

PRIMO MICRODRILL OWNER'S MANUAL

Please take a moment to read this manual prior to operation!



PRIMO 1
PRIMO 2A
PRIMO 2B
PRIMO 3



MICRODRILL TECH 2000
45000

 **RAM PRODUCTS, INC.**®

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CONTROLLERS

• Comes with Primo Control Box, Primo Handpiece, On-Off Foot Pedal, Handpiece Stand and Wrench Tool

Set-Up

- ① **Power Outlet:** Main power cord receptacle. The power cord is plugged here.
Warning: The control box is designed for one input AC voltage only. Make sure that the available electrical power is compatible with the voltage input requirement of the control box. Refer to assembly #3.
- ② **110/230V:** Switch from 110 volts or 230 volts.
- ③ **Power Fuse:** Shows the fuse location and is conveniently located to access if needed.
- ④ **Foot Switch Control Outlet:** The foot pedal cord plugs in here, either the on/off or variable speed foot controller.
- ⑤ **Main Power Switch:** Turns the control box on and off. Switch should be in the “off” position when not in use.
- ⑥ **Handpiece Cord Outlet:** The handpiece cord plugs in here.
- ⑦ **Speed Control Dial:** 0-35,000rpm or 0-45,000rpm. Used to adjust or vary the desired speed. In hand mode, turn the dial clockwise to increase the speed and counterclockwise to reduce the speed. While using in foot pedal mode, the speed dial setting can also limit the top or maximum speed for greater control and safety.
- ⑧ **Forward/Reverse Button:** Controls handpiece direction to forward or reverse.

SPECIFICATIONS

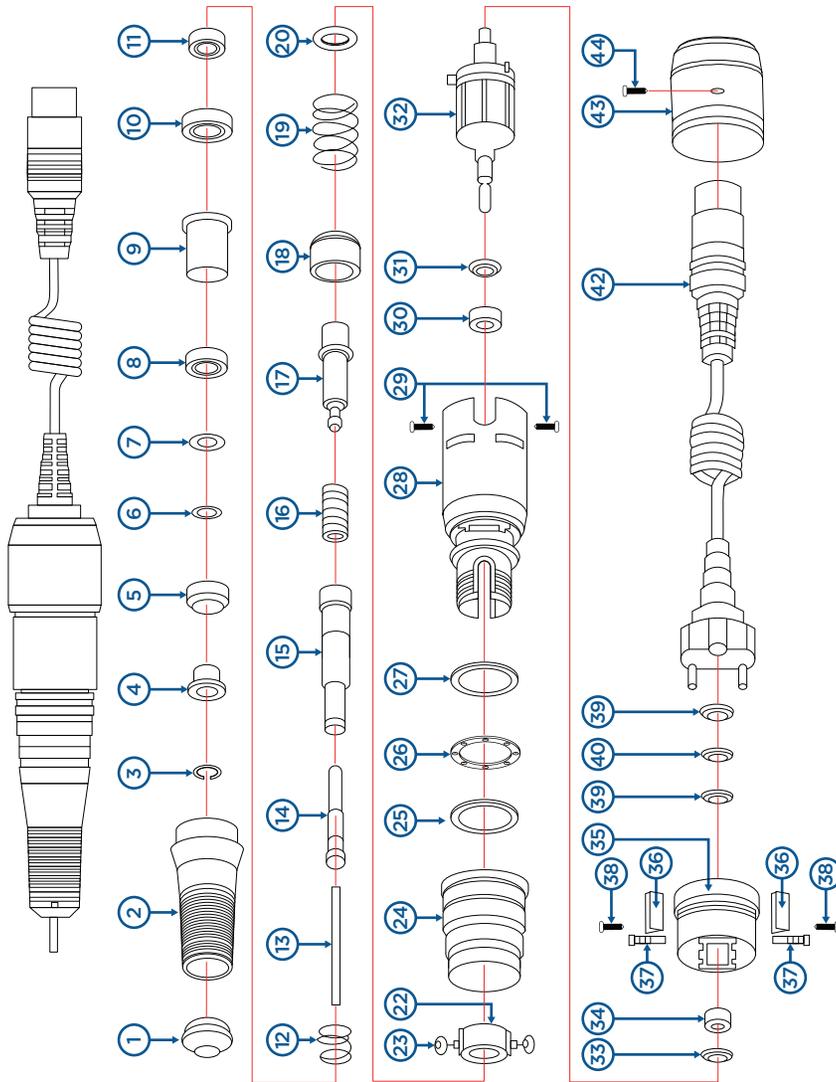
Model	Input	Output	MaxAmp	Rotate Speed	L	W	H	Wt.
PRIMO	AC110V/230V 50HZ-60HZ	DC0-24V	2A	0-30,000rpm	5"	4"	2 3/4"	3.4lbs
MICRODRILL	AC110V/230V 50HZ-60HZ	DC0-32V	2A	0-35,000rpm/ 0-45,000rpm	5"	4"	2 3/4"	3.4lbs

Assembly and Operation

1. Handpiece cord plugs into the lower side socket(#6) on the control box.
 2. Foot Pedal plugs into the back lower right socket(#4) on the control box.
 3. Plug the power cord to an electrical outlet. Make sure that the outlet is properly grounded and compatible to the voltage input requirement.
- NOTE:** Please make sure that the power switch is in “off” position before plugging the power cord to an electrical outlet. The speed control must be set to minimum and check the voltage switch selection to be sure it is set at the proper voltage either 110 or 230 volts.
4. Turn the power switch (#5) to “on” position. The green light should glow.
 5. Press the foot pedal and the handpiece is now ready for operation.
- WARNING:** The handpiece should always be placed in the rubber stand when not in use to avoid rolling or dropping. Permanent damage may occur to the handpiece.
6. The speed control is located at the upper right corner at the front of the control box (#7). To speed up the rotation of the bur, turn the dial knob to the right and to decrease the speed, turn the dial to the left.
 7. The direction of the turn of the bur is controlled by the forward/reverse switch (#8). The bur turns clockwise (right) when the switch is pressed to R and turns counterclockwise (left) when pressed to L.



PRIMO HANDPIECE



	DESCRIPTION	RAM ITEM NO.
1	Nose Tip	B2001
2	Sheath	B2002
3	C-clip	B2003
4	Collar	B2004
5	Dust Seal	B2005
6	Wave Washer	B2006
7	Washer	B2007
8	11260ZZ Ball Bearing	B2008
9	Bushing	B2009
10	1480ZZ Ball Bearing	B2010
11	Spring Guide	B2011
12	Coil Springs	B2012
13	Blank Mandrel	B2013
14	Chuck 3-32" (2.35)mm Standard	B2014
15	Chuck Case	B2015
16	Chuck Spring	B2016
17	Chuck Joint with Delrin	B2017
18	Spring Cover	B2018
19	Coil Spring	B2019
20	Flat Washer	B2020
21	Flat Washer	B2021
22	Roller Ring	B2022
23	Rollers for Roller Ring	B2023
24	Set Ring	B2024
25	Thrust Ring	B2025
26	Thrust Bearing	B2026
27	Thrust Ring	B2027
28	Motor Case	B2028
29	Motor Screw	B2029
30	940ZZ Ball Bearing	B2030
31	Front Armature Spacer	B2031
32	Armature	B2032
33	End Armature Spacer	B2033
34	830ZZ Ball Bearing	B2034
35	Brush Holder	B2035
36	Terminal Clip	B2036
37	Square Carbon Brushes	B2037
38	Brush Holder Motor Screw	B2038
39	Brush Holder Space	B2039
40	Rubber O-Ring	B2040
41	Motor Cap Screw	B2041
42	Plug-In Cord Assembly	B2042
43	Motor Cap	B2043
44	Motor Cap Screw	B20431

Use & Operation of the Chucking Mechanism

1. When you first receive your primo nail, you will see a “blank” bur already inside your handpiece.
2. With the drill held upright (front of the drill pointing at the ceiling). In your left hand, you will be able to open the chucking mechanism using your right hand.
3. As you can see from the outside of the handpiece, it is made up of 4 complete metal sections. Your left hand should be holding the bottom two metal sections. Now, with your right hand, take your thumb and index finger and turn the set ring (the 2nd section of metal from the top part of the drill/part #B2025). Turn the set ring clockwise until you hear it click. Once you hear the click, your chuck is now in the open position to allow you to remove the blank bur and change it for one of your own.
4. When installing one of your own burs into the primo nail drill, please leave a little bit of room between the bottom of the bur head and the top of the chuck. If the bur is rubbing or seated on top of the chuck you may lock up the drill and keep it from spinning.
5. After installing your drill bit, turn the set ring counter clockwise to lock the drill bit in place. You are now ready to use the drill.

Please note: The wrench enclosed with your nail drill is not needed to open or close the chucking mechanism. This handpiece wrench is only used for repair service.

Instructions for Changing Brushes

The brushes are located in the back of the handpiece, in the section closest to the power cord.

1. Remove the two small Philips type set screw on the sides of the metal end cover
2. Remove both of the old brushes using a small Phillips head screwdriver. Remove the two screws holding the brushes – one on each side and the brushes are easily removed.
3. Insert the new brushes and secure with the two Phillips head screws and attach the rear cover.
4. New brushes may take several hours during the break in period where the handpiece may run slightly warmer than usual.

Replacement chucks:

3/32” -2.35mm

Part #B20-14



ON/OFF FOOT PEDAL



Use & Operation of On/Off Foot Pedal Controls

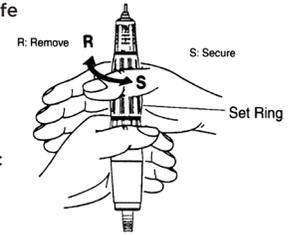
1. First make sure the on/off foot pedal is plugged in properly into the back of the control box in the foot pedal socket.
2. In order to operate the foot pedal, control box must have the power switch set to the “off” position.
3. With the power switch turned off, you will now be able to operate the foot pedal, as an on/off switch. This pedal will only turn the unit on up to the setting or placement of the control box speed control knob.
4. When the power switch on the control box is turned on, the foot pedal will not operate.



MAINTENANCE

Suggested Handpiece Maintenance

1. Carbon brushes in handpiece motor are designed for long life (approximately 1,000 hours). Carbon brushes should be replaced periodically (approximately 1 year). Replacement part # isT02-37.
2. Keep clean from dust and grindings as best as possible.
3. Wipe handpiece only with isopropyl alcohol and avoid getting inside wet. It is normal for the using rusty or eccentric burs as this will cause excess wear on the bearings. Follow safety speeds and precautions recommended by the bur manufacturer. Always wear a dust mask, eye protection, and use adequate suction or ventilation.
4. Do not drop the handpiece at any time as this may cause damage to the bearings. In the event the handpiece is dropped, please check that the bur is not bent and resume use carefully, checking for excess noise or heat. If any damage, please return to manufacturer for service.

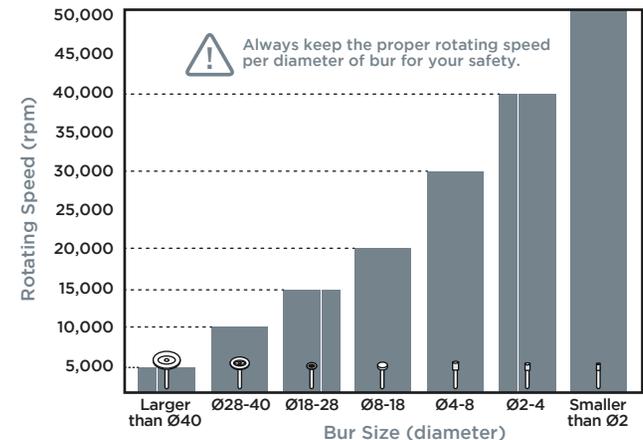


Safety Precautions!

- Never turn set ring while motor is rotating. Permanent damage to the motor is possible.
- Do not use handpiece without the bur or chuck properly secured. Permanent damage to the motor is possible
- Never use bent or damaged burs.
- Do not force any burs into the collet chuck and always check after insertion if the bur is securely locked by pulling the bur.
- Always operate at a safe speed for the size and weight of the bur. Start at 0 while slowly increasing speed and securely gripping the handpiece. Operating at higher speeds often does not cut any better or faster and can increase wear on the bearings in the handpiece as well as the cutting tool.
- Follow basic safe speed operation according to the chart below and also the safety speed ratings of manufacturer of the burs.
- After usage, remove any excess dust or debris.
- Avoid any chemicals and disinfectants.

Safety Speed Table Guidelines

This chart for allowable rotation speed can be slightly different depending on bur materials or bur type.





1 For using any of the products, observe the operating instructions given in each manual. When using electric tools, use basic safety precautions in order to reduce risk of fire, electric shock, and personal injury.



2 When taking your product from the box, never let it tumble out or fall on the floor. Handle any product that is heavy or with sharp corners with special care.



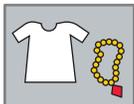
3 Do not drop the product. Dropping the motor may damage the ball bearing or weaken the durability of the motor.



4 Inspect your product before use without fail. Before using your product, through visual inspection, make sure that your product has no flaw, crack or faulty adhesion.



5 When using your product, wear safety goggles or glasses and dust respirators without fail. Flying chips may hurt you when grinding workpieces with hard materials. Use a coolant when grinding a workpiece at high or superhigh speed. Never touch tools with sharp edges directly.



6 Do not wear loose clothing or jewelry as they can be caught in the drill.



7 Do not expose electric tools to water, or use in damp or wet locations. Store your product in a place with the lowest possible humidity and moisture content. Store the product in a dry place and shield from exposure to direct sunlight.



8 Select the tools of the product after examining the following conditions:

- Grinding tool performance
- Workpieces to be ground
- Grinding method



9 When mounting any kind of bur to your handpiece, insert it properly to the final depth. Do not run handpiece without a bur properly locked in place. Do not attempt to open collet (release bur) while handpiece is running.



10 Use suitable speed that has not exceeded the maximum value. Exceeding the product motor's maximum speed may invite trouble including vibrations.



11 If any abnormal vibration begins during use, stop operating your tool and remove the cause.



12 Do not oil, lubricate, or grease the handpiece (This will only lead to further damage of the greased sealed bearings). Do not sterilize or autoclave. Do not get handpiece wet (except for the front-end attachments with the "E"-type motor).



13 Never use the product for any purpose other than the original one, nor remodel and repair it. Repair should be done by manufacturer or authorized service center only. Changing motor brushes or handpiece cord is the only user serviceable part.



14 Never leave your motor handpiece with the switch turned on, an accident may occur if it is over-heated. Do not switch forward or reverse direction until motor has completely stopped.

Technical Tips

- A quality drill is meant to last years and years with basic user maintenance and periodic tune up or service from the factory where only original parts are used to replace normal wearing parts. It is a good idea to send it for service when symptoms start to occur before it gets worse or damages other internal parts. Listen to your drill.
- Keep the dust out of the drill as best as possible and use good quality bits that are well balanced and vibration free. This is especially true for the sanding bands holders as they seem to cause the most wear on the handpiece.
- Keep a spare set of carbon brushes or an extra cord for the handpiece or a set of fuses to fix any minor emergency and avoid ruining your day.



Ram Website



Primo



Microdrill



Warranty Card Registration



How to Change Collet Chucks



How to Disassemble and Change All Bearings



Customer Service Request Form

