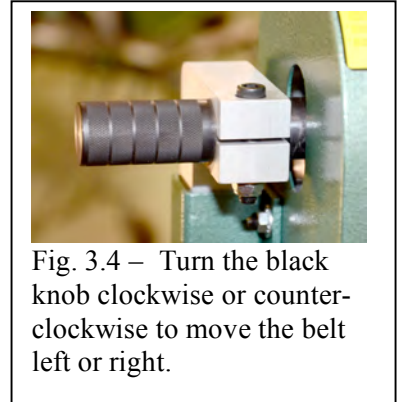


Fig. 3.4 – Turn the black knob clockwise or counter-clockwise to move the belt left or right.

7. Engage the motor by placing the Start/Stop switch to Start. The belt must rotate smoothly in a counter-clockwise (CCW) direction about the machine wheel belt path. If either of these conditions are not met immediately turn the machine OFF.
- a. If the abrasive belt does not remain centered on the contact wheel while the belt is moving use the tracking adjustment on the upper left side of the machine to track the belt to the center of the contact wheel. Turning this will cause the belt to track to the right and to the left. See figure 3.4
 - b. If the belt runs in reverse (up from the floor, or CW) correct this by changing the main drive motor rotation direction. Disconnect the machine from its AC electrical power and have a competent electrician:
 - 1) Reverse the motor direction of a three-phase motor by reversing any two legs of the input power lines.
 - 2) Reverse the motor direction of a fixed speed single phase motor by reversing leads 5 and 8 found within the metal wiring box located on the motor, or as otherwise instructed on the actual motor label.
 - 3) To reverse variable speed models consult the documentation that was supplied with the motor controller, or call the Burr King factory for assistance.
 If the abrasive belt tensions, and tracks properly, but the machine has excessive vibration, turn the machine OFF and call the Burr King factory for assistance.

Additional Information-

Burr King Manufacturing also produces several accessories that are designed to work with your machine. Accessories designed to sharpen lawn mower blades to small radius contact or internal grinding. We also offer an adapter to allow the user to run wheels in place of the contact wheel. For more information on these accessories contact your local dealer or the Burr King factory directly.

Maintenance of the model X400

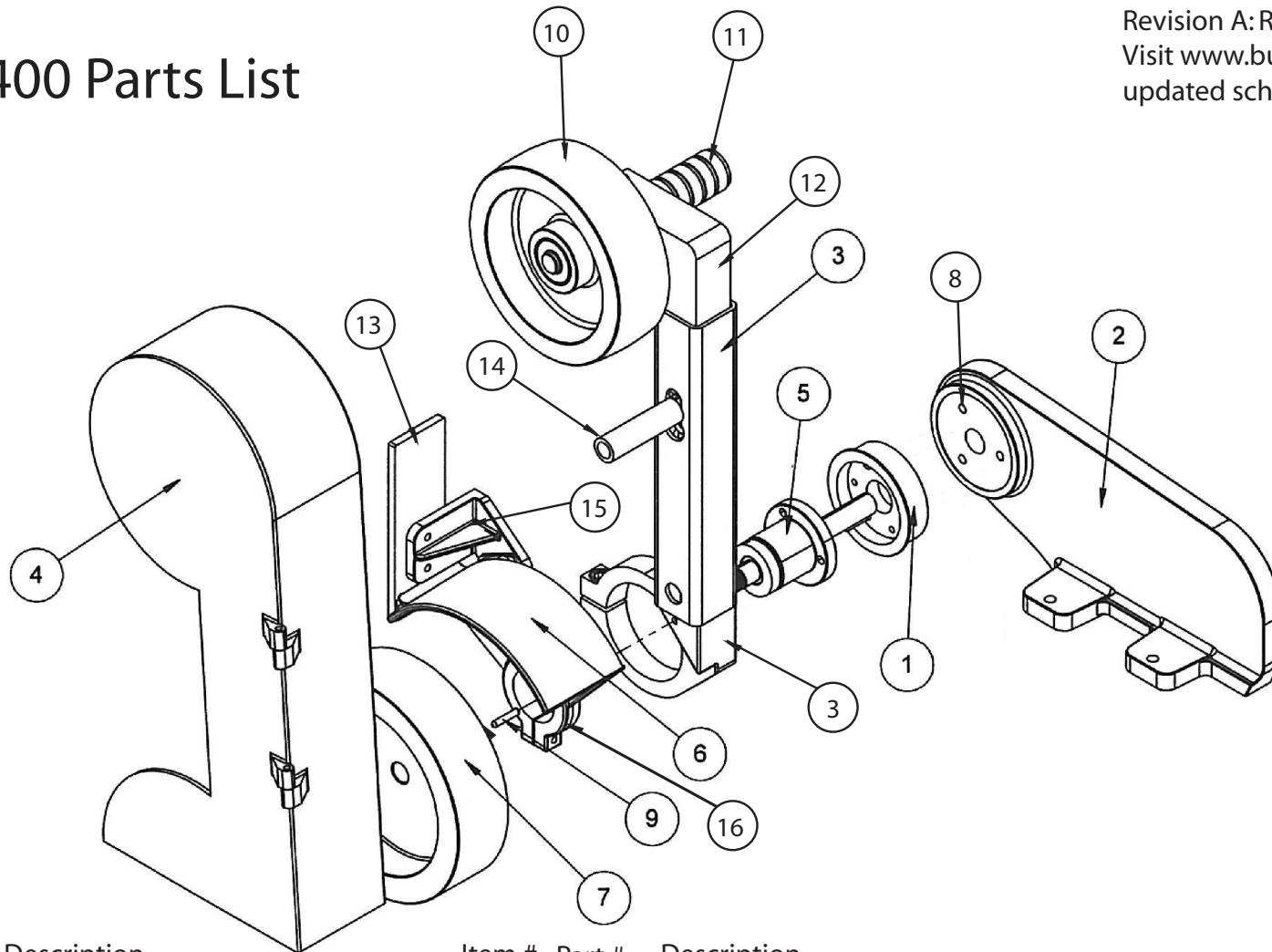
- Every thirty days apply light machine oil to tracking assembly. Two drops of oil is sufficient.
- Every thirty days check the drive belt tension. If you can hear the belt “slap” the frame when the drive motor starts, the belt may require re-tensioning. Do this by loosening the two nuts that secure the motor to the belt guard and slide the guard forward. Do not over tighten the belt. Doing so will shorten the life of the machine bearings. Tighten the two nuts.
- Routinely inspect the machine for loose hardware. Tighten as required.
- Daily vacuum or otherwise remove dust and debris build-up from the machine and the machine belt track.
- Verify proper tracking of the belt by rotating the tracking knob. If belt does not track while the machine is running it may be that the bolt that holds pressure against the tracking knob is loose. Using a 5/16 allen and a 9/16” wrench adjust the amount of pressure. Conversely if the tracking adjustment is too stiff loosen the bolt. If excess grinding dust has accumulated it may be necessary to remove the tracking knob and clean the shaft and the aluminum housing. Reassemble using graphite or light machine oil.

There are no other maintenance actions required. All bearings are sealed for life and require no additional lubrication.

Burr King Manufacturing can help you with problem solutions, and/or answers to your questions. Please call your Burr King distributor first; if you can not reach satisfactory conclusion please call the Burr King factory.

Model x400 Parts List

Revision A: Released 10/11/2011
 Visit www.burking.com for
 updated schematic & manual



Item #	Part #	Description
1	240	Cup, Bearing Housing
2	600	Frame, Main
3	247	Clamp, Tube Spacer, Assy.
4	242-1	Guard/Door Safety Complete
5	701	Bearing, Contact Wheel Assy.
6	703-4	Guard, Contact Wheel
7		Contact Wheel, Contact Factory
8	6	Screw 1/4-20x1-1/2, FH Allen
9	724	Pin, Support Upper Wheel

Item #	Part #	Description
10	707	Wheel, Idler (Aluminum)
11	246	Tracking Knob
12	245	Block, C-Frame Tracking Shaft Mount
13	704-1A	Platen, Backup, 2x6
14	244	Belt Release/Tension Handle
15	704-1B	Bracket, Backup
16	705-1	Arm, Workrest Support

Note: Motor Replacement, Contact Factory

