



**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 720

## INSTRUCTION MANUAL



MADE IN U.S.A.



**BURR KING.**

- GRINDERS
- BUFFERS
- VIBRATORY
- DISC GRINDERS

*Model 16110 with  
optional pedestal*

# BURR KING MODEL 720

## PROBE BELT GRINDER



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June, 2007

Burr King Manufacturing Company, Inc. warrants the below product to be free 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 fir 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 manufactures. 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 @  
WWW.BURRKING.COM**



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August 29, 2007

## 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 that reads "Don Mac Carthy". The signature is written in a cursive style with a large, stylized initial "D".

Don Mac Carthy  
President

See our catalog at [www.burrking.com](http://www.burrking.com)

contact us at [info@burrking.com](mailto:info@burrking.com)



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February 2005

## **OPERATOR, and OPERATING AREA SAFETY**

**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.**

### **Minimum safety requirements to operate, or work in the immediate vicinity subject equipment:**

1. Read and understand all operating instructions, manuals, labels, and other information provided with the equipment.
2. Install the equipment according to manufacturer's instructions.
3. Securely bolt the equipment to a rigid, structurally sound mounting surface.
4. Use and wear proper eye and face protection.
5. Use and wear proper protection for the body, hands, fingers, feet, and legs.
6. Review and understand all machine guards, adjustments, and points of exposure to potential injury.
7. Do not remove, tamper with, or otherwise alter, equipment guards, and other safety features.
8. Insure the machine is adjusted, and remains adjusted according to manufacture's requirements.
9. Maintain the equipment in good operating condition.
10. Have another person who is knowledgeable in proper and safe operation of the subject equipment demonstrate proper and safe operation to all operators, and to those persons who might be in the immediate vicinity of the subject equipment.
11. 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. Use spark and debris arresting apparatus. Such apparatus should be connected to the machine so as to contain dust and debris that is generated, and to suppress sparks thereby limiting human inhalation risk, and the risk of fire or explosion.
13. Use appropriate inhalation apparatus to protect person from ingestion and/or inhalation of sparks, debris, smoke, particulates, etc.
14. Avoid mixing different metals, alloys, and materials. To mix such materials might create a fire or explosion hazard.
15. Protect persons from work pieces, particulates, etc. that could be forcibly ejected from the machine. For example, a buffing wheel or grinding belt can "grab" a work piece while the work piece is being buffed, polished, ground, or otherwise conditioned, resulting in forcible ejection toward the operator or those in the vicinity of the machine. The use of leather aprons, gloves, and eye shields are examples of protective gear that may be effective. In general do not grind, buff, or otherwise engage the traveling belt, wheel, or disc surface with the work piece pointing into the direction from which the belt, wheel, or disc is traveling. However, if you choose to do so be aware the work piece may lodge in the traveling belt, wheel, or disc and be forcibly, and dangerously ejected.
16. 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.
17. Do not operate this machine if the gap between the moving abrasive belt, disc or wheel and the adjacent face

page 1 continued on next page

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Continued from page 1

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!**

18. 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 operator body part become entangled (pulled into) the nip point created by this acute angle.

19. Do not operate the equipment, or allow others to operate the equipment without proper training in these and other rotating machinery safety requirements.

20. Do not perform maintenance on the equipment unless you are fully qualified to do so, and understand all necessary safety and operating requirements.

21. Do not leave the machine unattended while it is running.

22. Correct equipment or safety problems immediately. Do not operate the equipment when it requires maintenance, or correction.

23. Install and use high quality abrasive belts, wheels, discs, media, etc., as appropriate to your machine. Understand and follow the operating requirements provided by the manufacturer of these materials.

### **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.

<u>Stock code</u>	<u>Maximum Safe RPM</u>
202, 302	10000
402, 502, 702 802	4400
902, 1002	2200
1202	1600

Page 2, continued on page 3

Continued from page 2

**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 does 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.**

**Page 3 is last page**



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## **Operating instructions for the Model 720 belt grinder** February 2007



Picture 1: Shown, a model 720 with optional 4 inch diameter wheel, variable speed, with remote control console. Note guard door is closed and latched.

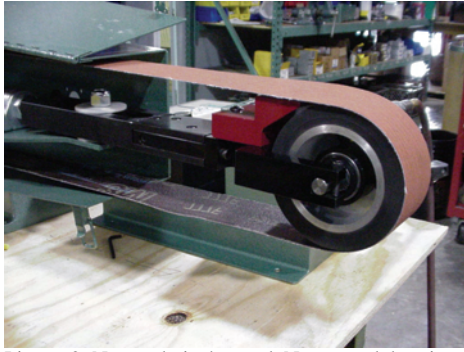
The model 720 belt grinder is a two wheel path belt grinder that uses a 2 x 72-inch continuous loop abrasive belt. For maximum effectiveness, and operator safety use abrasive belts manufactured by well respected abrasive manufacturers.

- \* Use abrasive belts that are the proper size and type for your machine.
- \* Do not use abrasive belts that are old and excessively worn.
  - Do not use abrasive belts that use lap splice joints. This type of belt is prone to separate. It also may tend to snag your work and create a safety hazard. It may also perform poorly.

The model 720 will accept front wheels (contact wheels) that are from 9/16 inch in diameter to 4 inches in diameter. The belt width may be ½, 1, or 2 inches. The belt length is always 72 inches and the belt speed is independent of the contact wheel size. Note that the front wheel attachment is secured to the machine probe by two ¼-20 Allen cap bolts (picture 2). Loosen and remove these bolts to remove the adapter that secures the wheel to the extension arm.

### **Prior to operating the model 720 please take time to do the following:**

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 machines wiring without first contacting your distributor or Burr King manufacturing.
4. Do not modify or defeat any AC wiring safety feature. In example, do not remove the grounding pin on the AC 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.
7. Verify that the belt path guard is in place and that its door and latches are functional (see picture 1). Verify that the pinch guard is in place and securely fastened by the two screws supplied (see picture 2).



Picture 2: Note red pinch guard. Note guard door is open, do not operate the machine with the guard door open.

8. Insure that the grinder is located in an area that provides clear access to the machine such that operators have clear and unobstructed access to the machine. The work place should be free from floor obstructions, trip points, and other faults that may reduce operator safety.

9. Burr King recommends that all three phase installations include a magnetic starter. Magnetic starters protect motors from “single phasing”, overheating, etc. thereby reducing the risk of damage to the equipment and/or fire hazard to your facility.

10. Insure that the model 720 AC power source is properly sized, and properly fused. You should consult a competent electrician, or you may call Burr King Manufacturing for guidance.

### Functional operating instructions for the model 720 belt grinder

The model 720 was fully tested and verified to comply with requirements prior to shipping from the factory. You should perform the following steps:

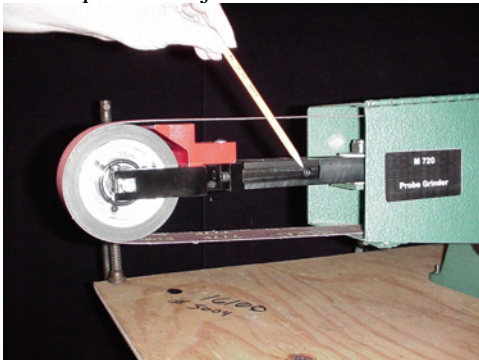
1. Securely bolt the machine to a table, pedestal, or other mounting location. The base of the model 720 has 4 mounting holes for this purpose. Use grade 5 or better bolts for mounting the machine. If the machine is mounted with the motor shaft other than horizontal use 5/16 bolts or larger. otherwise use 1/4 inch or larger bolts.
2. If the machine controls and air regulator assembly is console mounted securely mount the console in a convenient location where the operator can access the controls **WITHOUT REACHING OVER THE MACHINE. Operating the controls while reaching over the machine may lead to serious bodily injury.**
3. Insure that the regulator assembly is mounted such that the bowls are vertical.
4. Connect a clean air pressure source of at least 45 PSI to the air pressure regulator supplied with the model 720.
5. Note the air controls that are mounted either in the base of the model 720 or in an attached console. The function of each control is described by control labeling ( see picture 3). With these controls you can retract the front wheel to remove and install abrasive belts, adjust the speed of probe extension, and adjust the speed of probe retraction. Ordinarily you will not need to adjust the latter two controls.

**CAUTION: The abrasive belt to wheel interface will close quickly so KEEP CLEAR OF THESE INTEFACES WHEN OPERATING THE AIR CONTROLS. NEVER OPERATE THE AIR CONTROLS WHILE THE ABRASIVE BELT IS IN MOTION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY LEAD TO BODILY INJURY.**



Picture 3: shown is a variable speed controller (optional) and the air/belt controls mounted in a console (optional). Standard configuration has the controls machine mounted.

6. Using the air pressure regulator control located on the incoming air filter assembly (see picture), adjust the air pressure for air pressure delivery of from 20 to 50 PSI. The greater the air pressure, the greater the belt tension.
7. Open the guard door, RELEASE the probe and install the abrasive belt. Center the belt on the wheels. Keep clear of the belt and wheels and ENGAGE the probe. The probe will move outward and place the belt under tension.
8. Engage the motor by placing the ON/OFF switch to ON. The belt should rotate smoothly in a CCW direction about the machine wheel belt path as you face the left side of the machine (guard door). If either of these conditions are not met turn the machine OFF immediately.
  - a. If the abrasive belt does not remain centered on the contact wheel adjust belt tracking by using the Allen cap screw on the left side of the probe (see picture 4). Adjust this screw either CW or CCW as required to center the belt on the belt track. Once this control is adjusted it will seldom require re-adjustment.



Picture 4: Note Allen cap screw. Use this control to adjust the belt tracking.

- b. If the machine belt tensions, and tracks properly, but has excessive vibration turn the machine OFF and call the Burr King factory for assistance.

### **Important note about small nose wheel diameters VS motor speed**

The model 720 is available in fixed and variable belt speed models. The drive wheel of the fixed speed model turns at 3450 RMP which is a standard electric motor speed. Using nose wheels smaller than 1 ½ in diameter is not recommended on fixed speed models as the resultant nose wheel rpm may exceed the speed rating of the nose wheel bearings thus shortening wheel life.

Variable speed motor control allows reduction in drive wheel speed thereby reducing the stress on small diameter wheels. For longer nose wheel service life use the following relationships:

Nose wheel diameter (inches)	Variable speed % of maximum
0.5 or less	25%
0.6 to 1.0	33%
1.1 to 1.5	75%
1.6 and larger	100%

The model 720 will accept nose wheels to 4 inches in diameter.

### **Maintenance procedures for the model 720**

#### **FIRST DISCONNECT THE MACHINE FROM ITS AC POWER SOURCE.**

- \* Routinely vacuum or otherwise remove dust and debris build-up from the machine and the machine belt track.
- \* Routinely inspect for loose screws and other hardware. Tighten as required.
- \* Routinely inspect the air pressure assembly bowls for water/oil build up and drain as required using the facilities provided.
- \* There are no other maintenance actions required. All bearings are sealed for life and require no additional lubrication.

**Remember for operator safety and the continued effectiveness of your model 720:**

**Do not defeat the safety guards and other safety provisions of the model 720.**

**Do not operate the model 720 with the safety guard open or the contact wheel guard/platen assembly (or internal grinding attachment) removed.**

**Do not reach inside the safety guards while the machine is running. To do so is hazardous.**

**Do not use fluids in your grinding process unless your model 720 is designed for liquid operation (NEMA 4, 4X).**

**To do so may create an electrical safety hazard.**

**Do not use your model 720 to grind/polish explosive materials such unless it is equipped with explosion proof electrical devices and motor.**

**Do not mix alloys in your grinding. To do so may create an explosion hazard.**

**Do not use stone or vitreous wheels on the model 720. To do so will create an operator safety hazard.**

**Do use eye, hand, face, arm, leg, feet and body protection that is adequate to protect against flying debris, forcibly ejected work pieces, broken abrasive belts, etc.**

**Do train operators and others in safe operating practices.**

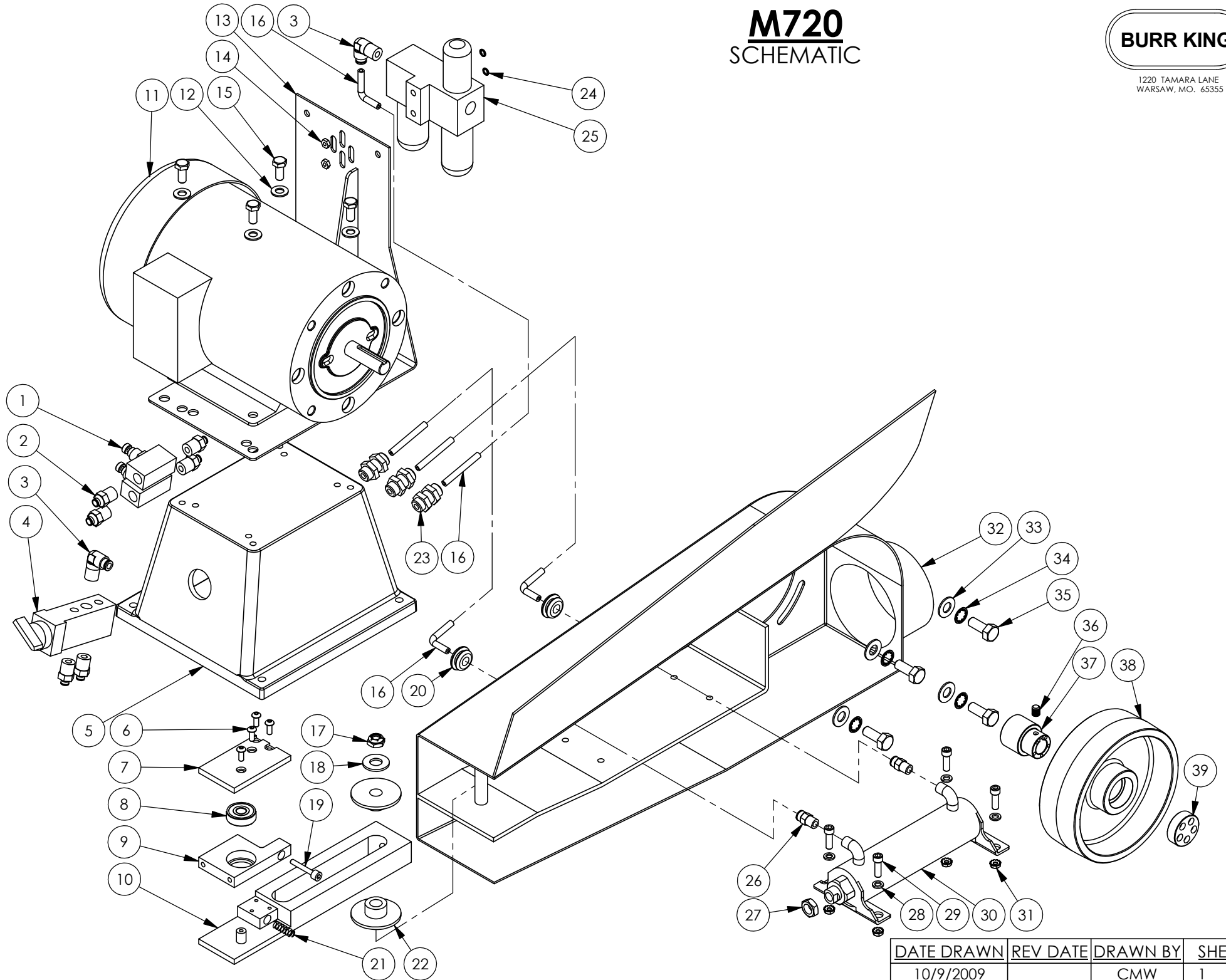
**Post these or equivalent instructions such they are available for ready operator reference.**

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, telephone 1-660-438-8998.

# M720 SCHEMATIC

**BURR KING**

1220 TAMARA LANE  
WARSAW, MO. 65355



DATE DRAWN	REV DATE	DRAWN BY	SHEET
10/9/2009		CMW	1

**M720**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	7212	VALVE, FLOW CONTROL, AIR	2
2	7217	FITTING, STRAIGHT, 1/4 X 1/4	6
3	7214	FITTING, 90 DEGREE, 1/4X1/4	2
4	7213	VALVE, SELECTOR	1
5	941-1	BASE, CONTROL MOUNT	1
6	9	SCREW, 10-24x1/2 BH, BLK OXIDE	4
7	7201-3	CAP, TRACKING	1
8	202B	6200 SERIES 10MM ID BEARING	1
9	7201-2	PIVOT	1
10	7201-1	ARM, EXTENDER	1
11	MOTOR	CALL FACTORY	1
12	4	WASHER, 5/16 SAE	4
13	MB-4C	BRACKET, MOUNTING, STARTER	1
14	4-0026	NUT, 8-32, ZINC	2
15	37	BOLT, 5/16-18x3/4 HEX HEAD	4
16	7219	TUBE, AIR, 1/8 ID	3
17	20	NUT, NYLOK JAM, 1/2-20	1
18	21	WASHER, 1/2 ID	1
19	3-0019	SCREW, 10-24x1 1/2 SS	1
20	7205	GROMMET	2
21	7221	SPRING, TRACKING	1
22	7203	GLIDE, DELRIN	2
23	7215	CONNECTOR, AIR, BULKHEAD	3
24	5-0036	WASHER, #8, LOCK, INTERNAL	2
25	7211	REGULATOR, FILTER ASSY	1
26	7216	FITTING, STRAIGHT, 1/8 X 1/4	2
27	4-0030	NUT, 7/16-20, JAM, THIN	1
28	5	WASHER, 1/4 AN	4
29	209	SCREW, 1/4-20 X 3/4 ALLEN HEAD	4
30	7210	CYLINDER, AIR	1
31	4-0013	NUT, KEP, 1/4-20	4
32	7200	FRAME, MAIN	1
33	5-0023	WASHER, 3/8 X 7/8, USS	4
34	5-0014	WASHER, LOCK 3/8, INTERNAL STAR	4
35	1-0001	3/8-16 x 1 HEX HEAD BOLT	4
36	25	SCREW, SET 5/16-18 x 3/8	1
37	7202A	ADAPTER, WHL	1
38	707EXM	DRIVE WHL	1
39	7202B	ADAPTER, DRIVE WHL	1

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TITLE	DATE DRAWN	REV DATE	DRAWN BY	SHEET
M720	10/9/2009		CMW	