

BUILT-IN MODULE  
Multi Function Ultrasonic Scaler

NSK

# Varios 150 Varios 150LUX

(Non Light) (with Light)



OPERATION MANUAL

OM-E0067E Rev.3

CE The EU directive 93/42/EEC was applied in the design and production of this medical device.

Thank you for purchasing Varios BUILT-IN MODULE (Varios 150 or Varios 150 LUX). This device generates ultrasonic waves intended for use in dental application such as scaling, root planing, root canal treatment, periodontal and cavity preparation. Read this operation manual carefully before use, and keep it within user's reach.

## SAFETY CAUTIONS

- Read these safety cautions thoroughly before use and operate the product properly.
- These indicators are to allow you to use the product safely and prevent danger and harm to you and others. These are classified by degree of danger, damage and seriousness. All indicators concern safety, be sure to follow them.

## Indications of Hazardous Conditions

Classification	Degree of danger or damage and seriousness
<b>WARNING</b>	Explains an instruction where bodily injury or damage to device may occur.
<b>CAUTION</b>	Explains an instruction where possibility for minor to medium bodily injury or damage to device may exist.
<b>NOTICE</b>	Explains an instruction that should be observed for safety reasons.

### WARNING

- Do not give a strong impact to the handpiece, nor drop onto a hard surface. This could result in electric shock.
- Do not touch the handpiece backend, where electrical connections are made to the cord. It might result in electrical shock.
- Do not disassemble or alter the handpiece.
- Keep out from patients with cardiac pacemakers.
- Keep out from explosive substances and flammable materials. Do not use for patients anaesthetized laughter gas especially.

### CAUTION

- The device is for professional use only.
- Place the most priority of the patient's safety.
- Check the vibration outside the patient's oral cavity before use. If any abnormalities are found, stop using immediately and contact your dealer.
- Do not exceed recommended power range for the tip, because it may damage tooth plane and tips.
- The factory-set wiring allows only the Scaling. Connect the optional switch as shown below and choose the desired mode out of 3 by this switch. Optional switch : Part Number U387-260
- Always use with pouring enough water, or it may damage tooth plane and overheat the handpiece.
- Do not hit ceramic prosthesis during scaling with the tip, because it may damage tips.
- Do not hit metal or porcelain crown except removing them. Tips could break and walk out.
- Do not sharpen and bend the tip. Tips may damage and could not generate enough vibration during scaling.
- Do not touch the tip on the gums, mucous membranes, or skin directly. There is concern of an injury or a burn.
- The tip will wear down. If using worn tip makes power down, replace the tip.
- Be sure to firmly mount the tip with provided wrench, or the tip could not generate enough vibration.
- Check if the dust sticks on the screw of the tip before use and clean it, because tips could not generate enough vibration.
- Be sure to turn on the power switch after mounting the handpiece.
- Do not drop or give an excessive shock.
- Be sure to use NSK tips, because it may not work properly with others.
- Do not sterilize by ultraviolet ray. The handpiece could discolorate.
- Remove the handpiece after the tip is taken off.
- If you are using corrosive or harsh solutions please clean the handpiece etc. immediately after use. Failure to quickly clean the handpiece etc. can result in damage to the equipment or color changes of the case.
- The system functions normally in the environment where the temperature is at 0-40°C(32-104°F) humidity at 10-85% RH, atmospheric pressure at 500-1060hPa, and no moisture condensation in the control unit. Use at outside of these limits may cause malfunction.

### NOTICE

- During vibration, the handpiece and handpiece cord may affect computer and LAN cable. Noise could be heard during operation near the radio receiver.
- Users are responsible for operational control, maintenance and inspection.
- Store the system in the place where the temperature is at -10-60°C(14-140°F), humidity at 10-85% RH, atmospheric pressure at 500-1060hPa, and the system is not subject to air with dust, sulfur, or salinity.

## 1. MOUNTING AND REMOVING TIP

Mount the tip by fastening it lightly by hand. (Fig. 1)  
Pass the tip through the hole of the tip wrench, align the four cornered tip's base and the hole of the tip wrench, and insert it. Turn the wrench clockwise until it makes several clicks. (Fig. 2) To remove the tip, turn counterclockwise with the tip wrench. (Fig. 2)

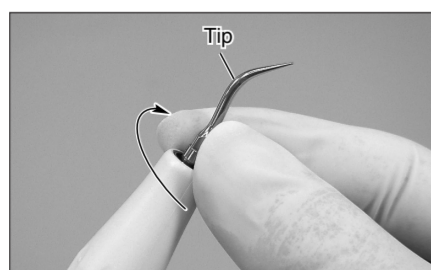


Fig. 1

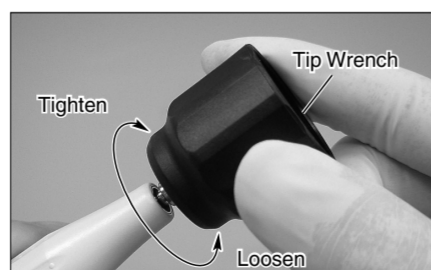


Fig. 2

### CAUTION

When mounting the tip, always use grooves, tip, tip wrench, and handpiece that have been sterilized.

## 2. MOUNTING AND REMOVING HANDPIECE

When mounting the handpiece, align the positioning marks on the handpiece and the hose, and push it straightly. (Fig. 3)  
When removing the handpiece for sterilization, grip the front section and rear section of the handpiece firmly, and pull straightly to separate. (Fig. 4)

### WARNING

Do not touch the handpiece backend, where electrical connections are made to the cord. It might result in electrical shock.

### CAUTION

- Be sure to remove the handpiece after tip is removed, because tip could hurt you.
- When removing the handpiece, grip the plug of the handpiece cord.

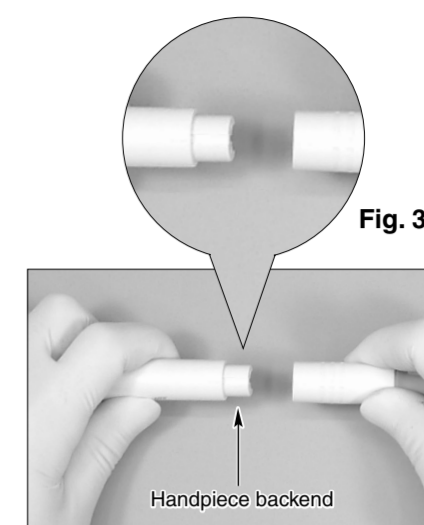


Fig. 3

※Picture shows Varios 150.

Fig. 4

## 3. OPERATION

### (1) Output Range Dial

Provide marking as shown in Fig.5.

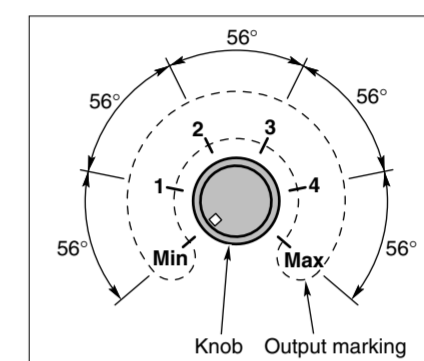


Fig. 5

### (2) Setting of Output Power Range

Set the knob to the appropriate range specified on the tip case. (Fig.6)  
When tip is in oscillating adjust the knob finely.

### CAUTION

Use within the Power Range. Use above the Power Range could result in tip failure on damage to the patient's tooth.

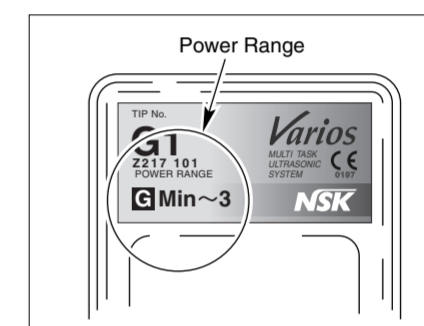


Fig. 6

## 4. CARE AND MAINTENANCE

### (1) Changing O-ring (Varios 150)

An o-ring is located between handpiece and the handpiece cord connector. Use a pointed tool to remove, and mount a new o-ring in the groove. (Fig. 7)

※Optional O-ring : Order No. 0312-012100

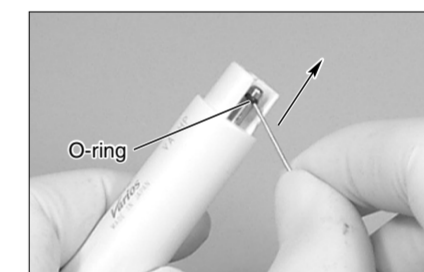


Fig. 7

### (2) Cleaning of Donut-shape Light (Varios 150 LUX)

Wipe clean the debris off the end face of the optic fibers at the handpiece with alcohol-wet cotton swab. (Fig. 8)

### CAUTION

Do not use a sharp pointed tool to clean the optic fiber end face. In case the light becomes dim, contact your dealer.

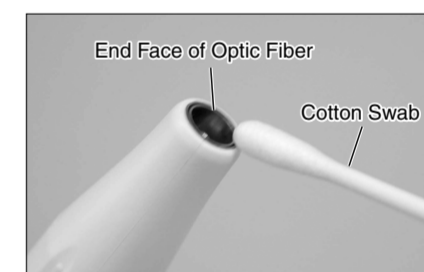


Fig. 8

### (3) Changing Lamp (Varios 150 LUX)

Referring to 2. MOUNTING AND REMOVING HANDPIECE, disassemble the handpiece from the handpiece cord. Remove the cover straightly. Use a precision screwdriver or the like and push out the lamp. Align the lamp pins of a new lamp with the holes, and push the lamp into. (Fig. 9)  
Align the alignment marks on the cover and the handpiece cord, and push the cover to the cord until it clicks. (Fig. 10)  
Assemble the handpiece and the handpiece cord.

※Optional Lamp : VA Bulb Set (A Set consist of 3 pieces) Order No. Y900-107

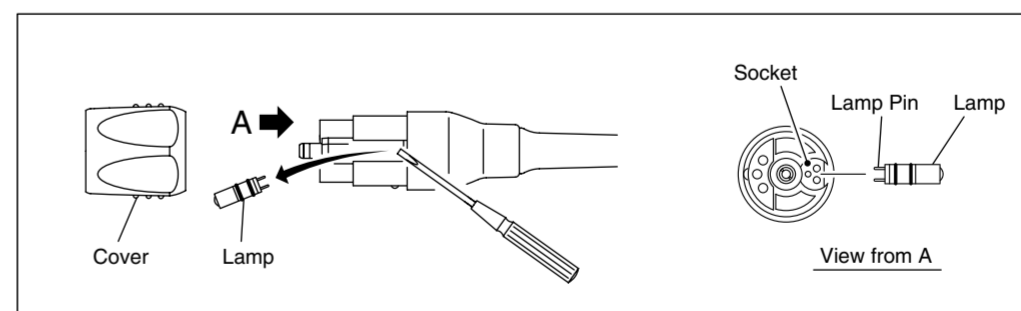


Fig.9

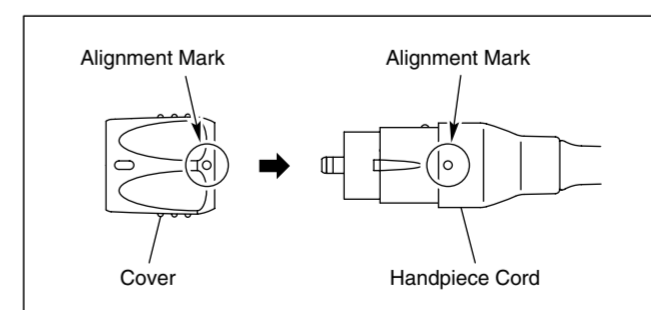


Fig.10

### CAUTION

- Do not touch directly or hit the glass part of the new lamp.
- Care needs to be exercised when mounting a new lamp to avoid the o-ring off the groove or being twisted.

### 5. STERILIZATION

- Autoclave sterilization is recommended.
- The tip, handpiece, tip wrench and tip holder can be autoclaved.
- Autoclave sterilization required after each patient as noted below.

#### ■ Autoclave Procedure

- 1 Remove the tip after use. (See 1.)
- 2 Remove the handpiece from the handpiece cord. (See 2.)
- 3 Wipe off dirt and debris on the handpiece with an alcohol-soaked cloth.
- 4 Put tip, handpiece, and autoclavable instruments in the sterilization pouch and seal it.
- 5 Autoclavable up to a max. 135°C.  
ex.) Autoclave for 20 min. at 121°C, or 15 min. at 132°C.

#### ⚠ CAUTION ON STERILIZATION

- Do not sterilize by ultraviolet ray. The handpiece could discolorate.
- If the sterilizer has a dry process that exceeds 135°C, skip the process.
- If autoclaved with other instruments stained with drag solution, it could strip the plating and make the surface black.
- Since the bottom shelf of the sterilizer is close to the heat source, it can be too hot in places. Place instruments in the middle or top shelves.

### 6. TROUBLESHOOTING

When trouble is found, please check the following again before consulting your dealer. If none of these is applicable or the trouble is not remedied even after action has been taken, a failure of this product is suspected. Contact your dealer.

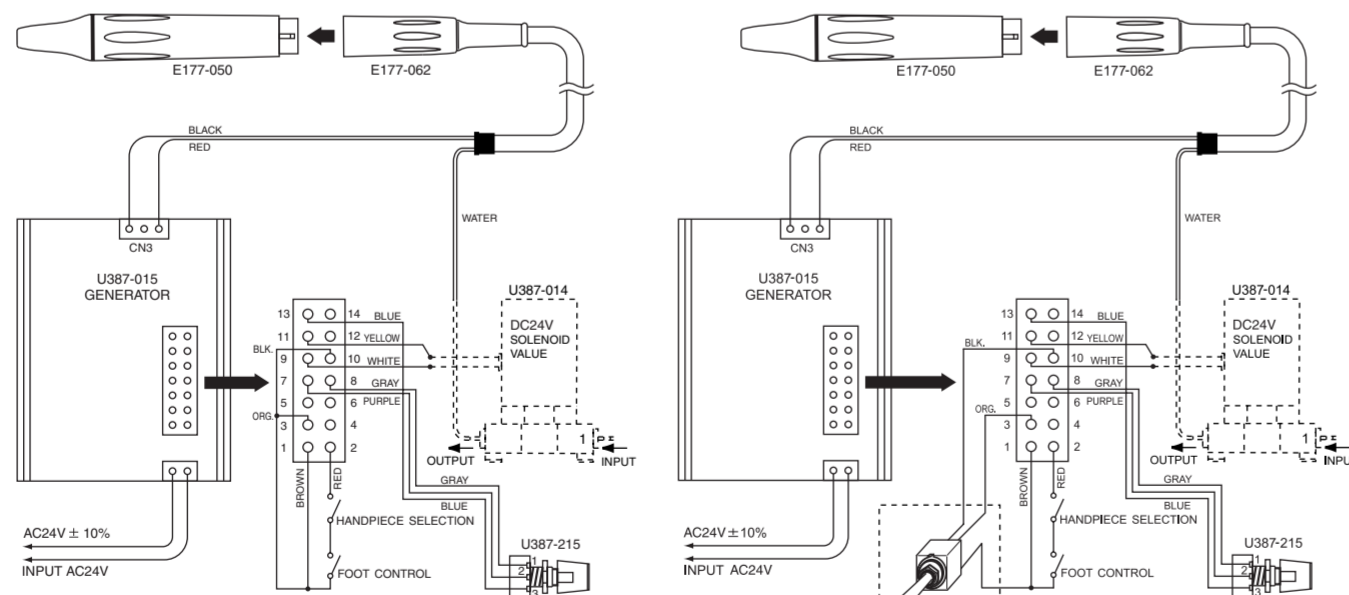
Problem	Item to check	Cause	Remedy
The device does not vibrate or the vibration is weak.	-	The tip is not tightened firmly enough.	Tighten the tip again until the tip wrench rotates freely with clicks.
		The tip is worn.	As the tip wears down, vibration will weaken and stop. Replace it with a new tip.
		The vibrator in the handpiece is defective.	Contact your dealer.
No water comes out or the water flow is weak.	If the handpiece is detached from the cord, water will come out from the end of the cord. With the cord detached from the unit, water does not come out from the unit, or the flow is weak.	The water is clogged inside the handpiece.	Contact your dealer.
		The water adjustment dial is closed.	Turn the water adjustment dial and set it to an appropriate water volume.
		The water filter is clogged.	Contact your dealer.
Water is leaking.	Water is leaking from the connector between the hose and the handpiece.	The o-ring of the connector between the hose and the handpiece is damaged.	Replace with a new o-ring as shown in Fig. 7.
Donut light does not illuminate. (Varios 150 LUX)	Tip oscillates, but light does not turn on. Lamp is correctly and securely mounted in the socket, but lamp does not turn on.	The lamp pins are not correctly engaged in the socket.	Mount the lamp correctly and securely.
		Has the lamp burned out.	Replace with new lamp. (See 4.(3) Changing Lamp (Varios 150 LUX))
		Discontinuity in the handpiece cord, or failure in the Built-in Module.	Contact your dealer.

### 7. SCHEMATIC DIAGRAM

#### (1) Varios 150

( G Mode(scaling). The following is the factory-wired connection. It allows G Mode(scaling) only.

( Addition of optional switch allows all three functions : Perio, Endo, or Scaling by this 3-position toggle.



#### ⚠ CAUTION

When mounting the generator, use the M3×0.5 machine screws whose length shall be less than the thickness of the bracket you use plus 5mm, which is the thickness of the heat sink. If longer than that, the machine screw might damage the parts inside.

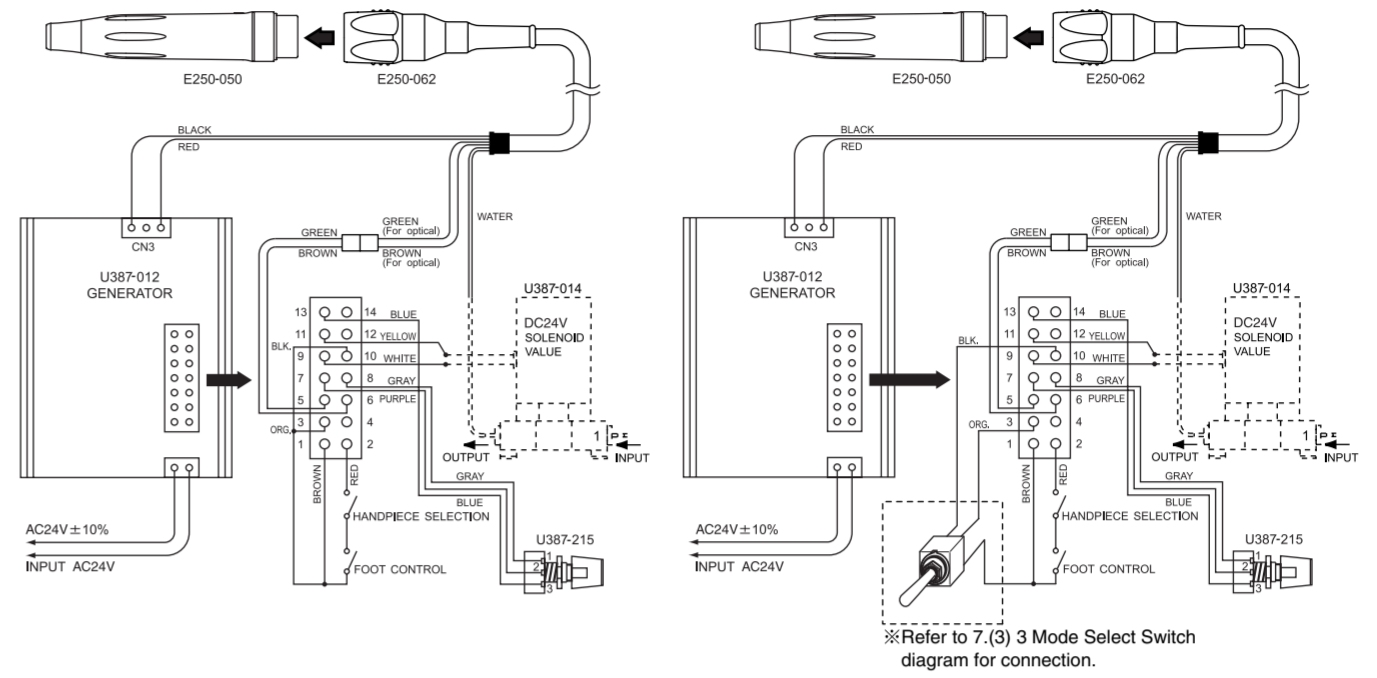
#### ⚠ NOTICE

The component indicated in dotted lines is a solenoid valve, and is an optional part.

#### (2) Varios 150 LUX

( G Mode(scaling). The following is the factory-wired connection. It allows G Mode(scaling) only.

( Addition of optional switch allows all three functions : Perio, Endo, or Scaling by this 3-position toggle.



※Join the connector with leads from the generator terminal board with the one for the optical from the handpiece cord. Both connectors have brown and green leads.

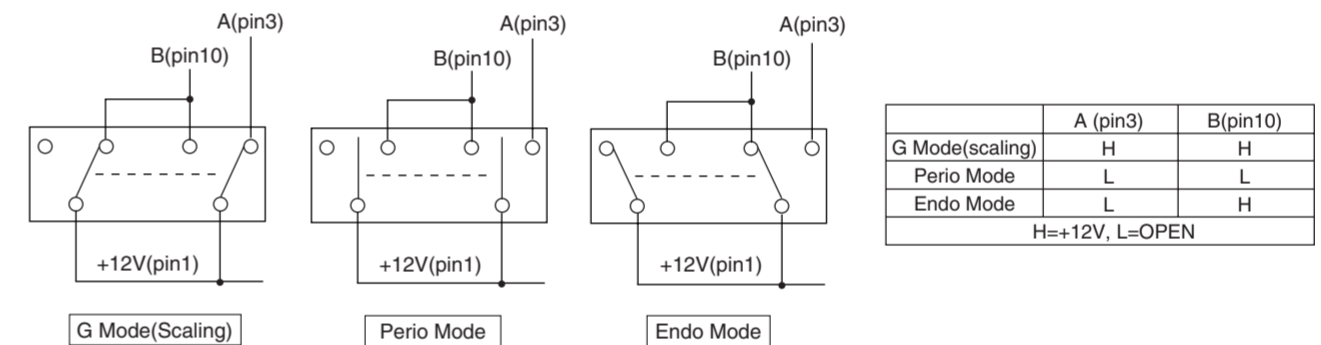
#### ⚠ CAUTION

When mounting the generator, use the M3×0.5 machine screws whose length shall be less than the thickness of the bracket you use plus 5mm, which is the thickness of the heat sink. If longer than that, the machine screw might damage the parts inside.

#### ⚠ NOTICE

The component indicated in dotted lines is a solenoid valve, and is an optional part.

#### (3) 3 Mode Select Switch



※ Specifications may be changed without notice.



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