



# Mobile Micro Motor

## INSTRUCTION MANUAL

※ Please be sure to read this instruction manual before operation.

### 1. Precaution

- Install the unit at the working place and do not use it in a dirty or very hot and humid place. (-20°C - 40°C, 0-90% RH)
- Please take care not to drop a handpiece. It will get damaged to ball bearing or durability of motor.
- Please do not allow water or other liquids to spill onto and into all units.
- After replacing a bur, please make sure to close a chuck handle.
- Also, do not open the chuck handle, while the handpiece is in operation.
- While the handpiece is not in operation, it is recommended to keep the bur into a collet chuck after cleaning up.
- Please plug a power cord after checking the unit power off.
- mobile2 is only for used by specialists got the training of electric micro-motor.

**⚠ Warning about use batteries**

- The battery is LI-ION rechargeable battery and consumable goods.
- Battery lifetime is limited and depends on working conditions.
- In case of short working time or below maximum speed, it will be time to replace batteries.
- Please dispose used batteries in accordance with the national and local laws.

### 2. Part introduction

[Fig.1] Control Unit

- ① Power ON/OFF Button
- ② Adaptor Connector
- ③ Forward / Reverse Button
- ④ Hand / Foot Select Button
- ⑤ Foot switch connector
- ⑥ Speed Control Knob
- ⑦ Battery Cover :Li-Ion(14.8V-1800mAh)
- ⑧ RPM display 2 Digit 7 Segment
- ⑨ Over Load Warning LED
- ⑩ Charge LED (When Charging Green LED blink, When being completed, Green LED ON stay)
- ⑪ Forward / Reverse display LED (LED On : Reverse)
- ⑫ Hand / Foot display LED (LED On : Foot Mode)
- ⑬ Battery Level display LED
- ⑭ Handpiece connector

[Fig.2] MPH33

- ① Micromotor
- ② Chuck Handle
- ③ Bit

[Fig.3] Accessories

- ① Handpiece Stand
- ② Foot Pedal
- ③ Power Cord
- ④ adaptor

### 3. Features

- Max speed : 30,000 RPM
- Run-time : Max 2 hrs.

Handpiece	Max speed	Run-time
MPH33	30,000 RPM	2 hrs.

- Charging time : 3 hrs.
- RPM digital display
- Rechargeable battery level display (3 steps)
- Two ways of speed control : Speed control knob & Digital speed control button
- Automatic power saving function
- Forward / Reverse rotation
- On / Off foot switch
- Use with the standard bit (bur)

### 4. Installation & Operation

#### 4-1. Battery recharging (Charging time : 3 hrs.)

- 1) Connect the DC plug of adaptor to the adaptor connector of control box.
- 2) While battery is charging, LED blinks. When it is fully charged, LED light remains on.
- 3) Rechargeable battery level display (3 steps)

**⚠ To prevent from overheating, please be sure to separate the adaptor from the control box. Also, please avoid operating the unit during charging hours.**

#### 4-2. Operation by Hand

- 1) Connect a handpiece to a control box.
- 2) Turn a power button over for a second.
- 3) In case of hand dial type, please turn a speed control knob toward clockwise from MIN to MAX.
- 4) will be turned on a green light on a digital display and changed the direction by pushing a reverse button.

#### 4-3. Operation by Foot

- 1) Connect a foot switch to a control box.
- 2) Turn a foot mode button . will be turned on a green light on a digital display
- 3) In the foot mode, a handpiece will be operated within the limit of set speed.

### 5. Bur(Bit) insertion and removal

- 1) To remove a bur, please turn a chuck handle clockwise until it clicks to stop, and then pull out the bur.
- 2) To insert the bur, please turn the chuck handle counterclockwise until it clicks to stop.
- 3) Please keep a collect chuck and bur clean before reassembled.
- 4) Please be sure not to use bent, asymmetrical or damaged burs. Always use standard burs.

### 6. Safety protection system

#### 6-1. Automatic power saving function

: If there is no operation, the control box will be power off automatically after 3 minutes.

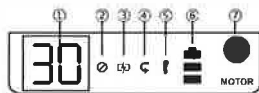
#### 6-2. Overload protection function

: If a control box gets overloaded, and overload warning display turns on an orange light. And the control box will stop after 5 seconds.

#### How to restart

- 1) Hand dial type : Please turn a hand dial to MIN to restart the unit after the overload stop.

#### RPM Digital display



- ① ON/speed display(00-30)
- ② Overload warning display
- ③ Charging display
- ④ Reverse mode display
- ⑤ Foot mode display
- ⑥ Battery level display
- ⑦ Handpiece connector

## 7. Trouble shooting

★ Motor fails to run.		
Trouble Detail	Cause	Remedy
Control unit fully charged, but motor fails to run.	㉑ Loose connection motor plug with jack in control unit.	Correctly plug the Motor cord.
	㉒ Defect in motor cord.	Replace motor cord.
	㉓ Worn Carbon brushes.	Replace Carbon brushes.
	㉔ Trouble in motor.	Check motor and repair if the motor is troubled.
Motor stops suddenly in use. (Safety protection system functioned.)	Overloaded, or Chuck is Opened during operation.	See 6. Safety Protection System. Check the chuck and close the chuck if opened.
Motor fails to run when Foot Pedal is used.	㉕ H/F Selector is at "H".	Set it at "F".
	㉖ Foot Pedal fails to function.	Check and replace Foot Pedal.
	㉗ Defect in Foot Pedal cord.	Check and replace Foot Pedal.
	㉘ Loose connection Foot Pedal plug with jack in control unit.	Check Foot Pedal plug and connection.
Motor stops in 2~3 seconds.	Battery has not been charged.	Charge battery.
Motor runs with insufficient power and stop in a few minutes.	Worn battery.	Replace battery.

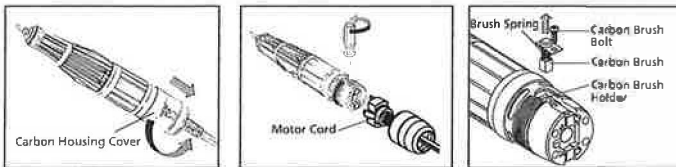
★ In case any malfunction is found, consult with the dealer the unit was purchased from.

## 8. Maintenance

### 8-1. Replacing carbon brushes

- 1) After turning off the power, remove a carbon housing cover a motor cord from the motor.
- 2) Take off carbon brush bolts, by a screwdriver(+) and then remove worn-out carbon brushes.
- 3) Replace to new carbon brushes carefully, a brush spring should get jammed in a carbon brush holder.
- 4) Assemble the handpiece.
- 5) After running the handpiece under no load state around 20,000 rpm for 30 minutes, and then use.

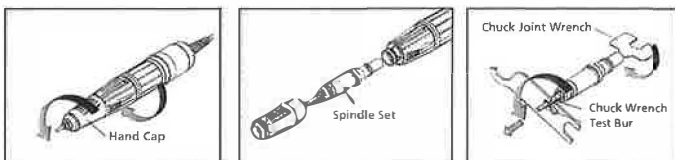
※ Replacement cycle of carbon brushes will depend on working hours and loading conditions.



### 8-2. Replacing collet chuck

- 1) A handcap and a spindle assembly will be disassembled by turning the handcap.
- 2) The collet chuck is disassembled by turning it counterclockwise with a chuck joint wrench and the chuck wrench.
- 3) Replace the old collet chuck with a new one and then assemble a handpiece.
- 4) Run the handpiece under no load state and confirm proper replacement, then use.

※ Replacement cycle of collet chuck will depend on working hours and loading conditions.



## 9. Specification

CONTROL UNIT	Input	Output	Electric power	Weight(g)	Dimension(mm)		
	18Vdc	12Vdc	24W	277	W	D	H
HAND PIECE	Input	Torque	RPM	Weight(g)	Dimension(mm)		
	DC12V	3.5Ncm	0~30,000	148	∅	L	
CHARGER	Input			Output			
	100~240v, 50/60Hz			18Vdc/1.8A			

#### Notice



- Charging should be done in a dry place within a temperature range of 0°C to 40°C (32°C F to 104°C F).
- Dispose the battery in accordance with the national and local laws.
- Do not throw the battery into a fire nor heat it, as it could explode or cause leakage of electrolytic chemicals.
- Wash eyes immediately in clear running water if battery chemicals get into your eyes, and go to the ophthalmologist.
- Immediately change clothing or wash that part of the body in clear water, when battery liquid has come in contact with the clothing you wear or your body.
- Always use the mobile2 AC power adaptor to charge mobile2 battery.
- If something goes wrong while you are using the adaptor, immediately shut off the power by pulling the plug out of the wall outlet.

#### Notice



- Always thoroughly clean the Collet Chuck and bit before reassembled.
- Always completely turn off before attempting to change the micro motor or the bit.
- Make sure to insert the bit shank all the way, until it touches the back of the Collet Chuck, then tighten the Collet Chuck, if the bit is used while not inserted completely, it is very dangerous because it may come out by the vibration of itself, held before running the Handpiece.
- After replace a bit, it is necessary to make sure that the Collet Chuck is securely.
- Do not turn the Chuck release ring of the micro motor while the motor is in operation.
- Never use bent, asymmetrical or damaged bits. Always use standard bits.
- When the Handpiece is not in use, it is recommended a test bits be inserted into the Collet Chuck of the Handpiece.

#### Notice



- While the Handpiece is running, DO NOT try to adjust the Chuck Handle to prevent the Control Unit from being damaged.
- Before operating the Forward/Reverse Selector to turn a rotating direction, it is surely required to make sure that the Micromotor has been stopped.
- Do not leave the Handpiece long in break state. Otherwise, it may be troubled or malfunctioned.