

# Ti-Max

Ti85L / Ti85LA / Ti85  
Ti95L / Ti95LA / Ti95 / Ti95EX

: AUTOCLAVABLE

OPERATION MANUAL

OM-C0179E Rev.B

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

Please read this Operation Manual carefully and file for future reference.

## Caution

- When operating the handpiece always consider the safety of the patient.
- The handpiece is designed only for dental clinical use.
- Check the vibration, noise and overheating outside the patient's oral cavity before use. If any abnormalities are found, stop using and contact your dealer.
- If any abnormalities are found in use, stop using immediately and contact your dealer.
- Do not allow any impact on the shank. Do not drop the handpiece.
- Do not attempt to disassemble the handpiece nor tamper with the mechanism.
- Do not connect or disconnect the handpiece until the drive motor has completely stopped.
- Do not exceed a speed of 200,000min<sup>-1</sup>(rpm) at the head.
- Do not use eccentric, worn or damaged burs.
- Use short shank bur for miniature head speed increasing handpiece. (Ti85L, Ti85LA, Ti85) Using long burs could result in bur spin-out while using, or premature bearing failure.
- Do not use a long surgical bur on speed increasing handpiece, which runs to 200,000min<sup>-1</sup>(rpm). Such long bur as 25mm in length shall not be used. Its shank may warp under load at a high speed and spin out of the handpiece when the load is released.
- Before use always confirm that the bur is correctly seated and locked into place.
- Depressing the push-button while handpiece bur is in rotation will result in **OVERHEATING** of the handpiece head. Special caution must be exercised during use to keep cheek tissue **AWAY** from the push-button of the handpiece. Contact with cheek tissue may cause the push-button to depress and injury to the patient may occur.
- Always operate with spray. Without cooling spray, the handpiece may build up heat.
- Supply PANA SPRAY after each use.
- Use only the genuine NSK-manufactured oil. (PANA SPRAY)

## 1. Specifications

Model	Ti85L/Ti85LA	Ti85	Ti95L/Ti95LA	Ti95	Ti95EX
Gear Ratio	1 : 5 Increasing		1 : 5 Increasing		
Allowable Max. Speed	40,000min <sup>-1</sup> (rpm)		40,000min <sup>-1</sup> (rpm)		
Coolant Delivery	Internal	Internal	Internal	Internal	External
Spray Type	Single Spray		Quadruple Spray		
Chuck Type	Ultra Push		Ultra Push		
Burs (#)	ø1.59-1.60mm Short Shank Bur		ø1.59-1.60mm Standard Bur		
Optics	Glass Rod optic	-	Glass Rod optic	-	-

# Only use burs capable of 200,000min<sup>-1</sup>(rpm).

## 2. Connecting / Disconnecting the motor and the handpiece

To connect the motor and the handpiece, align the positioning marks on the motor and the handpiece, and insert straight. This procedure will also align the light receptacle and allow you to use illumination if your handpiece and motor are equipped for illumination. (Ti85L, Ti85LA, Ti95L, Ti95LA) To disconnect, hold the front part of the motor and the back part of the handpiece, and pull straight out.

## Caution

Do not connect or disconnect the handpiece until the motor has completely stopped.

## 3. Insertion and Removal of the bur

### (1) Bur Insertion

Insert the bur into the chuck until it stops (4-6mm depth).

Depress the push-button and insert further into the chuck until the bur stops. (Fig.1)

After the bur is inserted, push and pull the bur to make sure that it is held firmly in place. (Fig. 2)

This action will further increase the bur retention force.

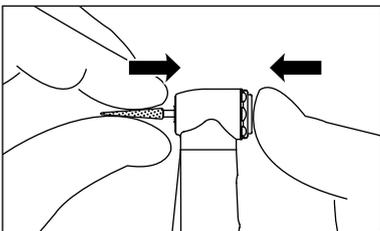


Fig. 1

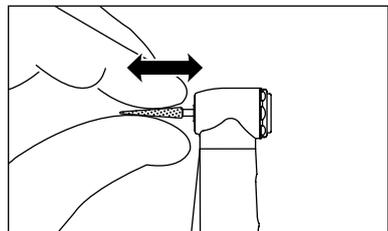


Fig. 2

### (2) Bur Removal

Depress the push-button and Pull out the bur. (Fig. 3)

Note : The push-button chuck has a double action. The button stops when it touches the rotor  
Depress further and pull out the bur.

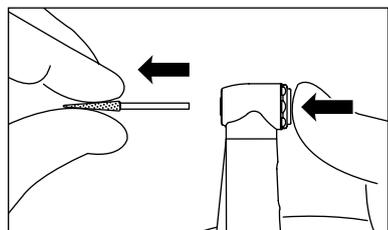


Fig. 3

## 4. Irrigation Nozzle (Ti95EX)

When irrigation is required please connect the irrigation tube to the irrigation nozzle.

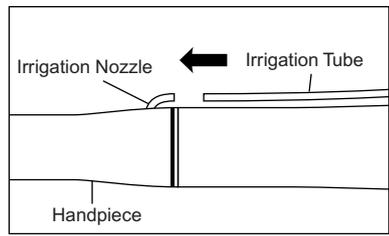


Fig. 4

## 5. Lubrication

Supply PANA SPRAY after each use and/or before 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.

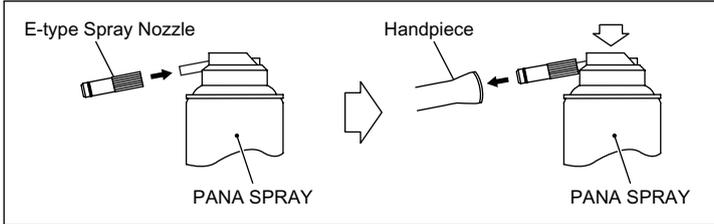


Fig. 5

### ⚠ Cautions on Lubrication

- Be sure to hold the handpiece firmly to prevent the handpiece from slipping out by the spray pressure when lubricating.
- Supply lubricant until it comes out of the handpiece head (for approx. 2 seconds).
- Keep the PANA SPRAY can upright.
- Use of lubricants other than NSK's PANA SPRAY can cause excessive heat generation and possible handpiece damage.

## 6. Cleaning and Sterilization



This handpiece can be washed via Thermo Disinfector.

NSK recommends heat sterilization by autoclave.

Sterilization required after each patient as noted below.

### ■ Autoclave Procedure

- ① Scrub dirt and debris from the handpiece, and wipe clean with alcohol-immersed cotton swab or cloth. Do not use a wire brush.
- ② Lubricate with PANA SPRAY. Refer to 5. Lubrication.
- ③ Insert into an autoclave pouch. Seal the pouch.
- 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 on Sterilization

- In case the sterilizer chamber temperature could exceed 135 °C during the dry cycle. Skip the dry cycle.
- Always place the handpiece in the center or upper shelf of the chamber, as the local temperature at the chamber bottom could rise beyond the set value.
- Do not autoclave the handpiece, even when it is bagged, together with other instruments, from which chemicals are not sufficiently cleaned. This is to avoid discoloration and / or damage to the plating of the handpiece.
- Do not heat or cool the handpiece quickly. Rapid change in temperature could break the glass rod give abnormal strain to other metals.

## 7. Cleaning Glass Rod Optic End (Ti85L, Ti85LA, Ti95L, Ti95LA)

In case the light had become dim, clean the glass rod optic end with an alcohol-soaked cotton swab. (Fig.6)

### ⚠ Caution

Do not use a pointed tool or sharp edges to clean the glass rod optic end. They may damage the mirror finish and reduce the light transmission efficiency. If the glass rod optic end has become damaged, send the handpiece to the NSK dealer for repair.

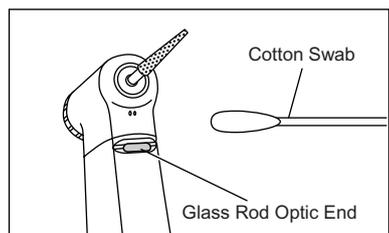


Fig. 6

## 8. Repair Service

For genuine NSK service and parts always return the handpiece to your NSK dealer.

Specifications may be changed without notice.



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107.06.02 (M)