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Specifications are subject to change without notice.

'11.01.01 

OPERATION MANUAL



0197

Contra Angle Handpiece Titanium Body

Ti-Max X

X35L, X35,
X70L, X70, X75L, X75
X55L, X55, X57L, X57

**Please read this Operation Manual carefully
before use, and file for future reference.**

MADE IN JAPAN

OM-C0404E 001



Powerful Partners®

The NSK logo is displayed in a bold, italicized, sans-serif font. It is centered within a white rectangular area that is part of a larger vertical grey bar.

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



Powerful Partners®



CAUTION

- When operating the handpiece always consider the safety of the patient.
- The handpiece is designed only for dental clinical use by licensed person.
- Do not attempt to disassemble the handpiece nor tamper with the mechanism.
- Do not allow any impact on the shank. Do not drop the handpiece.
- Check the vibration, noise and overheating outside the patient's oral cavity before use. If any abnormalities are found, stop using immediately and contact your dealer.
- Should the handpiece function abnormally, cease operation immediately and return the handpiece to the dealer for repair.
- Supply PANA SPRAY Plus after each use or before autoclaving.
- Do not wipe with, or clean or immerse in, high acid water or sterilizing.
- Connecting /disconnecting handpiece or file/reamer/rubber cup have to perform when the handpiece stopped.
- Do not connect or disconnect the file or reamer until the drive motor has completely stopped.

FOR X35L,X35,X70L,X70,X75L,X75

- When you work on root canal expansion, DO NOT set the drive source (Motor) speed other than the values that written on the " SPECIFICATION". Follow the maximum rotation speed that file or reamer manufacture recommends.
- Follow the package insert that file/reamer manufacture.
- Do not use bent, damaged, or sub-standard file or reamer. The shank could bent or broke even within the recommended speed.

- Always keep the file, reamer shank clean, Entry of debris into the chuck cause file or reamer run-out and the file or reamer could not be mounted inmost.
- DO NOT exceed the maximum permissible rotation speed that manufactor recomend.
- Connect micro motor for X35 series and X75 series, Air motor for X70 series.
- Do not use the file, reamer or shake shape other than ISO 1797-1 Type1 standards.(Except Hand file)
- File may change (throwaway) every patient or several times. If it used several time, it may cause a fracture by metal fatigue.

FOR X57L,X57

- Wash the handpiece immediately after use. If you do not perform it, abrasive paste may fix inside and it may cause a failure.
- Check the ring before you use. If the ring loosen, tighten it by the wrench (Ring is left screw).
- When mounting the rubber cup, check it correctly attached.
- DO NOT use the rubber cap which the screw does not match.
- Do not use above the specified rotational speed. This could cause in injury or accident by flying paste or broken cup and brush.
- Do not use in the reverse rotation. The cup and brush could fly out of the head

1. Connecting / Disconnecting the motor and the handpiece

To connect the motor and the handpiece, align the positioning marks of the motor and the handpiece, and insert straightly. This procedure will also align the light receptacle and allow you to use illumination if your handpiece and motor are equipped for illumination. (X35L,X70L,X75L,X55L,X57L)
To disconnect, hold the front part of the motor and the back part of the handpiece, and pull out straightly.

CAUTION

- Mount X35, X75 Series with a micro motor and mount X70 Series with an air motor.
- Do not connect or disconnect the handpiece until the motor has completely stopped.

2. Mounting and Removing File(X35L,X35,X70L,X70,X75L,X75)

Mounting

- (1) Enging type file
- A) X35 Series (Quick-fit Adapter in head.)
Push the push-button to open the chuck.
Insert the instrument shank into the chuck, and release the push-button. (Fig. 1)

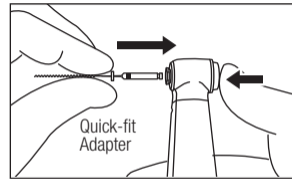


Fig. 1

- B) X70 Series or X75 Series
Push the push-button to open the chuck.

Insert the instrument shank into the chuck and lightly turn the file with light push. When the file engages with the latch mechanism, where the file sinks, and release the push-button.

- (2) Hand file (X35 Series)

Push the push-button to open the chuck, and remove the Quick-fit Adapter. (Fig. 2)

Again push the push-button to open the chuck. Insert the instrument handle into the chuck and release the button. (Fig. 3)

Make sure that the handle is securely held in the chuck. (Fig. 4)

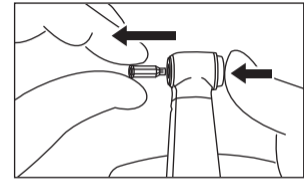


Fig. 2

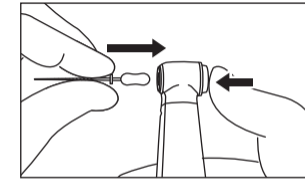


Fig. 3

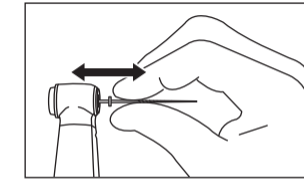


Fig. 4

* Accepts handle diameters Ø3.8-4.1mm

Typical applicable hand instruments: Union Broach, Zipperer, Mani, Meisinger, Komet, Kerr.

Removing

Push the push-button with a thumb, and the file is removed.

CAUTION

Make sure that the motion is completely stopped when to depress the push-button and disengage the latch mechanism. Avoid accidental depression of the push-button during rotation. It would heat the push-button and could cause a burn.

3. Insertion and Removal of the Eva Tip or Profin Tip (X55L,X55)

(1) Tip Insertion

A) Eva Tip

Insert an Eva Tip into the head.

B) Profin Tip

Insert a Profin Tip into the head. After adjusting the direction of the tip to the desired angle, push it firmly into the slit at the plunger of the head. (Fig.5)

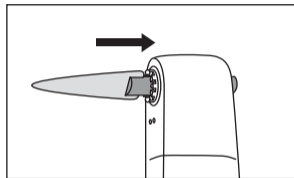


Fig. 5

(2) Removal of Tip

Insert a TIP REMOVER in the hole of the handpiece back head and begin to thrust a tip. (Fig.6).

CAUTION

Tip possibly protrudes. Remove it on the tray.

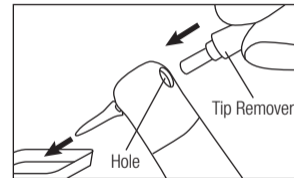


Fig. 6

4. Mounting and Removal of the Rubber Cup or Brush (X57L,X57)

(1) Mounting

Touch lightly the rubber cup or brush screw stem into the screw hole of the handpiece head. Start the motor at a lower speed. The cup or the brush is screwed into the head. When the cup or the brush starts to turn, release the fingers. (Fig. 7)

(2) Removal

Hold the cup or the brush firmly, and rotate the handpiece in the reverse direction at a low speed. The cup or the brush disengages from the handpiece head.

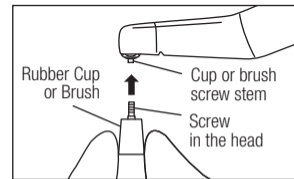


Fig. 7

5. Lubrication



CAUTION

Supply PANA SPRAY Plus or/and Care3 Plus after each use and/or before autoclaving.

■ PANA SPRAY Plus

1. Push E-type spray nozzle attachment over the PANA SPRAY Plus nozzle until it firmly seats.
2. Remove the file from handpiece.
3. Shake the can 3-4 times to well mix lubricant and propellant.
4. 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.

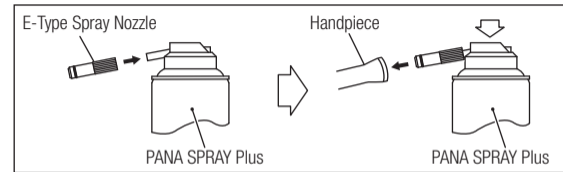


Fig. 8



CAUTION

- 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 Plus can upright.

■ Care3 Plus

NSK Care3 Plus automatic handpiece cleaning and lubrication system

After connecting the handpiece to the correct adaptor, activate the Care3 System per the Care3 System instructions.

6. Sterilization



This product can be washed via Thermo-Disinfector.

NSK recommends autoclaving.

Sterilization is required first time you use and 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 Plus. 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 EN ISO17665-1.

CAUTION

- Do not heat or cool the handpiece quickly. Rapid change in temperature could break the glass rod give abnormal strain to other metals.
- Do not wipe with, or clean or immerse in, high acid water or sterilizing solutions.

7. Cleaning Glass Rod Optic End (X35L,X70L,X75L,X55L,X57L)

In case the light had become dim, clean the glass rod optic end with an alcohol-soaked cotton swab. (Fig.9)

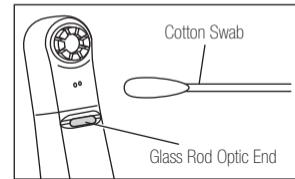


Fig. 9

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.

8.Ultrasonic cleaning (X57L,X57)

To remove the paste that against into the Handpiece, perform ultrasonic cleaning day by day.

- 1) Loosen the ring and take off the ring and attaching screw.(Fig.10)
- 2) Perform the ultrasonic cleaning for 5 minutes ONLY for the attaching screw.
- 3) Air blow and remove the water of the head. Than lubricate it by PANA SPRAY Plus after the opposite procedure of 1.

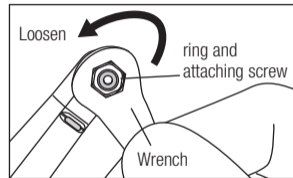


Fig. 10



CAUTION

DO NOT use ethanol or cleansing fluid for the cleaning. It may cause tarnish or fret.

- 4) Autoclave the handpiece. (6. Sterilization)



CAUTION

Repeat this lubrication until you see no paste into the handpiece comes out.

SPECIFICATION

Model	X35L	X35	X70L	X70	X75L	X75
Intended to uses	Endodontic					
Allowable Max.	40,000min ⁻¹	40,000min ⁻¹	22,000min ⁻¹	22,000min ⁻¹	40,000min ⁻¹	40,000min ⁻¹
Motor	Micro Motor	Micro Motor	Air Motor	Air Motor	Micro Motor	Micro Motor
File	EngineFiles (Against titanium file) /Hand Files	EngineFiles (Against titanium file) /Hand Files	EngineFiles	EngineFiles	EngineFiles	EngineFiles
Motion	60°Twist	60°Twist	360°rotation	360°rotation	360°rotation	360°rotation
Gear Ratio	10:1 Reduction	10:1 Reduction	64:1 Reduction	64:1 Reduction	128:1 Reduction	128:1 Reduction
Spray Type	Single Spray	Single Spray	Single Spray	Single Spray	Single Spray	Single Spray
Optics	Glass Rod Optic	-	Glass Rod Optic	-	Glass Rod Optic	-

MODEL	X55L	X55
Intended to ues	Interdentium polishing	
Tip	EVA/Profin Tip	EVA/Profin Tip
Motion	Vertical Reciprocating (Stroke Length1.4 mm)	Vertical Reciprocating (Stroke Length1.4 mm)
Allowable Max.	40,000min ⁻¹	40,000min ⁻¹
Gear Ratio	4 : 1 Reduction	4 : 1 Reduction
Spray Type	Single Spray	Single Spray
Optics	Glass Rod Optic	-

Model	X57L	X57
Intended to ues	Tooth polishing	
Gear Ratio	16:1 Reduction	16:1 Reduction
Rotation Speed	40,000min ⁻¹	40,000min ⁻¹
Optics	Glass Rod	-