

FOREDOM®

Operation and Maintenance Manual for K.1060 Brushless Micromotor Kit



For Your Safety:

**Do Not
Submerge the
Handpiece
in Liquids!**



Read this Manual before operating your Foredom Micromotor Power Tool.



Always wear eye protection while using the Foredom Micromotor Handpiece.

www.foredom.net



Safety Instructions

A Micromotor Handpiece is a high speed rotary power tool which can be dangerous and cause serious injury if it is not used properly. **NEVER** operate it without wearing eye protection.

- **ALWAYS** wear proper eye and face protection.
- **ONLY** use accessories rated for speeds of **50,000 rpm or higher** when operating this micromotor.
- **ALWAYS** observe the manufacturer's maximum speed rating when using any accessory.
- **NEVER** use or continue to use any accessory which appears to be damaged, loose, vibrating, bent, or out of balance. Inspect each accessory for cracks or flaws before use.
- **ALWAYS** insert the shank or arbor of an accessory or mandrel into the collet or chuck of the handpiece as far as possible in order to provide proper support and close the collet or chuck securely.
- **DO NOT** use accessories with shanks that are less than 1" long.
- **NEVER** use excessive side pressures which may tend to bend or break the shank or arbor of an accessory. Let the speed of the accessory do the work.
- **DO NOT** stall the motor by jamming or using excessive pressure on the mounted point, buff, wheel or accessory. This can result in damage to the motor.
- **WEAR** a dust protector to prevent the inhalation of harmful dust or debris from grinding, carving or other operations performed with this power tool.
- **NEVER** operate with a damaged power cord.
- **USE** a dust collector or filter hood to pull sawdust, grinding dust, or other debris away from the work area and the micromotor intake vents.
- **NEVER** wear open shoes or sandals. Use foot-wear that is tough enough to protect your feet from falling tools.
- **ALWAYS** keep both hands and fingers away from the cutting edge.
- **NEVER** cut or exert pressure, toward your hand or any other part of your body.
- **DO NOT** wear loose fitting clothing or jewelry. Loose clothing or jewelry can become entangled in the tool. Do not wear items such as neckties, necklaces, or bracelets when operating power tools. Secure or tie back long hair.

- **NEVER** turn on or start the Handpiece while collet is in open (unlocked) position. This can damage the handpiece. **Always** operate and store it with a bur or other accessory in the chuck and with the chuck in the closed position.

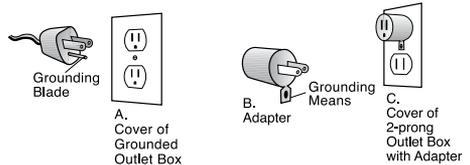


Unlock



- **DO NOT** operate the handpiece in the presence of any flammable liquid or gas.
 - **Use proper grounding procedures.** This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts, it has a plug that looks like sketch A below. An adapter (sketches B and C) can be used for connecting plugs as shown in sketch A to 2-prong receptacles. The green colored rigid ear, lug, etc., extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. **Some jurisdictions, including Canada, prohibit the use of 3 to 2 prong adapters. Where prohibited, they should not be used.** Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-pole type plugs and 3-pole receptacles that accept the tool's plug. Always disconnect the power cord before servicing the tool. Never use in an area where flammable vapors are present.
- Store your Freedom power tools in a DRY, clean, dust-free area, and out of the reach of children.**

Replace or repair worn cord immediately.



Assembly Instructions

Make sure the power switch on the back of the control box is turned off. Check to see that the voltage selector switch on the back of the control box is set to the voltage to be used 110 or 220 volt. Next:

1. Connect the power cord into the back of the Control Box and into a power outlet.
2. To use the Foot Control, plug the Foot Control cord into the port on the back of the control box. Align the pins carefully and tighten the locking ring.
2. Plug the Handpiece cord into the port on the front of the control box. Align the pins carefully and tighten the locking ring.
3. Set the Speed Dial to '0'.
4. Make sure the handpiece collet is in the locked position with a bur or accessory in it and that the collet and accessory can spin freely.

There are 2 dots on the metal ring – one will line up with the Unlock symbol and the other dot will line up with the Lock symbol when you twist the front of the handpiece.

Operating the handpiece with the collet in the open or  Unlock position or with no bur or bit in it can cause severe damage to the motor

Operating Instructions

1. Be sure the On/Off Power Switch lights up when you are ready to work. The switch must be in the ON position for the handpiece to run in any setting.

Always turn the Dial to '0' and On/Off Switch to the Off position when not in use.

2. **Hand/Foot Mode:** With the Speed Dial at '0', select either Hand or Foot Mode for speed control.

- When the Hand indicator lights up, the handpiece will run at the speed set by the Speed Dial.

- Press the Run Selector to activate the handpiece in Hand Mode. It will also light up in Foot Mode when you press the Foot Control.

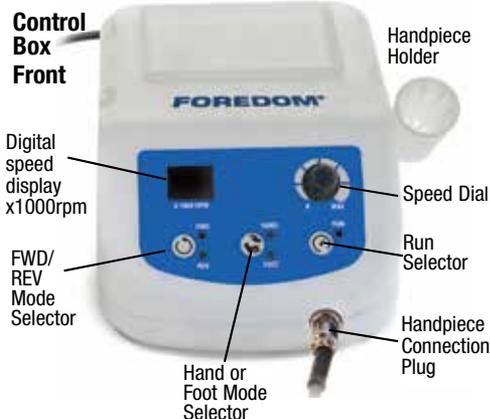
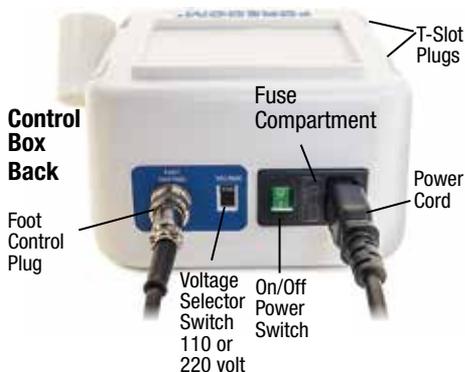
- When the Foot Mode indicator lights up, the handpiece will only operate when the Foot Control is pressed. You can set a

maximum speed with the Speed Dial, but range of speed will be controlled by the Foot Control.

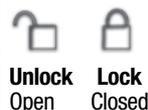
3. **Forward/Reverse Mode:** With the Speed Dial at '0', select the handpiece rotation direction by pressing the FWD/REV Mode Indicator:

FWD = Forward or REV = Reverse.

- **Speed Range:**
1000 – 50,000 RPMs



CAUTION Never run the handpiece when the collet is open or in the intermediate position. The spindle is locked and will not turn. This will damage the motor.



Dot on metal ring lines up with Lock Symbol for closed collet

For maximum speed with a foot pedal, turn the dial speed control to the 'MAX' setting.



Operating Instructions *continued*

4. Regulating Speed: Use the Speed Dial to vary the speed of the handpiece from minimum to maximum when the Hand Indicator lights up.



• **Speed Dial sets the maximum speed** that can be reached when using the Foot Control.

5. Handpiece Holder: The control box has T-shaped Slots for placing the handpiece holder in a location and angle for your convenience. The flexible vinyl covers on the T-shaped slots can be pried out with a screwdriver with a very thin blade.



H.MH-160 Micromotor Handpiece

This Handpiece is intended for fine finishing and detailing work. If the handpiece is misused or abused, it will not be covered under warranty.

Avoid turning the front portion of the handpiece so far that it unscrews. If this occurs put it in the Unlock position and tighten it.

Changing Accessories

Burs and other accessories can be inserted or removed from the handpiece collet when the collet is open. **As shown, there are 2 dots on the metal ring – one will line up with the Unlock symbol and the other dot will line up with the Lock symbol when you twist the front of the handpiece.** To open the collet:



continued




Unlock

1. Turn off the motor.

2. Twist the Front of Handpiece by turning as shown below until it clicks so that one of the dots on the metal ring lines up with Unlock Symbol.

CAUTION Never run the handpiece when the collet is open or in the intermediate position. The spindle is in the locked position and will not turn. This will damage the motor.



3. Remove the accessory and replace with another. Insert the accessory shank fully into the collet for maximum support




Lock

4. To Lock: Twist the Front of the Handpiece by turning as shown above until it clicks so that the other dot on metal ring lines up with the Lock Symbol. The accessory and collet will be able to spin freely.

Collet Wrenches

The Nosecone Wrench is used to tighten the nosecone, and is also used with the collet wrench to remove or replace the collet. The handpiece comes with an open-end wrench, (Nosecone Wrench) and a wrench with a triangular-shaped hole which fits over the collet, (Collet Wrench).

Nosecone Wrench



Collet Wrench



Installing/Changing Collets

Turn off the power switch with the collet in the Locked or closed position.



1. Rotate the bur to position the flats on the chuck nut, so they line-up with the wrench slots in the metal nosecone. Slide the nosecone wrench through the slots all the way.



2. Hold the housing with one hand, and tighten the nosecone with the Nosecone Wrench. (Clockwise rotation)



3. Keep the Nosecone Wrench in the slots of the nosecone. Then, open the collet by rotating the housing so that the other dot on the metal ring lines up with the **Unlock** symbol. Be sure a bur is in the collet to avoid damaging the collet. **Next**, Use the rounded triangle hole in the Collet Wrench to un-thread the collet (counterclockwise).



4. Once the collet is loosened, unthread it completely by hand.



5. To install the collet, first, remove the **Nosecone Wrench**. Make sure one of the dots on the metal ring clicks as it lines up with the **Unlock** symbol, and install a bur in the collet. Screw the collet in by hand (keeping the bur in the collet) until it is finger tight. Tighten with the rounded triangle hole in the Collet Wrench to fully seat the collet while holding the handpiece with your other hand.

When the collet is fully seated, **Twist the Front of the Handpiece** by turning counterclockwise until it clicks so that the other dot on metal ring lines up with the **Lock** Symbol.



The accessory and collet will be able to spin freely.



Maintenance

The H.MH-160 has permanently lubricated ball bearings that do not require lubrication. Putting even a small amount of oil into the handpiece can damage it.

Cleaning the Handpiece

Use the Handpiece in as clean and dust free an environment as possible.

If the Micromotor Handpiece is used for wood-carving, it should be cleaned after every use.

A cloth with a small amount of alcohol solution can be used to clean the outside of the handpiece if necessary.

Do not use any other cleaning fluids or immerse handpiece in any liquid.

The H.MH-160 Handpiece is not autoclaveable.

Cleaning the Bore in the Spindle

If you are working in dusty conditions or generating a lot of dust particles you may need to remove the collet for cleaning. With front of Handpiece in 'Unlock' use a Q-tip to clean out the bore in the spindle.

The metal nose cone needs to be tight to hold the front housing in place, to insure that the full stroke of the collet operating mechanism works properly.



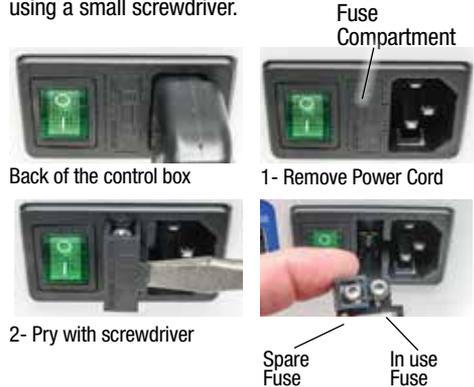
Replacement Parts and Supplies

Part No.	Description
HP6-994	Nosecone Wrench
HP6-993	Collet Wrench
HP6-933	Handpiece Cradle
HP6-610	Handpiece Holder
HP6-101	Fuse GDB 5 Amp, 250V, 5mm x 20mm
HP6-117B	Collet for 1/8" diameter accessories
HP6-117	Collet for 3/32" (2.35 mm) diameter accessories
HP6-117C	<i>Optional</i> Collet for 3 mm diameter accessories
CP10831	Detachable Cordset, 6' North America
CP10834	Detachable Cordset, 6' United Kingdom
CP10835	Detachable Cordset, 6' Continental Europe
CP10836	Detachable Cordset, 6' Australia
CP10838	Detachable Cordset, 6' Israel

Fuse Protection

1. To change a fuse Unplug the power cord from the AC receptacle in the back of the control box to expose the Fuse Compartment.

2. Use the blade of a small screwdriver in the slot of the fuse holder and gently pry outward. The active fuse is in the back of the holder and a spare fuse is in the front compartment. If the glass case of the active fuse is darkened, the fuse is blown. From the underside of the drawer, push out the blown fuse using a small screwdriver.



Be sure the micromotor is not being overloaded, the line voltage is not low, and then replace the blown fuse with the spare fuse. It is a good idea to always keep a spare fuse in the front compartment to avoid lost time if there is a future blown fuse. To avoid overloading the micromotor always use the same type and ampere rating as the original: GDB 5 Amp, 250V, 5mm x 20mm.

If, after replacement, the fuse blows again, the micromotor has a fault. The unit should be analyzed by a qualified technician, or returned to the factory for service. See Repair Services.

Optional Collet Adapters

Great way to use smaller diameter shank accessories without changing the collet. Available from your favorite Foredom dealer or: www.foredom.net



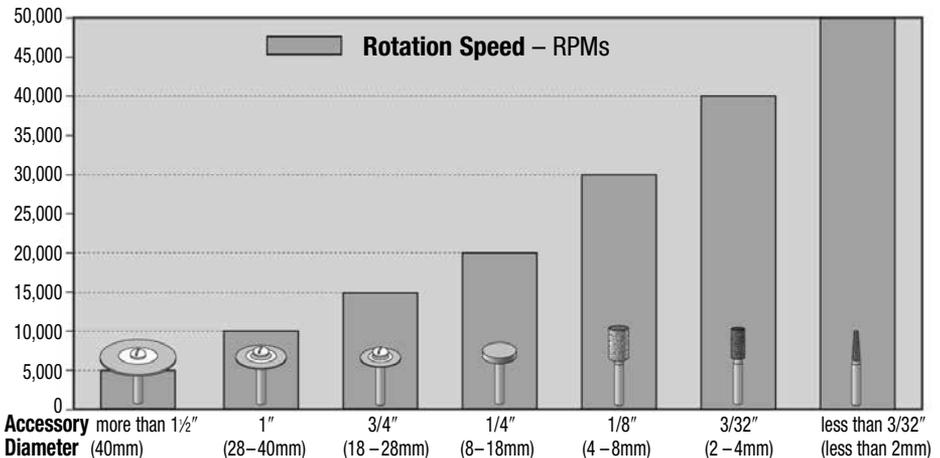
Collet Size	Accessory Shank Size	Part No.
3/32" (2.35 mm) to 1/16"	1/16"	HPL4-3233
1/8" to 1/16"	1/16"	HPL4-3234
3.0 mm to 3/32" (2.35 mm)	3/32" (2.35 mm)	HPL4-3235
1/8" to 3/32" (2.35 mm)	3/32" (2.35 mm)	HPL4-3236
3.0 mm to 1.6 mm	1.6 mm	HPL4-3237

Error codes

Error

Error Code	Status	Cause
E1, E5	Circuit Protection	<ul style="list-style-type: none"> - Circuit of control is malfunctioning. - Handpiece or foot control cords are unplugged, defective or broken.
E2	Overload Protection	<ul style="list-style-type: none"> - Handpiece has been operated under an overload condition.
E3	Handpiece Protection	<ul style="list-style-type: none"> - Control unit received a lower voltage than specified.
E4	Stall Protection	<ul style="list-style-type: none"> - Collet chuck is open. - Handpiece is mechanically stalled.
	Voltage Protection	<ul style="list-style-type: none"> - Voltage Selector switch is set for the wrong voltage.
E6	Overheating Protection	<ul style="list-style-type: none"> - Handpiece has been operated under a high load condition for too long. - Control unit has been exposed to an excessively warm environment (more than 100°F).

Recommended Approximate Bur Speeds



Repair Services

Authorized repair service is available at the Foredom factory in Bethel, CT. Send items for repair to the factory marked:

“Attn: Repair Department”

Foredom Electric Co.

16 Stony Hill Road

Bethel, CT 06801

Enclose the item(s), a packing list, your address, phone number, email address and a description of

the problem or repairs required. Estimates of repair cost will be made upon request. If the cost (labor plus parts) is more than fifty percent of the price for a new replacement we will contact you and recommend a trade-in offer.

Please retain your proof of purchase for warranty repairs.

Limited Warranty

Foredom warrants its product to be free of defects in material or workmanship for a period of two years after purchase. Blackstone Industries, LLC d/b/a The Foredom Electric Company warrants, to the original purchaser only, that its products will be free from defects in material or workmanship for the applicable period of time indicated above following the purchase date. During the warranty period, the defective product will be repaired or replaced without charge or, at our sole option, the purchase price will be refunded. This warranty does not cover damage caused in transit or by accident, misuse or ordinary wear.

ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, ARE LIMITED IN DURATION TO THE APPLICABLE WARRANTY PERIOD. IN NO EVENT WILL WE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you. At our sole option, repair, replacement or refund will be made if the product is returned postage prepaid to:

Foredom Electric Company

16 Stony Hill Road, Bethel, CT 06801

All warranty repairs must be done at the factory at the address above. We will not pay any shipping or transportation charges. This warranty only covers the original purchaser of the product. Proof of purchase may be requested. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Contact Information

For more information on Foredom machines, handpieces or accessories, contact your local dealer. When no local dealer is available, write, call, fax, or email:

Foredom Electric Company

16 Stony Hill Rd, Bethel, CT 06801

Tel: 203-792-8622 Fax: 203-796-7861

Email customerservice@blackstoneind.com

Visit our website: www.foredom.net