

# FOREDOM®

## Operation and Maintenance Manual for K.1030 or K.103018 Portable Micromotor Kit



### For Your Safety:



Read this Manual before operating your Foredom Micromotor Power Tool.



Always wear eye protection while using the Foredom Micromotor Handpiece.

### 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 Road, Bethel, CT 06801

Tel: 203-792-8622 Fax: 203-796-7861 Email [customerservice@blackstoneind.com](mailto:customerservice@blackstoneind.com)

Visit our website: [www.foredom.net](http://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 30,000 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" (25mm) 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.
- DO NOT cover the ventilation slots or handpiece motor with cloth or tape. Air must pass freely through the intake and exhaust ventilation slots to properly cool the motor. If the power cord or plug to the handpiece is damaged, repair or replace immediately.
- NEVER use a damaged power cord or adapter. ONLY use the power adapter that came with the K.1030 Kit.
- 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 the collet is in open (unlocked) position. This can damage the handpiece.
- ALWAYS operate and store it with a bur or other accessory in the collet and with the collet in the closed position.
- NEVER plug the Handpiece into the On/Off Foot Control Connection Port on the side of the Control Unit. ONLY plug the Handpiece into the Handpiece Connection Port on the Top of the Control Unit.
- DO NOT operate the handpiece in the presence of any flammable liquid or gas.
- NEVER drop the Control Unit or Micromotor Handpiece.
- NEVER plug or unplug the power cord with wet hands.
- NEVER allow water or liquids to spill onto any parts of the K.1030 Micromotor Kit.
- DO NOT operate or store the unit in a high heat environment such as direct sun, a parked car in hot weather, near a flame or stove. Minimum and maximum working environment temperatures are 32°F – 104°F (0°C – 40°C).
- The K.1030 Micromotor has a Lithium Ion battery that should NEVER be thrown in the trash. Recycle Lithium Ion batteries in accordance with local laws. [www.call2recycle.org](http://www.call2recycle.org) is a good source of recycling locations in the US and Canada. NEVER throw the battery into a fire as it could explode. Should the electrolytic chemicals spill and get in your eyes wash immediately with water. Remove and wash any clothing or article that has spilled battery chemicals with water.



## Assembly

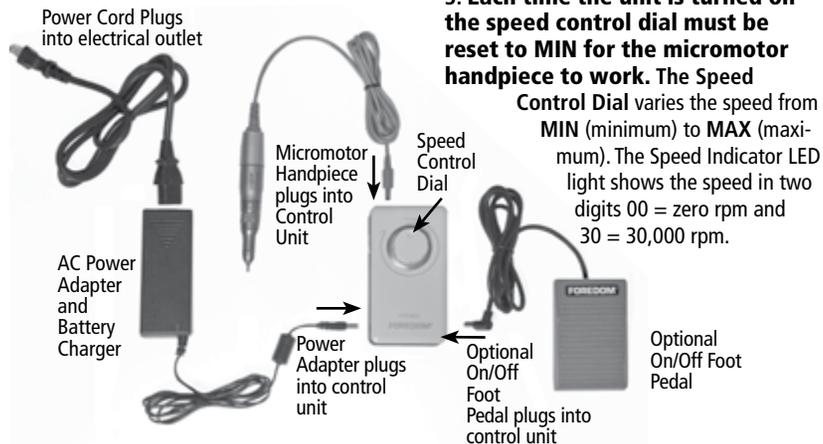
Before attaching the handpiece or adapter with power cord to the control box turn the Speed Selection Knob down to **MIN**. Make sure that the power is off by confirming that the Speed Indicator LED Light is off by pushing in the On/Off button located on the upper left side of the control box for at least 2 seconds.

## Attaching the Micromotor Handpiece

Be sure that the handpiece collet is secure with an accessory in it. Attach the micromotor handpiece by plugging in the handpiece cord into the **Motor** connection port on the top of the Control Box.

## Connecting AC Power Adapter

First, make sure the power to the handpiece is turned off by pushing in the On/Off button on the upper left side of the control unit for at least 2 seconds. Then, plug the adapter plug into the **DC IN** port located on the lower left side of the control box. Next, plug the power cord receptacle into the 3-prong power cord port in the adapter. Finally, plug the power cord into an electrical outlet to charge the battery or to use the micromotor without battery drain.



## Operating Instructions for the HP4-310 Control Unit

**1. Charging the Battery:** Once the power cord and adapter are connecting the control unit to the electrical outlet, the Battery Charge LED light will blink on and off. When the battery is fully charged the light will stay on. The first time the battery is charged it will take about 3 hours. After that, it will take about 2 hours to fully charge a low battery. When fully charged the micromotor will run for 3 to 5 hours depending on the workload. Charging should be done in a cool dry place 32°F – 104°F (0°C – 40°C). The motor will shut down on its own when the battery charge is too low.

**2. The Power On/Off Button** located on the upper left side of the control box must be pushed in at least 2 seconds to either turn on or off the micromotor. When it is on the red LED two digit speed indicator light will light up as well as the battery indicator/charge light. **00 rpm is not the same as OFF. Use the Power On/Off Button to turn the unit off.**

**The unit will power off automatically after 3 minutes if it is not in use.**

**3. Each time the unit is turned on the speed control dial must be reset to MIN for the micromotor handpiece to work. The Speed Control Dial** varies the speed from **MIN** (minimum) to **MAX** (maximum). The Speed Indicator LED light shows the speed in two digits 00 = zero rpm and 30 = 30,000 rpm.

**4. The Forward/Reverse Button** located on the upper right side of the control box is for operating the micromotor handpiece in reverse rotation. **Rotation direction always resets to Forward when power is stopped and restarted.** The Fwd/Rev LED on top of the control unit will light up when reverse rotation is selected. The light goes off when Forward rotation is engaged. Forward is the most commonly used setting. Right-handed people will get the most control in forward rotation. Forward motor rotation means that the motor is turning an accessory (bur, bit, drill, cutter, etc.) counterclockwise when holding the handpiece upright in your hand and you are looking down on to the front of the accessory. When the handpiece/ accessory is applied to the workpiece, your viewpoint changes to the back end of the handpiece and accessory and the forward rotation direction can be described as clockwise.

**5. The Optional On/Off Foot Pedal** will not vary the speed and only turns the micromotor on or off. It plugs into the port marked FOOT on the lower right side of the control box. To select the on/off foot pedal you must press the foot control button located just below the Forward/Reverse Button on the right side of the control box. With the on/off foot pedal you can select and keep a specific speed setting and return to it without turning the speed control dial. This is useful when accessories require an optimal speed or a lower maximum speed (<30,000rpm) than the full speed range of the micromotor.

**6. To Change an Accessory** or bur, first open the collet. To open the collet, first turn off the unit by holding down the on/off button for at least 2 seconds— until the indicator light is off. **The collet snaps open when the knurled locking ring on the handpiece is turned clockwise toward the R (Remove or Release).** You can now remove an accessory or bur and insert another. Insert the new bur shank fully into the collet for maximum support. Do not use accessories with



shanks less than 1" (25mm) long. To tighten the new bur twist the knurled locking ring counterclockwise toward the **S (Secure)** until it stops and locks the collet closed.

**Never turn the power on to the handpiece when the collet is open or in the R (Release) position.**

If the power is on when the collet is open, it will damage the motor because the spindle is locked and it will not turn. **Always keep a bur in the collet when it is not in use.**

## Maintenance

The handpiece has permanently lubricated ball bearings, which require no lubrication. Putting even a small amount of oil or grease in the handpiece will damage it and void the warranty.

Replacement & Optional Parts	Part No.
2.35mm (3/32") Collet	HP4-117
3.18mm (1/8") Collet	HP4-117B
3mm Collet	HP4-117C
Lithium Ion Battery	HP8-B1800
Motor Brushes (2)	HP8-163
Set of 2 Wrenches	HP4-993
Charger/ Adapter	HP8-306
Optional Parts	
On/Off Foot Pedal (shown at left)	HP4-927
Carrying Case (shown on front)	AP1130
Tool Belt with Pouch (shown on front)	A-KC300

**Collet Adapters** are used to 'step down' a collet size without actually having to change the collet. It is a faster and easier way to use smaller diameter shank accessories without the effort of changing a collet.

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

## Maintenance continued

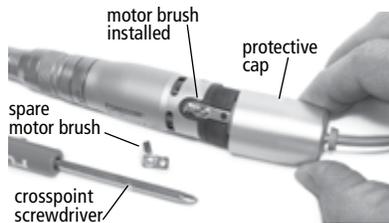
### Micromotor Supplies

K.1030 Micromotor Kit comes with a chuck wrench and chuck joint wrench for changing collets (Wrench Set p/n HP4-993), and spare pair of motor brushes (p/n HP8-163) as shown at right.

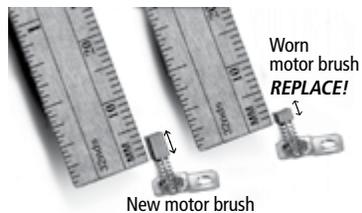
### Checking and Changing Carbon Brushes

A spare set of carbon brushes is supplied with each handpiece. They come packed in the handpiece box. Depending on how long the handpiece is used each day, the brushes should be checked for wear about every 200 hours of use and replaced when the brush is less than 1mm (1/16") long.

1. With handpiece power cord disconnected from control box, unscrew protective cap from rear of motor by turning counterclockwise while gripping the handpiece body. (It has a standard right hand thread.)

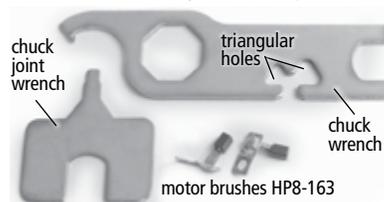


2. With small crosspoint screwdriver remove screws and brush assemblies one at a time. Check length of carbon brush from spring to end of brush.



Brushes should be replaced if they are less than 1mm long. **Replace both motor brushes with new ones even if only one of them looks worn.**

Set of 2 wrenches HP4-993 and spare motor brushes come packed in handpiece box.



### Installing/Changing Collets

**Important Note: Always keep a test bur or accessory in both collets when changing collets.**

1. The Handpiece has either a 2.35mm (3/32") or 1/8" collet installed. 2.35mm (3/32"), 1/8" and 3mm collets are available separately. They can be installed with the collet changing wrenches, described below.

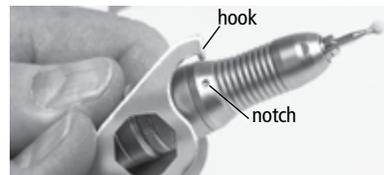
**Caution: Finger tightening is not enough.**

A wrench **MUST** be used to tighten the collet fully several turns beyond the point of initial resistance. If collet is too loose or absent, the spindle will not turn and it will damage the motor.

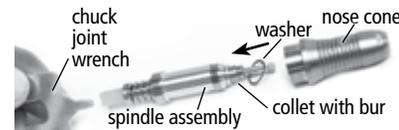


**A bur or test bur MUST be in the collet when changing collets!**

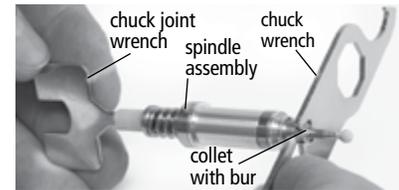
2. With a test bur in the collet, turn the Locking Ring toward the secure "S" (closed) position. **Do NOT remove the locking ring or spring!**



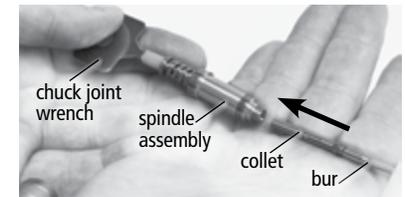
3. Place the Chuck Wrench hook into the notch on the H.MH-130 handpiece nose cone and unscrew it counterclockwise (see photo above). **Do NOT remove the locking ring or spring.**



4. Carefully remove the spindle assembly from the nose cone. **Be sure to place the thin washer back on the collet end of the spindle assembly before reassembling the handpiece. Don't misplace it!**



5. Insert the chuck joint wrench into the cross section of the back end of the spindle assembly. Insert the collet head into the collet size triangle hole on the chuck wrench and turn the chuck wrench counterclockwise to loosen the collet while holding the chuck joint wrench with your other hand.



6. Remove collet and insert new size collet, with a test bur inserted. Use the triangular hole in chuck wrench to re-tighten collet by turning clockwise. **Be sure to securely tighten collet!** Rotate the collet to align the cross-shaped end of the spindle assembly with the cross-shaped motor drive inside the handpiece. Carefully review steps 4, 3, 2, and 1 to reassemble the handpiece with the changed collet. **Re-attach and tighten nose cone.**

**Please retain your proof of purchase for warranty repairs.**

### Limited Warranty

Freedom warrants all parts of this product (except the Lithium Ion Battery p/n HP8-B1800 which has a one year warranty) to be free of defects in material or workmanship for a period of two years after purchase. Blackstone Industries, LLC d/b/a The Freedom 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:

**Freedom 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.

### Repair Services

Authorized repair service is available at the Freedom factory in Bethel, CT. Send items for repair to the factory marked "Attention: Repair Department". Enclose the item(s), a packing list and description of the problem or repairs required plus your daytime phone number and email address. Estimates of

repair cost will be made upon request. It is our policy not to proceed with a repair without your approval if the cost (labor plus parts) is more than fifty percent of the cost for a new replacement. You will be notified and advised of the cost to repair and to purchase a new replacement.