

# FOREDOM®

## Operation and Maintenance Manual for K.1070 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 Rd, 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)

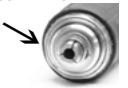


## Safety Instructions

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 38,000 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.
- **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** 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 footwear 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 be come 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 chuck 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.**
- **NEVER** plug the Handpiece into the Variable Speed Foot Control Connection Port on the back of the Control Box.
- **ALWAYS** plug the Handpiece into the Handpiece Connection Port on the Front of the Control Box.
- **DO NOT** operate the handpiece in the presence of any flammable liquid or gas.



## Repair Services

Authorized repair service is available at the Foredom 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.

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

## Limited Warranty

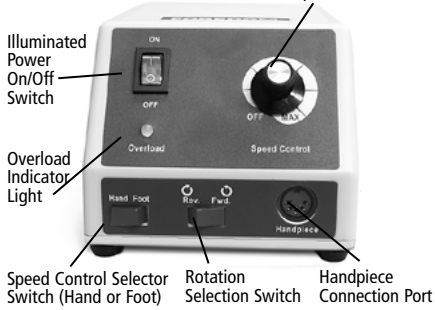
Foredom warrants its product to be free of defects in material or workmanship for a period of two years after purchase. Blackstone Industries, LLC d/b/a The Foredom Electric Company warrants, to the original purchaser only, that its products will be free from defects in material or workmanship for the 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.

**Figure 1 Front Panel**



**Assembly Instructions**

**Do not plug into a power outlet before connecting the handpiece or foot pedal. 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.**

**Connecting Handpiece**

Attach the micromotor handpiece to the control box by plugging the coiled cord into the Handpiece Connection Port on the lower right side of the front control panel (Figure 1). Use keyway for proper alignment when plugging in the cord.

**NEVER plug the handpiece into the Variable Speed Foot Control Connection Port.**

**Connecting the Variable Speed Foot Control**

The Variable Speed Foot Control is suitable for either 110 or 220 volt operation.

Attach it by inserting the connector into the Variable Speed Foot Control connection port on the rear panel of the control (Figure 2) using keyway for proper alignment.



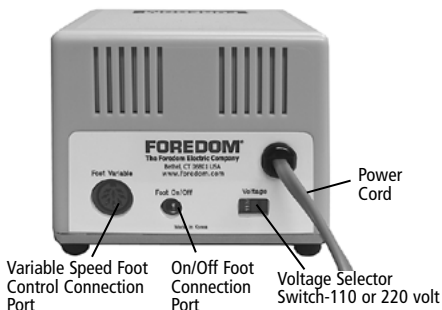
It is not necessary to have the foot pedal connected to the control box to operate the dial speed control. The Micromotor control and handpiece are now ready to operate.

**Connecting Power Cord**

Before connecting the power cord plug (Figure 2) to a power outlet, select the proper voltage (110 or 220v) on the back of the control box. Put the On/Off Power Switch in the OFF position and turn the dial speed control to the OFF speed position.

**Be sure that the handpiece chuck is closed with an accessory in it. Operating the handpiece with the chuck in the open position can cause severe damage to the motor.** Now plug in the power cord to an AC current outlet. See Figure 1 to select the Hand/Foot and Forward/Reverse switches.

**Figure 2 Rear Panel**



**Connecting Optional On/Off Foot Switch**

This switch (p/n HP4-927) is available separately and attaches by inserting the connector into the On/Off foot connection port on the rear panel of the control (Fig. 2). This switch allows you to turn the motor on and off without changing the speed set by the dial.



**Operating Instructions for HP4-917 Control Box** (above)

**1. Power On/Off Switch:** When the Power On/Off Switch is in the ON position the switch lever will light up. **This switch must be in the ON position for the handpiece to run with either the dial speed control or the foot speed control selected.**

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

**2. Hand or Foot Selector Switch:** With the Dial and Power On/Off Switch in the OFF position, select either foot or hand speed control.

- With the Speed Control Selector Switch in the Hand position, the handpiece will run at the speed set by the Dial Speed Control.
- With the Speed Control Selector Switch in the Foot position, the handpiece will not operate until the Foot Pedal is depressed.

**3. Forward/Reverse Rotation Selection Switch:** With the Power On/Off Switch in OFF position, select the desired handpiece rotation by moving the switch to Fwd. for FORWARD or Rev. for REVERSE rotation.

**DO NOT change handpiece rotation direction while in operation.**

**4. Regulating Speed:**

- The Dial Speed Control varies the speed of the handpiece from minimum to maximum when the Speed Control Selector Switch is in the Hand position.
- The Dial also controls the maximum speed that can be reached when using a foot pedal.

**To achieve maximum speed with a foot pedal, the dial speed control must be turned all the way to the Max setting.**

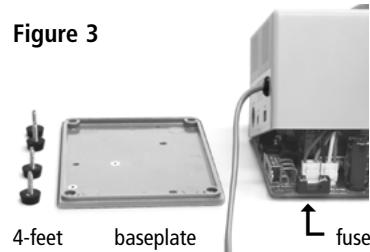
continued

**Operating Instructions for HP4-917 Control Box** continued

**5. Handpiece Overload Protection:** If the Handpiece is used with a locking ring left in the "R" (release) position (see Fig.4), or in an overload condition caused by excessive workload, it will trigger the overload circuit protector. The red overload light will come on with an audible alarm, and the handpiece will stop. Immediately turn off control by putting the Power ON/OFF switch in OFF position. Put power switch in ON position again when overload condition is corrected. There may be a time delay of several seconds before the overload trip resets.

**6. Fuse Protection:** The internal circuit is protected by a 3.15 Amp, 5mm x 20mm, Bussman Type GDC-3.15A or equivalent fuse. A blown fuse usually indicates a short circuit condition on the circuit board. The blown fuse should require that the board be checked by a qualified technician. Disconnect the power cord, unscrew the four feet and remove the baseplate. The fuse is located in the top left corner of the circuit board. Replace fuse and reassemble the baseplate with four feet. Re-connect the power cord and test unit operation.

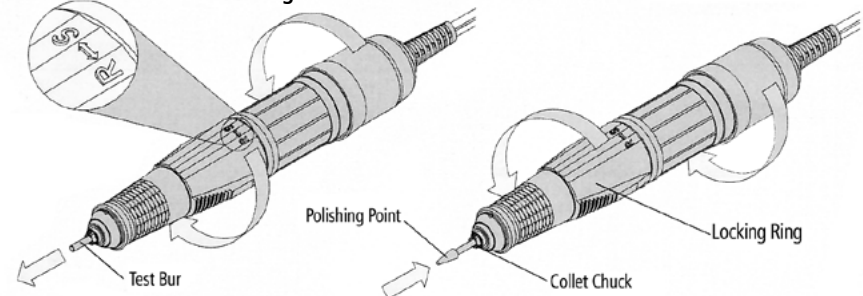
**Figure 3**



**H.MH-170 Micromotor Handpiece**

**This Handpiece is intended only for fine finishing and detailing work. It should not be used to remove large amounts of material in carving or other applications. If the handpiece is misused or abused, it will not be covered under warranty.**

**Figure 4 "R" Releases or Opens the collet. "S" Secures or Tightens the collet**



**Changing Accessories**

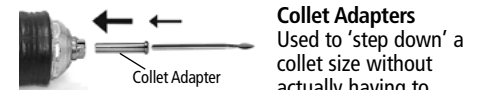
Burs and other accessories can be inserted or removed from the handpiece collet when the collet is open. To open the collet—

1. Put the power switch on control box in OFF position and wait for handpiece to stop rotating.
  2. Twist locking ring toward "R" (Remove or Release position—See Figure 4 below) by turning clockwise until collet snaps open.
  3. Insert shank of accessory fully into collet for maximum support. **Do not use accessories with shanks less than 1" long.**
  4. Twist knurled grip toward "S" (Secure position — See Figure 4) by turning counterclockwise until it snaps to lock collet.
- Never turn power on to handpiece when collet is open or in the "R" position.** The spindle is in a locked position and will not turn which will result in damage to the motor.

**Collets Available for the H.MH-170 Handpiece**

Collet Size	Part No.
2.35mm (3/32") Collet (installed in K.1070)	HP4-117
3.18mm (1/8") Collet (installed in K.10718)	HP4-117B
3mm Collet (optional)	HP4-117C

Instructions for changing collets on following page.



Used to 'step down' a collet size without actually having to change the collet. Great way to use smaller diameter shank accessories without work involved in changing out collets.

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

## Maintenance

The H.MH-170 has permanently lubricated ball bearings that do not require lubrication. Putting even a small amount of oil into the handpiece can damage it.

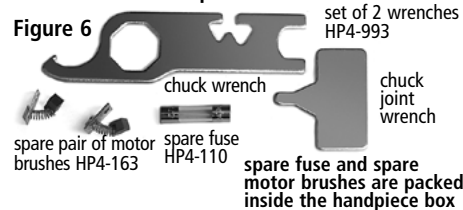
## Cleaning Handpiece

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

If the Micromotor Handpiece is used for woodcarving, it should be cleaned after every use. With handpiece power cord disconnected from control box, unscrew the protective cap (see Figure 5) and use a clean cloth to wipe dirt, chips or dust off from the exhaust ports and inside the cap. 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-170 Handpiece is not autoclavable.



## Micromotor Supplies

K.1070 Micromotor Kit comes with a chuck wrench and chuck joint wrench for changing collets (Wrench Set p/n HP4-993), a spare fuse (p/n HP4-110), and spare pair of motor brushes (p/n HP4-163) as shown above.

## Checking and Changing Carbon Brushes

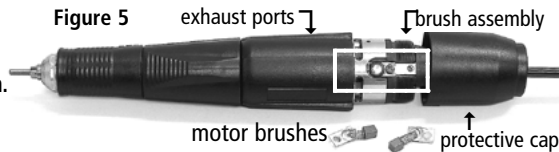
A spare set of carbon brushes is supplied with each handpiece. Depending on how long the handpiece is used each day, the brushes should be checked for wear about every 200 hours of use and replaced when the brush is less than 2mm (5/64") long.

1. With handpiece power cord disconnected from control box, unscrew protective cap from rear of motor (see Figure 5) by turning in counterclockwise direction 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 curved side of brush.

Brushes should be removed and replaced (if less than 2mm in length) one at a time. Replace both brushes with new ones even if only one of them looks worn.

Pay careful attention to the orientation of the brush curve in relation to the curve of the motor armature. This same orientation must be maintained when replacing brushes.



## Installing/Changing Collets

The Handpiece comes with a 2.35mm (3/32") collet installed. Optional 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, spindle will not turn and damage will occur.**

1. With a test bur in the collet, turn the Locking Ring toward the secure "S" (closed) position (see Figure 4 on reverse.)

2. Place the octagonal hole of wrench over the brass nose cone and unscrew the nose cone assembly from the handpiece body (shown in Figure 7.) Do not remove locking ring or spring.

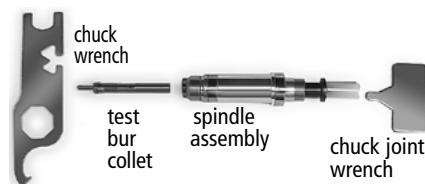
3. Carefully remove the spindle assembly from the nose cone, see Figure 8.

Figure 8



4. Insert the chuck joint wrench into the cross section of the back end of the spindle assembly. Insert the collet head into the appropriate 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, see Figure 9.

5. Remove collet and insert new size collet, with test bur. Use the triangular hole in chuck wrench to re-tighten collet by turning clockwise. Make sure to securely tighten collet or the spindle will not turn. Rotate the collet to align the cross-shaped end of the spindle assembly with the cross-shaped motor drive inside the handpiece. Re-attach and tighten nose cone.

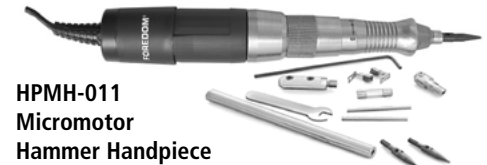


## Handpiece Holder MAHH-70 for the H.MH-170 Handpiece



Allows you to bring the work to the Handpiece!

## One Control Unit ... Choice of 3 Micromotor Handpieces Available separately



HPMH-011 Micromotor Hammer Handpiece

- For stone setting applications, channel setting and engraving requiring hammering or reciprocating action.
- Hammer action engages ONLY when light pressure is applied allowing the user to locate the tool tip exactly without marring the workpiece, and preventing unexpected action until ready to work.
- Force of impact adjusts from light to full by turning the knurled metal ring while the motor is off or running.
- Speed of the hammer action can be varied from 0–2,500 strokes per minute using the control box dial.
- Comes with spare Motor Brushes HPL4-504, Graver-Holder HPH8-214, and other hammer tip accessories.



H.MH-120 Chuck Style Micromotor Handpiece

- Geared 3-jaw #0 chuck takes any size rotary accessory or drill bit with shanks up to 5/32" (4mm) diameter.
- Plenty of power/torque to accomplish most jobs that a flex shaft can do.
- Use for deburring cast pieces, polishing, taking down weld seams, moderate to heavy grinding and rapid stock removal in metal and wood.
- Comes with Chuck Key HPCCK-0, spare Motor Brushes.

Ask your favorite FOREDOM® dealer about our great selection of Micromotor Kits for every application – or go to:

[www.foredom.net](http://www.foredom.net)

All Micromotor Handpieces are also sold separately

See videos of Product Features at:  
[www.foredom.net](http://www.foredom.net)

# Information on the H.MH-110 Hammer Handpiece

## Micromotor Kit K.1090 or K.1053

The hammer handpiece works with either the HP4-917 Control Box for the H.MH-170 Rotary Micromotor Handpiece or the HP4-817 Dual Port control Box for the H.MH-150 Brushless Micromotor Handpiece.

For complete operating instructions, please read the Owners Manual that comes with the control box.

### Connecting the Handpiece:

With the Power Switch in the "Off" position and the Rotation Selection Switch in the "Forward" position, attach the micro motor handpiece to the control box by plugging the coiled cord into the Handpiece Connection Port on the lower front control panel. Use keyway for proper alignment when plugging in the cord. NEVER plug the handpiece into the Variable Speed Foot Control Connection Port on Back of Control Box.

**Always use the H.MH-110 handpiece in the forward direction. Never use in reverse.**

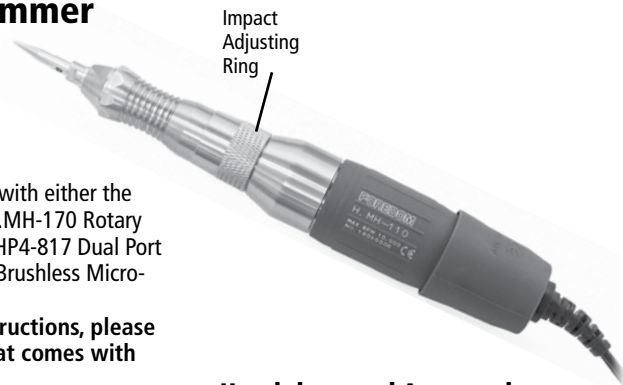
**Connecting Power Cord:** Put the On/Off Selector Switch in the "OFF" position and turn the dial speed control to the "OFF" speed position. Put the Rotation Selection Switch in the Forward Position. Operating the handpiece with the switch in the reverse position can severely damage the handpiece. Now plug in the power cord to an AC current outlet.

### Attaching Handpiece Accessories:

This Hammer Handpiece comes with the following accessories and adapters:

- Anvil Point (installed) and wider pin
- Two HP10177 Anvil Points with Threaded Shanks
- HPH8-214 Graver Holder & Hex Key
- Open End Wrench (5mm)
- HP10562 Narrow Pin, to tighten Anvil Points

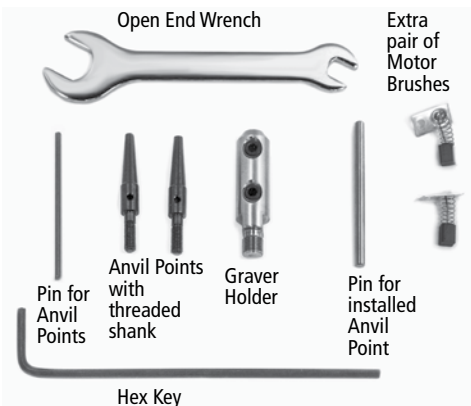
6/18 Revision



### Handpiece and Accessories:

Three anvil points are supplied so that the tips can be shaped or modified for different setting operations. To use the anvil points, thread in the anvil point adapter and tighten with wrench. Thread an anvil point in to it and tighten it with a pin in its cross hole. The HPH8-214 Graver Holder screws into the front end of the handpiece and converts it into a power engraving tool. It comes with a 5/64" hex key.

**Impact Adjustment:** The force of impact can be increased or decreased by turning the metal ring while the handpiece is either off or running. Test the impact on a piece of metal or material similar to the work piece until the correct combination of speed and impact is obtained.



## Maintenance

**The H.MH-110 has permanently lubricated ball bearings that do not require lubrication.**

**Putting even a small amount of oil into the handpiece can damage it.**

**Cleaning Handpiece:** Use the handpiece in as clean and dust free an environment as possible. A cloth with a small amount of alcohol solution can be used to clean outside of handpiece if necessary.

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

### Checking/Changing Motor Brushes:

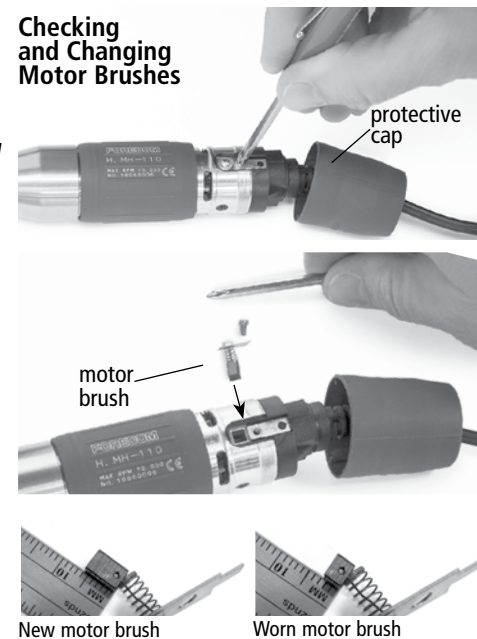
A spare set of motor brushes (HP4-163) is supplied with each handpiece. Depending on how long the handpiece is used each day, the brushes should be checked for wear periodically (about every 200 hours of use) and replaced when the brush is less than 2mm (5/64") long.

#### To Check/Replace Motor Brushes:

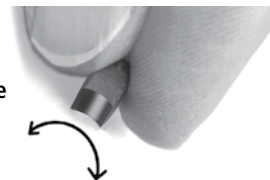
1. Unscrew protective cap from rear of motor by turning it counterclockwise while gripping handpiece body.
2. With small Phillips head screwdriver remove screws and brush assemblies one at a time. Check length of carbon brush from spring to curved side of brush.

**Remove and examine each motor brush. If one motor brush shows wear — replace both of them. If the motor brush is long enough to continue using be sure that** when you reinsert a motor brush the curve aligns with the contour of the outside of the housing and the curve of the motor armature within.

### Checking and Changing Motor Brushes



**When you reinsert a motor brush the curve should align with the handpiece contour**



3. Re-insert brush assembly or new brush assembly into brush tube. Replace and tighten screws.
4. Screw protective cap back onto rear of motor housing so that top of brush assembly is completely covered.

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Foredom Electric Company  
16 Stony Hill Road  
Bethel, CT 06801 USA  
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### AK101 6-pc Anvil Point Kit

These 6 threaded anvil points fit the H.MH-110 Hammer Handpiece and the individual points are also available. Ask your Foredom dealer about this kit or visit our website to find out more.

