

# VIVA-MATE 3

## OPERATION MANUAL

OM-E0365E 001

Read all safety instructions carefully and understand them before operating this device. Keep this manual in a safe place for future reference.



Ni-Cd

This device is powered by a nickel-cadmium battery, which is recyclable.

### Important Safety Descriptions

- Follow the safety instructions contained in this manual before operating this device.
- Safety instructions are to avoid potential hazards that could result in personal injuries or damage to the device.

Safety instructions are classified as follows in accordance with the seriousness of the risk.

Class	Degree of Risk
<b>Danger</b>	Existence of a hazard that could result in death or serious bodily injury, if the safety instructions are not followed.
<b>Warning</b>	Existence of a hazard that could result in bodily injury or damage of the device, if the safety instructions are not followed.
<b>Caution</b>	Possibility of a hazard that could result in light or medium degree of bodily injury or damage of device, if the safety instructions are not followed.
<b>Notice</b>	General information relating to the safe operation of the device.

#### **Danger**

- Never disassemble or alter the device.
- Notes to Service Center on battery:
  - a) Dispose the battery in accordance with the state and local laws.  
In USA, under various state and local laws, it is illegal to dispose of the battery into your municipal waste stream. Please call 1-800-8-BATTERY for information on how to recycle this battery.
  - b) Do not throw the battery into a fire nor heat it, as it could explode or cause leakage of electrolytic chemicals.
  - c) Never solder directly to the battery or strip the battery cover. Never short-circuit the terminals accidentally or intentionally.
  - d) Wash eyes immediately in clear running water if battery chemicals get into your eyes, and go to the ophthalmologist.

#### **Warning**

- Never allow water or other liquids to spill onto and into the control unit and the micromotor, as such could cause short-circuit, abnormal heating or other troubles by rusting of metal parts.
- Always stop operating the device and report to the dealers you purchased it from when such are found as liquid leak from, deformation, or local discoloration of the control unit.
- 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.

#### **Caution**

- Consider the safety of the patient first, and use the device carefully.
- Use only in the dental treatment by an authorized personnel.
- Do not turn the bur lock ring of the handpiece while the motor is in operation.
- Do not rotate the motor when the bur lock ring is at OPEN position, or a bur is not mounted in the chuck. It may cause the motor/handpiece disconnection or sudden heat generation.
- Always use the VIVA-MATE 3 battery charger. Do not use the VIVA-MATE or VIVA-MATE II battery charger, as these do not charge VIVA-MATE 3 battery.
- Never use a bent, damaged, deformed, non-ISO conforming bur. Such bur, as it could break or spin away during use, could cause hazard to the operator.
- Do not use or leave the device in a high heat environment such as in direct hot sun, in a parked car under hot sun, near fire or stove.
- Always check the device for looseness, vibration, sound, operating temperature (heat rise). Operate the device and check at a distant before using on the patient. Immediately stop operation if abnormality is detected, and call the dealer it was purchased from.
- Do not drop nor impact the device.
- Always clean the bur shank. Debris pushed inside the chuck by such a bur could casuse the bur to run non-concentric or the chuck to weaken bur retention power.
- Always completely stop the motor before attempting to change the handpiece or the bur.
- If you are using corrosive or harsh solutions please clean the control unit etc. immediately after use. Failure to quickly clean the control unit etc. can result in damage to the equipment or color changes of the case.
- Perform maintenance and verify the product regularly.

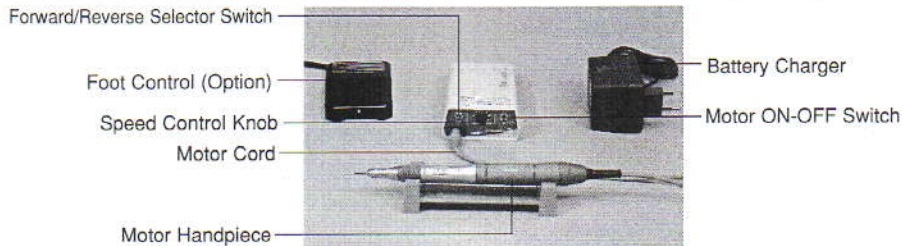
**Notice**

- Always lock a bur or bur blank in place when the device is not in use.
- Responsibility to administer the operation, check and maintenance of the medical devices rests with the user (hospital, clinic, or dental office).

**1. Features**

- ① Compact, pocket size and portable for:
  - House call
  - Use where power supply is difficult to obtain.
  - Emergency use.
- ② Feedback control provides higher power in slow speed ranges.
- ③ Powerful coreless micromotor generates less heat.
- ④ Forward / Reverse rotation.
- ⑤ Various E-type contra angles and straight nosecones adaptable.
- ⑥ Foot control for on-off operation available as an option.
- ⑦ Motor operates with battery charger connected.

**2. Nomenclature**



**3. Operation Procedure**

- (1) Charging (1 hour to full charge)
  - ① Connect the battery charger plug into the jack marked as CHARGER on the rear of the control unit. See Fig. 1.
  - ② Connect the battery charger to a power source.
  - ③ Set the motor on-off switch at OFF to start charge.

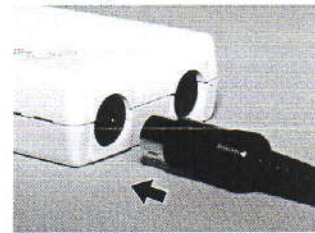


Fig.1

**Notice on Battery Charging**

- Charging should be done in a dry place at 0-40°C (32-104°F) ambient temperature.
- Battery will not be charged with the motor on-off switch at On.

- (2) Mounting and Removing the Handpiece
  - ① Insert the handpiece onto the motor until it clicks to lock.
  - ② Simply pull out the handpiece from the motor.



Fig.2

- (3) Mounting and Removing of Bur

To remove the bur, turn the bur lock ring in the direction of mark [O] until it clicks.

To mount the bur, insert it into the chuck and turn the bur lock ring in the direction of the mark [C] until it clicks and the Os (\*See the picture below) line up.

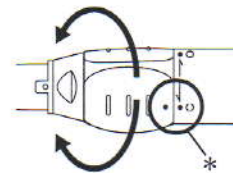


Fig.3

**Caution**

- Make sure if the Os of the bur lock ring line up after fixing the bur. Rotating the bur in an improper position may cause heat generation, which results in burns.

- (4) Operation of Motor

- ① Connect the motor cord to the jack marked as Motor in the front of the control unit.
- ② Turn the motor on-off switch to On to start the motor. Turn it to Off to stop the motor. See Fig. 4.
- ③ Turn the forward / reverse selector switch to Fwd. to run the motor in the forward direction, or to Rev. to run it in the Reverse direction. See Fig. 5.
- ④ Motor speed can be varied between 2,000 and 30,000min<sup>-1</sup>(rpm) by the speed control knob. See Fig. 6.



Fig.4

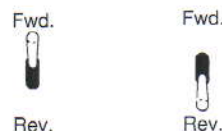


Fig.5



Fig.6

5) Foot Control (Option)

- ① Connect the foot control plug to the jack marked as FOOT in the rear of the control unit.
- ② Set the motor on-off switch at OFF (FOOT).
- ③ Step on the foot control to run the motor. Change of direction of motor rotation and speed control and achieved on the control unit.

**Warning**

Do not operate VIVA-MATE 3 in an atmosphere or near where explosive or flammable chemicals are present.  
Do not use near or on the patient immediately after flammable anesthetic is administered.

**Caution**

Do not operate the Fwd. / Rev. switch while the motor is running. operate only when the motor is stopped.

#### 4. Safety protection System

To protect the motor and the control unit from excessive temperature rise caused by overloading such as by greater loading to the bur, failure of handpiece bearing, etc, a temperature sensor activates, when the temperature rises above the preset value, to isolate the power supply.

When this safety protection system functions, turn off the motor on-off switch. This automatically resets in 3-4 minutes.

#### 5. Lubrication

(1) Lubricating Handpiece (Straight Nosecone and Contra Angles)

Supply PANA SPRAY after each use and/or before each autoclaving.

- ① Push E-type spray nozzle attachment over the PANA SPRAY nozzle until it firmly seats.
- ② Shake the can 3-4 times to well mix lubricant and propellant.
- ③ Insert the E-type spray nozzle in the rear of the handpiece and spray for approximately 2-3 seconds until the oil comes out of the handpiece head.

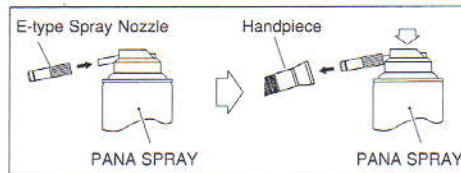


Fig.7

**Cautions**

- Do not lubricate the micromotor.
- Be sure to hold the handpiece firmly to prevent the handpiece from slipping out of hand by the spray pressure when lubricating.
- Supply lubricant until it comes out of the handpiece head (for approx.2 seconds).
- Hold the PANA SPRAY can upright.

(2) Sterilization of Handpiece

NAKANISHI INC. recommends heat sterilization by autoclave.

Autoclave sterilization required after each patient as noted below.

■ Autoclave Procedure

- ① Brush debris off the handpiece. Wipe clean with alcohol-immersed soft towel.
- ② Lubricate with PANA SPRAY. See Lubrication section.
- ③ Individually bag and seal.
- ④ Autoclavable up to a max. 135°C.  
ex.) Autoclave for 20 min. at 121°C, or 15 min. at 132°C.
- ⑤ Keep the handpiece in the autoclave pouch to keep it clean until you use it.  
\* Sterilization at 121°C for more than 15 minutes is recommended by EN13060 or EN554.  
\* Performing sterilization according to our instruction has minimal effect on the instruments. Life span is generally determined by wear and damage due to use.

**Cautions**

- Do not autoclave the micromotor and the control unit. Wipe clean with alcohol-soaked towel.
- Omit the dry cycle, if the chamber temperature during the dry cycle would exceed 135°C (275°F).
- Do not sterilize with other instruments, from which chemicals have not been completely removed.
- Place the handpieces on the center tray, as the temperature at the bottom of the chamber may locally exceed the set value.

(3) Changing of Carbon Brushes

There are 2 types of carbon brushes, A and B. Please check which type of carbon brushes are used in your motor before you order carbon brushes.

1. Remove the cord from the motor by unscrewing the motor end casing.
2. Remove the cord from the motor.

Type A: E014-011

3. Remove two screws. Remove the brushes. Do not misplace the springs.
4. Insert a new carbon brush and a spring in each hole, and secure with the screw.

Type B: E023-011

3. Remove two screws. Remove the brushes.
4. Insert new carbon brushes and secure with the screws.
5. Align the cord plugs with correct mating holes: the red marked plug with the plus (+) marked hole.  
Gently push the plug into the holes.
6. Mount the motor end casing to the motor by hand. Tighten securely.

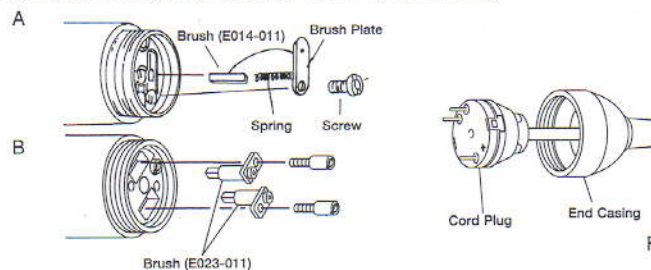


Fig.8

## 6. Battery Service Life

The battery used in the control unit is a Nickel-Cadmium type, and is a wearable component. Its service life depends on the use condition. Under normal use of the device and the battery charged once a day, it should last 3-4 years.

When not in use for a prolonged period, the battery might deteriorate. The battery should be replaced when the motor runs slow or exerts less power even the battery seems to have been fully charged. Send to the dealer it was bought from for repair.

## 7. Troubleshooting

Trouble	Trouble Detail	Possible Cause	Remedy	
Motor fails to run.	Control unit fully charged, but motor fails to run.	Poor contact of motor plug to juck in control unit.	Insert plug correctly.	
		Discontinuity in motor cord.	Replace motor cord.	
		Worn brushes.	Replace brushes. See 5-(3) Changing of Carbon Brushes.	
		Trouble in motor.	Check motor.	
	Motor stops suddenly in use. (Safety protection system functioned.)	Overloaded, or chuck release ring turned to open position during use.	See 4. Safety Protection System. Check handpiece chuck release ring.	
	Motor fails to run when handpiece is connected.	Motor runs without handpiece, and handpiece rotates smoothly by hand.	Coupling joint of handpiece or motor is damaged.	Send for repair.
		Resistance is felt when to turn the handpiece by hand.	Handpiece damaged.	Send for repair.
	Motor fails to run when foot control is used.	Foot control fails to function.	Check/repair foot control	
		Discontinuity in foot control cord.	Check/repair foot control.	
		Poor contact of foot control plug to control unit.	Check foot control plug and connection.	
Motor stops in 2-3 seconds.	Battery has not been charged.	Charge battery. Make sure the motor on-off switch is at Off position.		
Motor runs with insufficient power, and stops in a few minutes.	Worn battery.	Replace battery.		

### At charging

Trouble	Trouble Detail	Possible Cause	Remedy
Battery does not charge.	Battery seemed to have been fully charged, but when used, (1) motor fails to run, or (2) motor runs but stops in a few seconds. This means the battery is not fully charged.	Charger cord is not connected to the power supply.	Check at power supply.
		Motor on-off switch is at On.	Set motor on-off switch at Off.
		Charger plug is not connected or loosely connected to the control unit.	Check if charger plug is correctly connected to the control unit.
		Blown fuse in battery charger.	Check/replace charger.
		Poor contact at power source end of charger.	Check charger.
		Poor contact at charger plug.	Check for charger plug.
		Discontinuity in charger cord.	Replace cord.
		Motor on-off switch malfunctions.	Replace motor on-off switch.
		VIVA-MATE or VIVA-MATE II charger is used.	Use VIVA-MATE 3 charger.

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

## 8. Specifications

### Motor

Rated Input	DC10 V, 2A
Speed	2,000-30,000min <sup>-1</sup> (rpm)
Dimensions	∅ 21.5(.85") X L=116(4.56") mm
Weight	170 g (6 oz)

### Control Unit

Model No.	NE-77
Battery	Ni-Cd
Rated Output	DC10 V, 2A
Dimensions	W72(2.83") X D163(6.41") X H39(1.53") mm
Weight	350 g (12.3 oz)

### Charger

Model No.	NE106-02	NE106-03
Rated Input	AC120V	AC230V
Rated Output	DC14.5 V, 150 mA	
Charging Time	1 hour aprox.	
Dimensions	W52(2") X D42(1.65") X H73(2.87") mm	

## 9. Warranty

Manufacturer warrants its products to the original purchaser against defects in material and workmanship under normal practices of installation, use and servicing. Carbon Brush etc. are expendable components, and are not covered by this warranty.