DENTAL UNIT AND CHAIR

CP-ONE PLUS

OPERATING INSTRUCTIONS

IMPORTANT

Thoroughly read this Instruction Manual before use, and use the CP-ONE PLUS according to the instructions.

Keep this Instruction Manual carefully, and read it again whenever it is needed.

This product is a dental unit used for dental care.

People other than dentists and other dental professionals should not use this product.

Belmont

CE 0197

Table of Contents

General

Chair part

Unit part

Others

➢ Intended Use of the Product

This product is an active therapeutic device intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry.

The product must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist.

Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product.

Patients should not be allowed to operate or handle the product unless he/she is so instructed.

The product is supplied together with the handpieces like electric micromotor, air turbine and/or motor, scaler and so on.

➢ Environmental Requirements

Ambient Temperature Operating +10℃ ～ +40℃ Storage -10℃ ～ +50℃

Humidity 30 % ～ 75%

Atmospherical Pressure 700 hPa - 1060 hPa

➢ Compatibility of Handpieces

Use the compatible handpieces as shown on the attached list for this unit. (List of compatible handpieces).

➢ Important Notes

In case of the troubles, please contact Takara Belmont offices or your dealers.

Do not disassemble or attempt to repair.

Disassembly, repair or modifications should only be done by a qualified repair technician.

Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.

➢ In case of disposal of equipment

When disposing the unit and chair, appropriately dispose complying with all current applicable regulations and local codes.

In EU area, EU directive 2002/96/EC on waste electrical and electronic equipment (WEEE) is applied on this product.

In this directive, environment conscious recycling/abandonment is obligated.

➢ Disposal of residue material

Please request a special contractor when you dispose amalgam.

SYMBOLS

In this book, on the labels or on the control panel of CP-ONE PLUS, following symbols are used. Confirm the meaning of each symbol.

Symbol	Description	Symbol	Description	Symbol	Description	Symbol	Description
	Power ON		Power OFF		Chair Manual Switch		Chair presetting switches
	Chair last position switch		Chair automatic return switch		Chair presetting switch 1		Chair presetting switch 2
	To rise the chair/headrest		To lower the chair/headrest		To recline the chair/headrest		To return the chair/headrest
	Chair/headrest selection switch		Handpiece light switch		Spray on/off switch		Bowl rinse switch
	Doctor's number switch		Cupfiller switch		Dental light switch		Lock switch
	Dental timer switch		Function switch		Store switch		Page forward switch, page back switch
	Headrest auto return		Bowl turning switch (optional)		Chair speed selection switch (optional)		Legrest heater switch (optional)
	Micromotor forward/reverse switch	W	Water	A	Air		rotation modes of the micromotor
	Decrease the water feed quantity		Increase the water feed quantity		Decrease the limit rotational speed		Increase the limit rotational speed
	Store button		Selector switch		Selector switch		Water heater
SN	Serial number		Manufacturer		Date of manufacture		Non-ionizing radiation
	Authorized representative in the European community		Caution It means "Caution, Warnings, or possibility of danger.		Separate collection for electrical and electronic equipment		Type B Applied parts
	Refer to instruction manual/booklet		Extra SW		Autoclave Symbol This symbol on component means that the component can be sterilized with an autoclave at 135℃ max.		Protective earth (ground)
	Functional earth (ground)		Comply with MDD,93/42/EEC and RoHS Directive,2011/65 /EU				

SAFETY PRECAUTIONS

- Before use, read the "Safety precautions" carefully to ensure proper use.
- The following information is designed to ensure safe use of this product and to prevent injury and damage to you and others.
- The precautions contained here are classified depending on the severity and degree of imminence of possible injury or damage resulting from improper use.
- Be sure to follow all the information, which is important for safety.

Classification of precautions	Severity and degree of imminence of possible injury or damage
⚠ WARNING	This symbol indicates that "ignorance of these precautions may lead to severe injury or even death as a result of improper use."
⚠ CAUTION	This symbol indicates that "ignorance of these precautions may lead to mild or moderate physical injury or damage to property as a result of improper use."
NOTICE	This symbol indicates that "it is recommended to follow these precautions for safety."

⚠ WARNING

1. Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time

Be sure to turn off breakers for equipment in the clinic when this product will not be used for a long period of time (following the completion of work, during the suspension of business, etc.). Insulation degradation may cause electrical fire.

2. Be sure to turn off the main switch upon completion of work or during work breaks

Be sure to turn off the main switch upon completion of work or during work breaks. This prevents incorrect operation due to accidental contact and associated hazards.

3. Never disassemble or repair this product

Individuals other than certified repair technicians should not disassemble or attempt to repair this product. This could lead to an accident, failure, electric shock or fire.

4. Be sure to establish a grounding connection

Be sure to establish a proper grounding connection. (Refer to a vendor for grounding connection.) Failure or electric leakage may lead to electric shock.

5. Use with caution in the presence of electromagnetic interference waves

Do not place this product around equipment generating electromagnetic waves (including communications equipment, elevators, etc.) as incorrect operation of this product may occur in the presence of electromagnetic interference waves. Do not use equipment generating electromagnetic waves, such as mobile phones, around this product.

6. Be sure to turn off the main switch when electrocautery is in use

Be sure to turn off the main switch when electrocautery is in use, because noise may cause incorrect operation of this product.

7. Use with caution on patients with a cardiac pacemaker

Use this product with extreme caution on patients with a cardiac pacemaker. In the case of any abnormalities in patients during use, immediately turn off this product and discontinue use.

8. Ensure the maintenance of this product

- Failure to maintain this product may lead to physical injury or property damage.
- See pages 69-76 for maintenance.

SAFETY PRECAUTIONS

⚠ WARNING

9. Be sure to use the mirror cover

- Be sure to use the mirror cover of the dental light when the light is turned on. Direct contact with lamps may cause burns.
- See the Instruction Manual of the dental light for further information.

10. Be sure to turn off the power when replacing lamps

- Be sure to turn off the power when replacing the dental light. This could result in electric shock.
- Use only dedicated halogen lamps.
- Immediately after a halogen lamp has burnt out, the lamp and the lamp holder are still hot. Replace the lamp after they cool down.
- Do not touch halogen lamps with bare hands.
- See the Instruction Manual of the dental light for further information.

11. Do not place objects weighing 3 kg or more on the Doctor's table

Do not place objects weighing three kilograms or more on the Doctor's table. This could cause damage to the Doctor's table, defective function or accidents.

12. Do not place an undue load on the arm

Do not get on or place an undue load on the arm of this unit or dental chair armrest. This could cause the unit to topple or other accidents.

13. Do not place a load on the top of the unit

Do not get on, sit on or place heavy objects on the top of the unit. Damage to the top of the unit may result in physical injury.

14. Immediately wipe off any water spills or leakage on the floor

Immediately wipe off any water spills or leakage on the floor.

Decreased strength of the floor may lead to physical injury including fall, or property damage.

15.Take action for power fail

Shut down the main switch of Doctor`s table after power fail recovery due to avoid the unexpected movement.

⚠ CAUTION

1. Only experienced personnel should use this product

Only dentists or other dental professionals should use this product.

2. Confirm safety before use.

Before use, confirm that the parts are correctly and safely operating and that there are no obstacles around this product.

3. Pay attention to patients and children

Keep your eyes on patients (especially, children) so that mischief or inadvertent operation of equipment will not lead to unexpected accidents.

4. Discontinue use if you feel that “something is wrong”

Always be careful to inspect this product for looseness, rattling, tilting, wobbling, sounds, temperature, odors, etc. Immediately discontinue use at the first feeling that “something is wrong.”

5. Do not smack or rub this product

Do not smack or rub this product forcefully. This could cause damage to covers or defective function.

SAFETY PRECAUTIONS

⚠ CAUTION

6. Be sure to operate switches with your hands

Be sure to operate switches with your hands, except the foot controller, which is operated with your foot. Operation with body parts other than hands may cause damage or incorrect operation.

7. Precautions when using water other than tap water

The water unit is intended for use with tap water. Caution should be exercised as the use of water other than tap water (water through a sterilizer of water systems, etc.) may result in failure of equipment.

8. Practice of flush out

Practice the flush out of water retained in the unit before the start of clinical practice→at the beginning of each work day to maintain the quality of water for dental treatment and ensure a steady supply of water to handpieces. See pages 54-55 for the procedure for flush out.

9. Pay attention during movement of the Doctor's table

- Pay attention to surroundings when the Doctor's table is moved. Injury from the tips of handpieces, etc., may occur.
- Be sure to move the Doctor's table while holding the handle of the unit.

10.Pay attention the interference between table and chair

The cart type has no safety switch, so pay attention the interference between chair and unit when chair is moved.

11. Do not place anything hot on the Doctor's table

Do not place anything hot on the Doctor's table. This could cause deformation or discoloration.

12.Do not place anything articles on the Doctor's table

Do not place anything articles on the Doctor's table when the table part is moved up and down.

13. Immediately wipe off drug solution when it comes into contact with this unit

Should drug solution or water comes into contact with this unit, immediately wipe it off with a dry soft towel, etc. This could result in defective function or electric leakage as well as spotting or rusting.

14. Be careful not to heat an empty water heater

Exercise caution as heating of an empty water heater may result in burning of the heater, leading to fire.

15. Precautions after the cleaning of 77-type 3-way syringe

Tighten the nut securely as loosening of the nut of the syringe nozzle may result in detachment of the nut and nozzle during use.

16. Put a cover on the scaler tip

After use, be sure to put the dedicated tip cover (if a cover comes with the unit) on the scaler in the holder. If the cover is not used, injury from the scaler tip may occur.

17. Precautions when using handpieces, etc.

In order to ensure safety, be sure to confirm that rotation has completely stopped before changing the rotation speed of the micromotor or inserting/removing the bar of handpieces. See the Instruction Manual accompanying various handpieces for further information.

18. Precautions in handling of the gas burner

- Keep the gas burner way from flammable materials. This may cause a fire.
- Be sure to extinguish the flame and turn off the main valve when the gas burner is not in use.

19. Beware of the cart hose

Do not step on the cart hose. This could lead to damage to the hose or cause people or objects to fall down.

SAFETY PRECAUTIONS

⚠ CAUTION

20. Do not use the water cleaning filter in a setting where freezing is expected

Do not use the water cleaning filter in a setting where freezing is expected. Damage to parts may lead to water leakage.

21. Pay attention to contact injury during automatic operation of the dental unit

Pay special attention to surroundings during automatic operation of the dental treatment table. Damage to the backrest, stool or Doctor's table may occur. Confirm that the patient is seated in the proper position and keep your eyes on the patient during operation.

22. Precautions for cleaning the operation panel (membrane switches)

Penetration of droplets of sanitizing spray into the back of the operation panel may be associated with switch failure. Use a paper towel soaked with sanitizing solution to clean the surface of the operation panel.

23. Precautions for cleaning of the spittoon bowl

- Never use sandpaper, metal scrub brushes or abrasive cleaning agents to clean the bowl.
- Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc.

24. Pay attention to water discharge when mating/unmating the spittoon bowl

Disable the weight-sensing cup filling sensor or turn off the main switch when mating/unmating the spittoon bowl or cup filler tray. Response to hands or objects during mating/unmating may produce discharge of water, including bowl rinse water, leading to rusting of metals. See page 48 for the sensor disabled mode.

25. Precautions for cleaning the resin cover

For cleaning, do not use cleaning agents containing solvent or abrasives, thinners or oil-based alcohol (butanol and isopropyl alcohol), which may cause cracks. Clean with a wet soft cloth or use a mild detergent diluted to an approximately 10% solution.

26. Precautions for sterilization

Do not sterilize besides the procedures that we provide. This could cause damage to the unit.

27. Precautions when cleaning the weight-sensing cup filling sensor

Do not clean the weight-sensing cup water feeding sensor with water. Malfunction may occur as the sensor is not waterproof. Also refer to the precautions when cleaning the resin cover described in item 24 above.

28. Set the pressure of the water tank at 200 kPa or less

Adjust the air supply pressure for the water tank to 200 kPa or less. An excessively high pressure may cause damage to the water tank.

29. Do not use water other than purified water, distilled water or pure water for the water tank

The water tank is intended only for use with purified water, distilled water and pure water. Do not use mouthwash or electrolyzed water, such as ConCool or povidone iodine, as they may cause clogged tubing or affect internal valves and equipment.

30. Precautions when using functions exclusive to NLX-PLUS

Be sure to turn off the automatic reverse and switch the rotation direction using the micromotor forward/reverse switch when root canal procedures are performed using NLX-PLUS with a left-handed screw-shaped file. Use with the automatic reverse on may cause fracture of files.

31. Precautions for use of handpieces

Handpieces may have poor spraying performance or generate heat due to the lack of cooling water/cooling air. In the case of the development of heat or an odor of something burning, immediately discontinue use and contact the dealer or our company because burns may occur or dental pulp may be adversely affected.

32. Close the water main valve upon completion of work

Be sure to close the water main valve at the end of each work day to prevent water leakage from occurring.

32. Read the documents accompanying the various pieces of equipment

Before use, be sure to carefully read the package inserts and Instruction Manuals accompanying the various pieces of equipment (including optional articles) to ensure proper use.

SAFETY PRECAUTIONS

NOTICE

1. Troubleshooting and contact information

In the case of any problems, discontinue use, turn off the main switch and contact the dealer or our company.

2. Check operation of the compressor

With no air supplied, this product does not operate even after turning on the main switch. Turn on the power of the compressor before operating this product.

3. Use the turbine with a water check valve

Use the turbine with a water check valve. Contact the dealer or our company when a turbine without a water check valve will be used.

4. Handling of equipment in the case of a power failure

Put the handpiece in the holder and turn off the main switch if equipment stops working during use due to a power failure or other reasons.

5. Use of flow rate adjustment knobs

Flow rate adjustment knobs for water and air are intended to increase/decrease the flow rate, but do not serve as stop valves. Caution should be exercised as tuning the knob excessively may cause it to turn free.

6. Use cups weighing 3 g or more

Use “dental paper cups” or “dental stainless steel cups” weighing 3 g or more. Do not use cups weighing less than 3 g, to which the weight-sensing cup filling sensor may not respond.

7. Check the position of the spittoon bowl

Confirm whether the spittoon bowl is positioned so that the safety switch is released.

If the spittoon bowl is positioned to interfere with the chair, it should be moved to a position where the safety switch is released.

OPERATIONAL PRECAUTIONS FOR USE OF MEDICAL ELECTRICAL EQUIPMENT（SAFETY AND ACCIDENT PREVENTION）

1. Only experienced personnel should use this product.

2. The following items must be taken into consideration when installing equipment.
   (1) Install in a location away from water or accidental splashing.
   (2) Install in a location which will not be adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, air containing salt, sulfur and other substances.
   (3) Take care to protect the equipment against tilting, vibrations and strong impacts, such as during transportation.
   (4) Equipment must not be installed in locations where chemicals are stored or gasses are generated.
   (5) Be careful with the frequencies, voltages and allowable amperes (power consumption) of the power supply.
   (6) Make sure that all batteries are installed properly and in good working order (discharging curve, polarity, etc.).
   (7) Properly connect ground wires.

3. The following items must be taken into consideration when using the instrument.
   (1) Make sure that equipment activates properly after checking switch contact, polarity, dial setting and meters, etc.
   (2) Make sure that the instrument is properly grounded.
   (3) Make sure that all cables are properly connected and secured.
   (4) Use of other instruments and appliances on the same power circuit is liable to cause errors and incorrect flash output resulting in incorrect diagnosis or hazards.
   (5) External circuits that may come in direct contact with the patient must be checked frequently.
   (6) Make sure that all batteries are installed properly and in good working order.

4. The following items must be taken into consideration when using the equipment.
   (1) Be sure to minimize the time and quantity required for diagnosis and treatment.
   (2) Always assure that the overall equipment and patient are in a good condition.
   (3) When an abnormality is found in the equipment or patient, take proper measures such as stopping the instrument while assuring the patient's safety.
   (4) Do not allow the patient to touch any part of the equipment.

5. The following items must be taken into consideration after use of the equipment.
   (1) Follow the specified procedure for setting the control switches and dials, etc., to their original position before turning OFF the instrument.
   (2) Do not pull off cables by hand to avoid exerting an excessive force on them.
   (3) The following must be taken into consideration regarding storage location.
      a. Store the instrument in locations free from splashes of water.
      b. Install in a location which will not be adversely affected by atmospheric pressure, temperature, humidity, ventilation, sunlight, dust, air containing salt, sulfur and other substances.
      c. Take care to protect the equipment against tilting, vibrations and strong impacts, such as during transportation.
      d. Equipment must not be installed in locations where chemicals are stored or gasses are generated.
   (4) Clean and rearrange accessories, cables and cable restraints, etc., in the proper manner.
   (5) The instrument must be cleaned beforehand so that there will be no problems with subsequent service.

6. If there are problems, affix on the equipment a label describing the problem and then request repairs.

7. Equipment must not be modified.

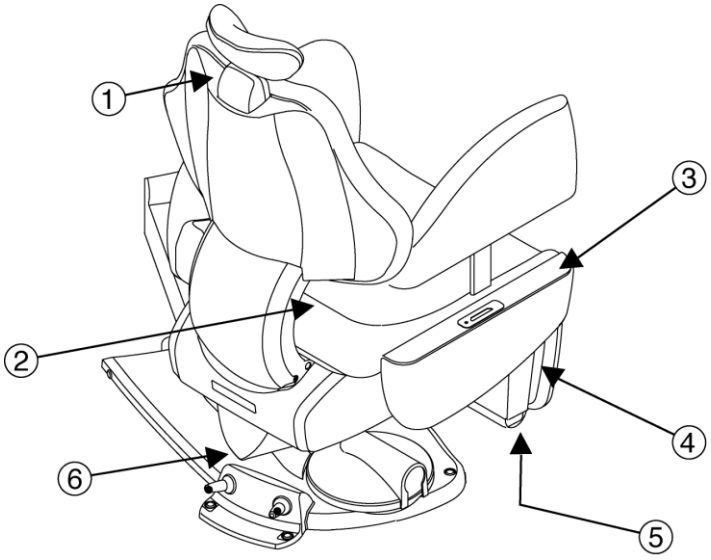
8. Maintenance
   (1) Make sure to check the equipment and its components for any abnormalities.
   (2) If you have not used it for a significant period of time, check the instrument beforehand to assure that it is in a normal condition and operates safely.

SAFETY PRECAUTIONS

■ **Caution Points during Operation of the Product**

Description of Symbol Marks

→ Caution areas (Moving parts should be the attention)



Description of attention areas

① Take care not to be trapped by moving parts of the headrest.
Do not allow hands, fingers, or hair to become entangled in the moving parts of the headrest.

② Take care not to be trapped by moving parts of the backrest.
Do not put hands or feet into the gap between the backrest and the seat.

③ Take care not to be trapped by the armrest.
Do not put hands into the gap between tops and bottoms of the armrest.

④ Take care not to be trapped by the lower part of the seat.
Do not put hands or feet into the gap in the lower part of the seat.

⑤ Take care not to be trapped by the lower part of the legrest.
Do not put your feet under the legrest.

⑥ Take care not to be trapped by the lower part of the flange cover and main link cover
Do not put your feet under the flange cover and main link cover

NOTICE

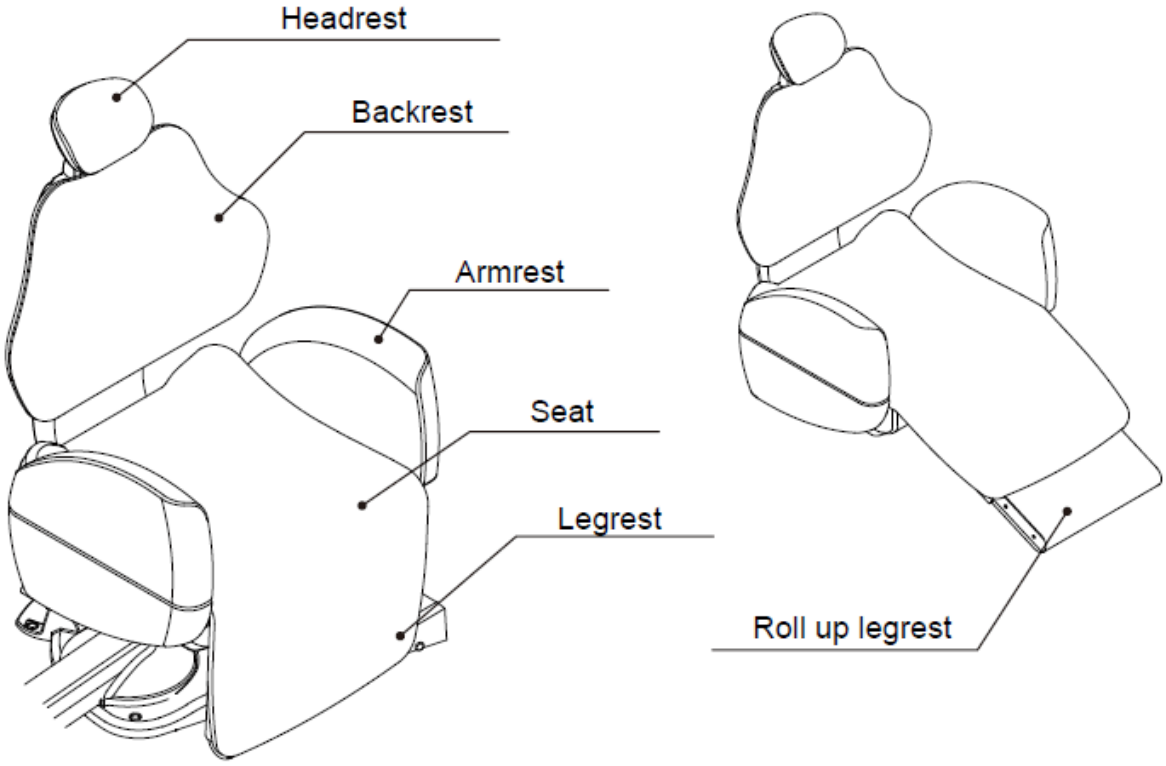
Shock less movement

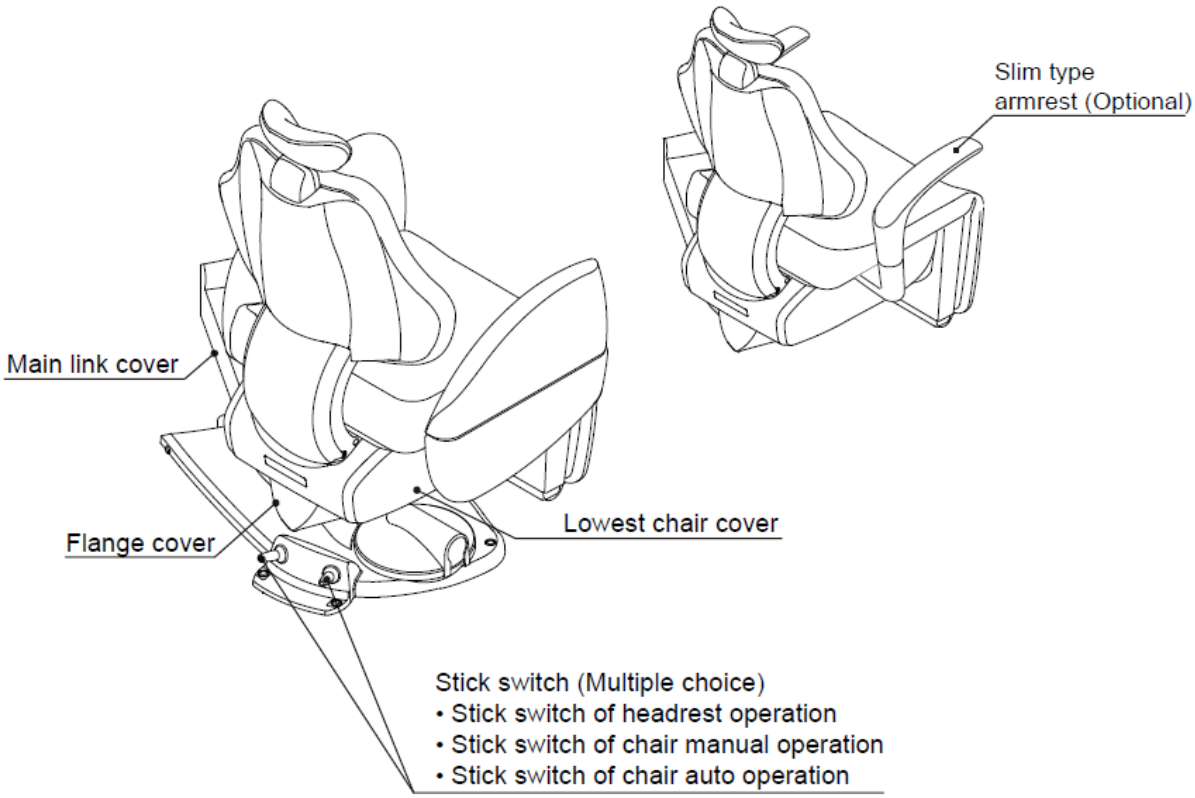
This product is equipped with shock less-less function that enables it start and stop smoothly.

Warm-up mode

This product, being controlled by hydraulic pressure, may cause the variance of its stopping position according to oil temperature and/or patient's weight.
To minimize such variance of stopping positions, it is equipped with WARM-UP MODE which is automatically activated as soon as the main switch is turned on, if the oil temperature is too low.
During the WARM-UP MODE operation, the alarming beep will sound for three (3) minutes.
If you want to stop the WARM-UP MODE operation, activate any one of switches that control the chair movement.(i.e. auto switch, chair manual switch, preset switch)

OVERVIEW AND MAJOR COMPONENTS

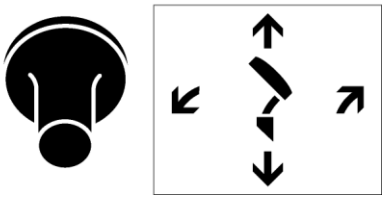




OPERATING INSTRUCTIONS

■ Operation of headrest

Stick switch of headrest operation (Multiple choice)



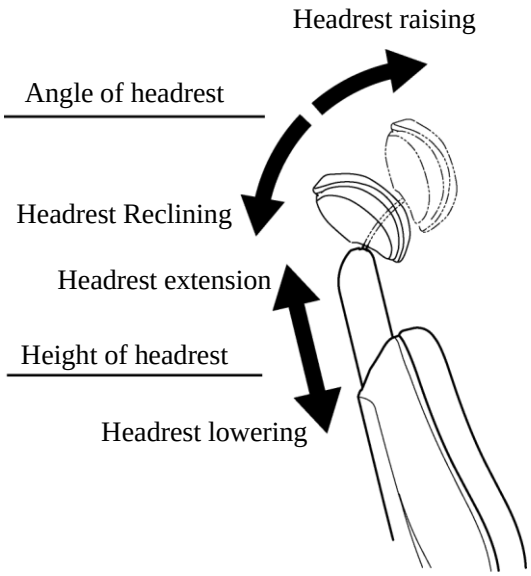
● Operating instruction for Stick switch of headrest

Keep depressing ↑ the headrest stick switch upward until the headrest is lifted up to the desired position.

Keep depressing ↓ the headrest stick switch downward until the headrest is lowered to the desired position.

Keep depressing ↙ the headrest stick switch to left side until the headrest is reclined to the desired position.

Keep depressing ↗ the headrest stick switch to right side until the headrest is raised up to the desired position.

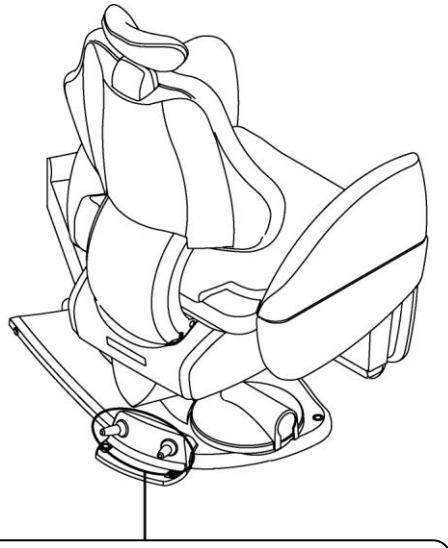


⚠ CAUTION

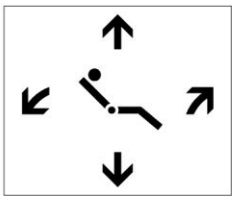
- Before moving the headrest, confirm that the patient is placing his/her head in a normal position, and never leave the patient unsupervised while the headrest is in motion.
- Do not use the headrest in a position where the patient feels painful.
- Before moving the headrest, be careful not to have the part of your body caught between the headrest and backrest.

OPERATING INSTRUCTIONS (Optional)

■ **Manual operation of chair**



Stick switch of chair manual operation (Multiple choice)



■ Operating instruction for Stick switch of chair manual operation

Keep depressing ↑ the stick switch upward until the seat is lifted up to the desired position.

Keep depressing ↓ the stick switch downward until the headrest is lowered to the desired position.

Keep depressing ↙ the stick switch to left side until the backrest is reclined to the desired position.

Keep depressing ↗ the stick switch to right side until the backrest is raised up to the desired position.

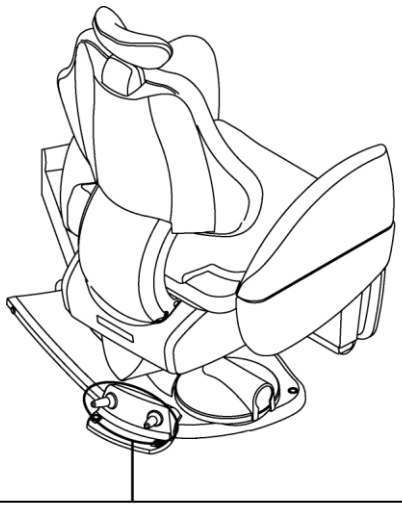
❋ The chair can operate only by depressing stick switch.

⚠ CAUTION

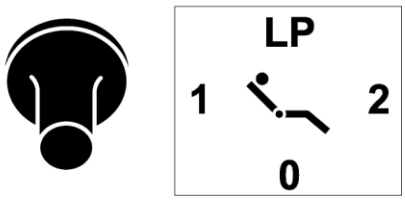
- Before moving the chair, confirm that the patient is placing in a normal position, and never leave the patient unsupervised while the chair is in motion.
- Before moving the chair, confirm that there is no obstacle around it.

OPERATING INSTRUCTIONS (Optional)

■ Chair auto operation (Preset switch operation)



Stick switch of chair auto operation (Multiple choice)



Momentarily depress **1** the auto mode stick switch to left side, the chair will move to the preset-1 position automatically.

Momentarily depress **2** the auto mode stick switch to right side, the chair will move to the preset-2 position automatically.

Momentarily depress **LP** the auto mode stick switch upward while in the reclined backrest position (treatment position), the backrest will raise to the mouth rinsing position automatically.

Momentarily depress **0** the auto mode stick switch downward, the chair will return to the initial position.

*Momentarily depress the auto mode stick switch upward again the backrest will be reclined to the previous treatment position automatically.

*Immediately release any auto mode stick switches after depressing them, because when any auto mode stick switches are depressed about five seconds, the chair position will be set up to preset with buzzer sound.
Refer to the “Setting of auto operation switch” for the setting of each position.

*After depressing “0” to return the chair to its initial position, depress “0” again to return the headrest to its initial position.

⚠ CAUTION

- Before moving the chair, confirm that the patient is placing in a normal position, and never leave the patient unsupervised while the chair is in motion.
- Before moving the chair, confirm that there are no children around chair.
  Please also keep children away from this product during off- medical examination.
- Before moving the chair, confirm that there is no obstacle around it.
- Before moving the chair, confirm that there is no obstacle between the base and flange cover, main link cover.

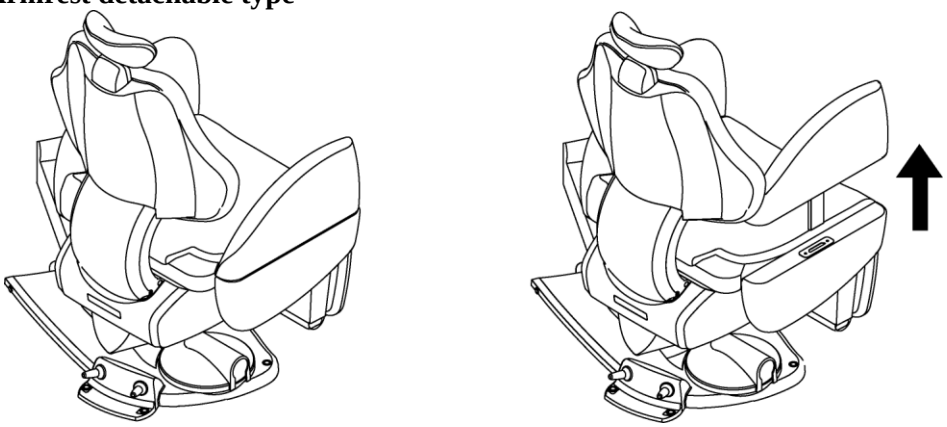
OPERATING INSTRUCTIONS

■ Cancellation method of auto operation (emergency stop)

- During automatic movement of chair, by depress of any operating switches of chair or foot controller, the automatic movement will be cancelled and stopped immediately.

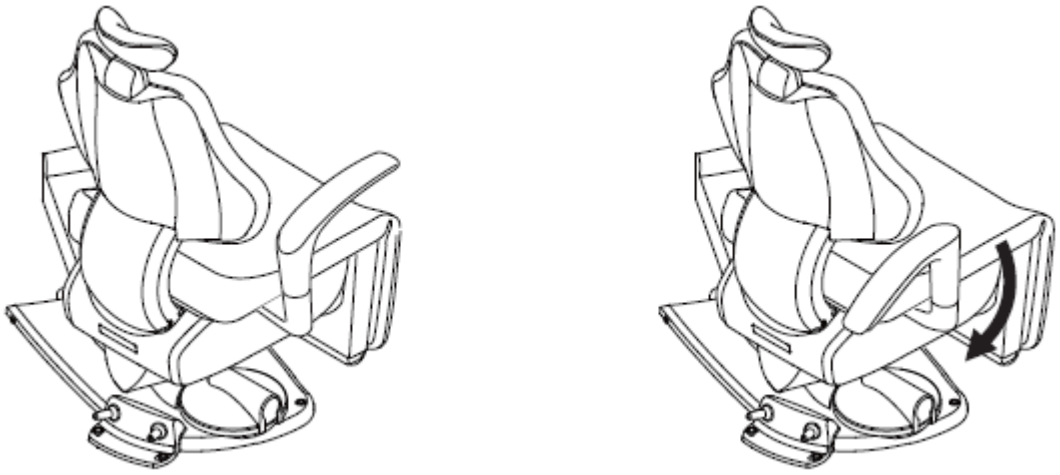
■ Armrest

- **Armrest detachable type**



The right armrest can be taken out after holding and pulling up it.
*Please get it back the right armrest to normal position by reverse procedure.

- **Armrest rotatable type**



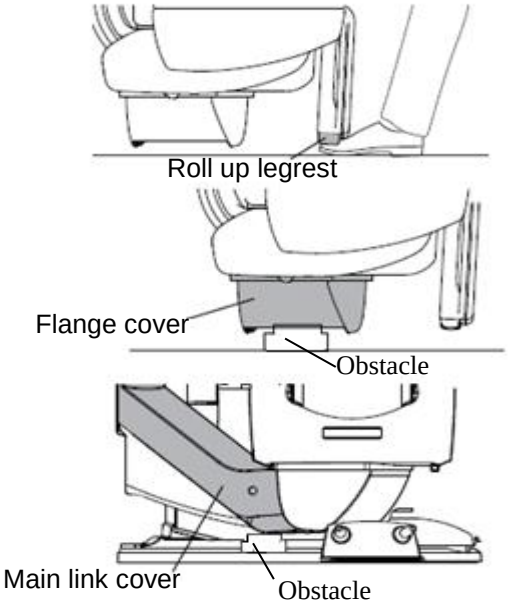
The right armrest can be rotated outward 130 degrees in a clockwise direction.
*Please get it back the right armrest to normal position by reverse procedure.

⚠ CAUTION

Do not lean on an armrest nor sit on an armrest.
It could damage an armrest or could cause an injury.

SAFETY SWITCH

■ Safety switch (Emergency stop)



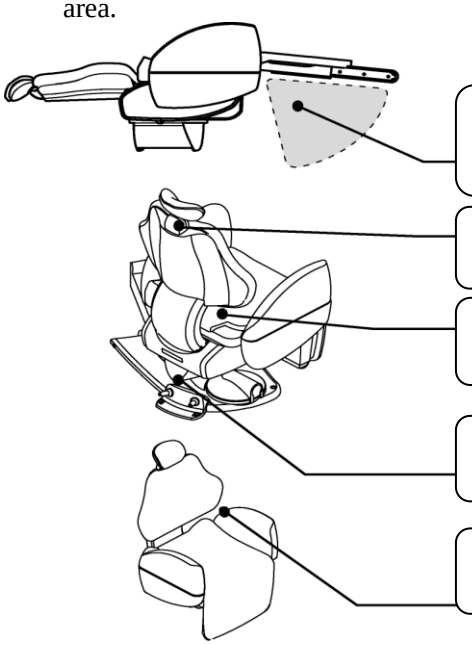
All chair movements can be stopped automatically by the safety switch function when there are any articles under roll up legrest. In that case, only seat lifting and backrest rising can be operated.
*Please recovery it after removing any causative articles for emergency stop.

All chair movements can be stopped automatically by the safety switch function when there are any articles under flange cover and main link cover.
In that case, only Seat lifting and backrest rising can be operated.
*Please recovery it after removing any causative articles for emergency stop.

While the chair is lowering, safety switch in the bottom of flange cover or main link cover operates the chair can be stopped after raising one second.

⚠ CAUTION

Before moving the chair, confirm that there is no obstacle around it.
Especially, please do not operate the chair in case human body or any articles are in the following area.



Between legrest and bottom fronted cover of chair or floor
(Especially, please take care during legrest operation or chair lowering)

Between headrest cover and backrest cover
(Especially, please take care during headrest storage.)

Between backrest bottom and rear –end cover of seat.
(Especially, please take care during backrest reclining.)

Between flange or main link cover and base cover.
(Especially, please take care during chair lowering.)

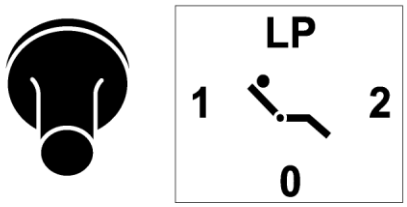
Between backrest and armrest.
(Especially, please take care during backrest raising.)

* The chair raising, backrest movement, legrest rising and headrest raising are operated by hydraulic pressure. Especially, please take care for the chair raising, backrest movement and regrest rising as great deal of power.
* The chair lowering is moved by chair self weight (with patient's own weight). Pay attention for a great deal power.
*The backrest reclining, regrest lowering and headrest lowering are operated by spring force and chair self weight (with patient's own weight). Please take care during moving it.

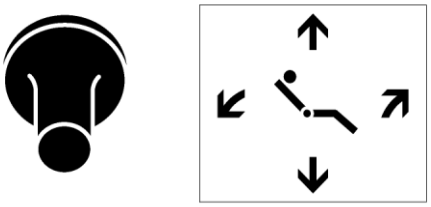
AUTO OPERATING SWITCH ADJUSTMENT

■ Examining position adjustment

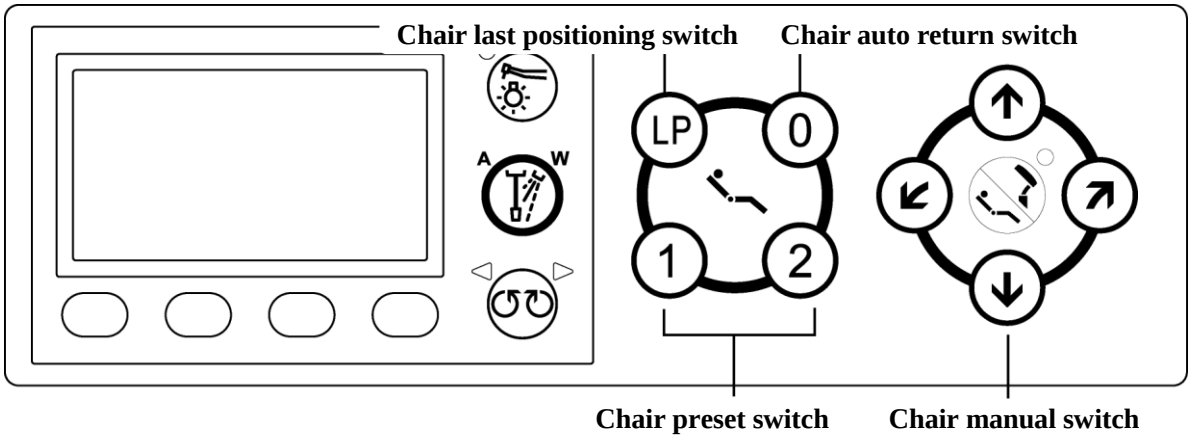
Stick switch of chair auto operation



Stick switch of chair manual operation



Operating panel switch (membrane switch) of doctor table



1. In case the stick switch of chair auto operation (optional) is included.

1. Operate by the stick switch of chair auto operation to set up chair height and reclining angle of backrest.
2. Upon deciding of the desired direction either ① or ②, keep pressing the stick switch of chair auto operation until buzzer sounds.(in about 5seconds).Release the stick switch if the buzzer sounds for setting completion.
3. Release the stick switch if the buzzer sounds for setting completion.

To memorize the headrest position is not available.

* The raising angle of legrest is automatically determined by the reclining position of backrest when the auto operating switch is set up.
Please refer to the "Positional relation between backrest and legrest, rollup" for details.

2. Please setup by the Operating panel switch (membrane switch) of doctor table if the Stick switch of chair auto operation is not optional.

1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
(The chair manual switch in doctor table operating panel is also available.)
2. Upon deciding of the desired direction (either ① or ②), keep pressing the stick switch of chair auto operation until buzzer sounds.(in about 5 seconds).
3. Release the stick switch if the buzzer sounds for setting completion.

AUTO OPERATING SWITCH ADJUSTMENT

■ Preset position adjustment

1. In case the stick switch of chair auto operation (optional) is included.

1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
2. Upon deciding of the desired direction 0, keep pressing the stick switch of chair auto operation until buzzer sounds. (in about 5 seconds).
3. Release the stick switch if the buzzer sounds for setting completion.

2. Please setup by the Operating panel switch (membrane switch) of doctor table if the Stick switch of chair auto operation is not optional.

1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
   The chair manual switch in doctor table operating panel is also available.)
2. Keep pressing (0) the stick switch of doctor table operating switch until buzzer sounds. (in about 5 seconds).
3. Release the stick switch if the buzzer sounds for setting completion.

■ Mouth Rinsing Position Adjustment

1. In case the stick switch of chair auto operation (optional) is included.

1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
2. Upon deciding of the desired direction (LP), keep pressing the stick switch of chair auto operation until buzzer sounds. (in about 5 seconds).
3. Release the stick switch if the buzzer sounds for setting completion.

2. Please setup by the Operating panel switch (membrane switch) of doctor table if the Stick switch of chair auto operation is not optional.

1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
   (The chair manual switch in doctor table operating panel is also available.)
2. Upon deciding of the desired direction LP, keep pressing (LP) the stick switch of chair auto operation until buzzer sounds. (in about 5 seconds).
3. Release the stick switch if the buzzer sounds for setting completion.

AUTO OPERATING SWITCH ADJUSTMENT

■ Legrest position free-adjustment

- The legrest position upon in normal auto operation is determined up to the backrest position described as the bottom of this page.
  The legrest position can be adjusted by the following operation.

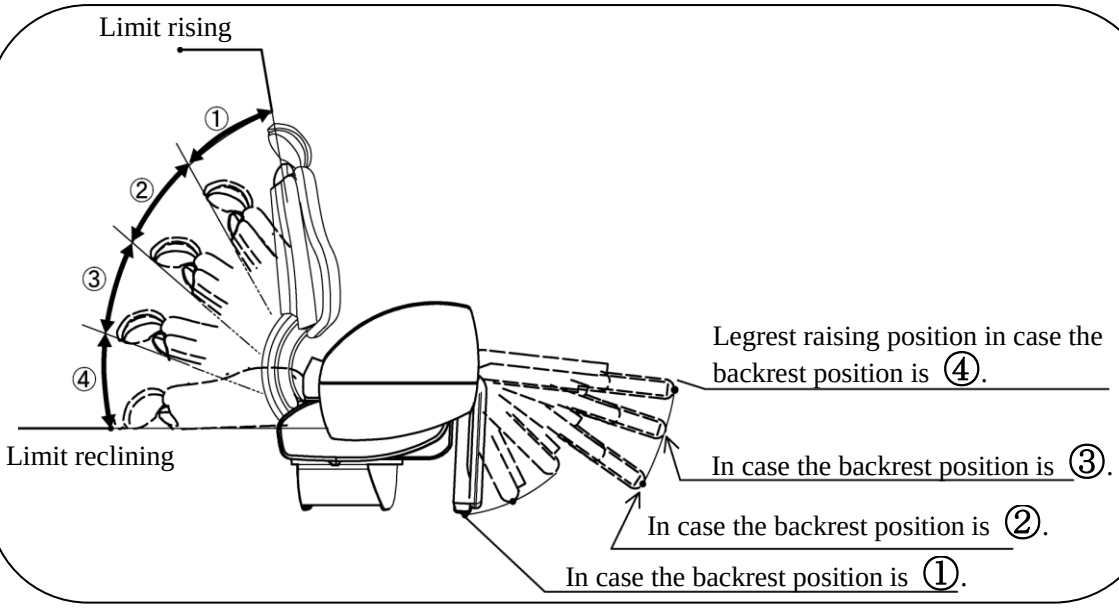
1. Operate by the stick switch of chair manual operation to set up chair height and reclining angle of backrest.
   (The chair manual switch in doctor table operating panel is also available.)
2. Keep pressing the chair preset switch ② and (LP) of doctor table operating panel switch (membrane switch) at the same time until buzzer sounds. (in about 5 seconds).
3. Upon deciding of the desired legrest raising angle, keep pressing either (↑) switch for upward or (↓) switch for downward of chair manual operating stick switch during buzzer sounds.(or doctor table operating panel (membrane switch))

Upon deciding of the desired preset direction ((0) or ① or ② or LP), keep depressing the stick switch of chair auto operation until buzzer sounds.(in about 5 seconds).

4. (The chair auto switch in doctor table operating panel (membrane switch) is also available.)
5. Release the stick switch if the buzzer sounds for setting completion.
6. It can be returned to normal operation after beeping off by depressing either (↗) switch for backrest raising or (↙) switch for backrest reclining of chair manual operating stick switch (or doctor table operating panel stick switch (membrane switch)).

● Positional relation between backrest and legrest, rollup

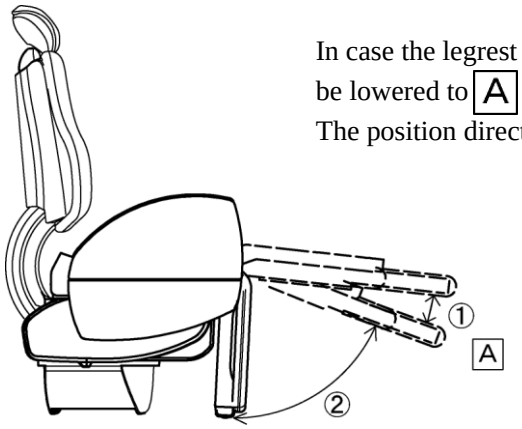
- he raising angle of legrest is automatically determined up to the backrest position of reclining angle in auto operating switch adjustment.
  The expanding rate of rollup is determined by the raising angle of legrest.



POSITIONING RELATION OF CHAIR

■ Legrest non-storage adjustment during LP operation

The legrest angle during LP operation is as the following figure



In case the legrest position is ① before LP operation, it will be lowered to A
The position directly comes to a stop in case of ②.

SAFETY PRECAUTIONS

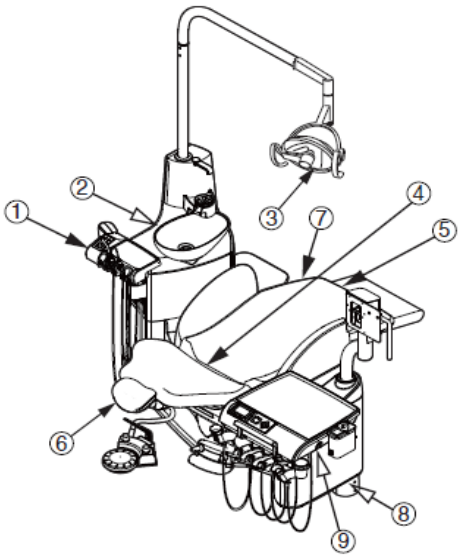
■ Schematic view of points requiring attention during operation of this product (illustrated with a base mount type)

Description of signs

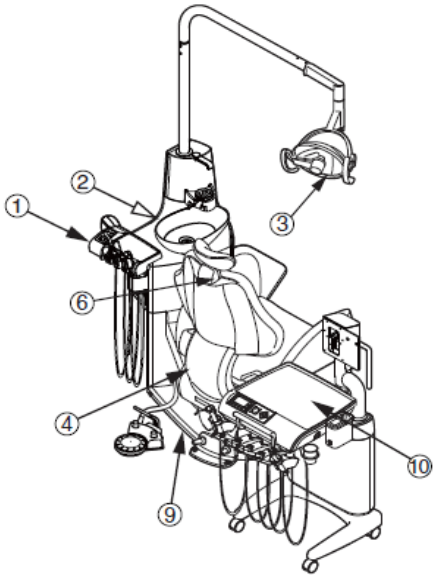
→ Points requiring attention (parts requiring attention, including moving parts, rotary parts or detachable parts)

⇨ Points requiring attention which have an emergency shutdown mechanism

Base mount type



Cart type



Description of the numbers assigned to points requiring attention

① Pay attention to contact with the Assistant's holder
Be careful that the upper body of the patient will not lean in a direction toward the cuspidor unit.

② Check the locking mechanism of the spittoon.
Confirm that the switches for the chair elevation and automatic operation are not activated when the spittoon is turned in the direction of the chair. However, if the spittoon bowl with motor-operated rotation (optional) function is not in place, the spittoon bowel is automatically moved into place and then the automatic operation (0, 1, 2, and LP) starts.

③ Pay attention to the installation of the mirror cover
Confirm that the mirror cover is securely installed.

④ Pay attention not to be caught in moving parts of the backrest
Do not put hands or feet in the gap between the backrest and the seat.

⑤ Pay attention not to be caught in the bottom of the legrest
Do not put feet under the rest.

⑥ Pay attention not to be caught in moving parts of the headrest
Do not catch fingers or hair in moving parts of the headrest.

⑦ Pay attention not to be caught in the bottom of the seat
Do not put hands or feet in the gap at the bottom of the seat.

⑧ Check the locking function of the main arm
Confirm that the automatic operation of the chair is not activated following the rotation of the Doctor's table to the back of the backrest.

⑨ Pay attention to the interference between the chair and the table
Do not position the table within the range of motion of the chair.

⑩ Pay attention to the interference between the table and the monitor.
Do not place object on the doctor’s table when adjusting the table height.

PRACTICE OF FLUSH OUT

Precautions for water quality

⚠ CAUTION

Practice the flush out of water retained in the unit at the beginning of each work day to maintain the quality of dental treatment water, avoid clogging of pipe and valve and ensure a steady supply of water to handpieces.

- After this unit has not been used for a long period of time (at the beginning of the week, in the morning, etc.), water retained in the hose inside the unit or water heater will create an environment where unwanted bacteria are likely to grow.
  In order to avoid clogging of pipe and valve, ensure safe treatment and untroubled operation of handpieces, practice the flush out of the unit water line at the beginning of each work day.
- In order to avoid clogging of pipe and valve, it is recommended that flush out of water inside the unit and hose of handpieces should be performed with fresh water at the end of morning office hours and at the end of each work day to inhibit the growth of unwanted bacteria.

Standard time required for flush out of the unit water line

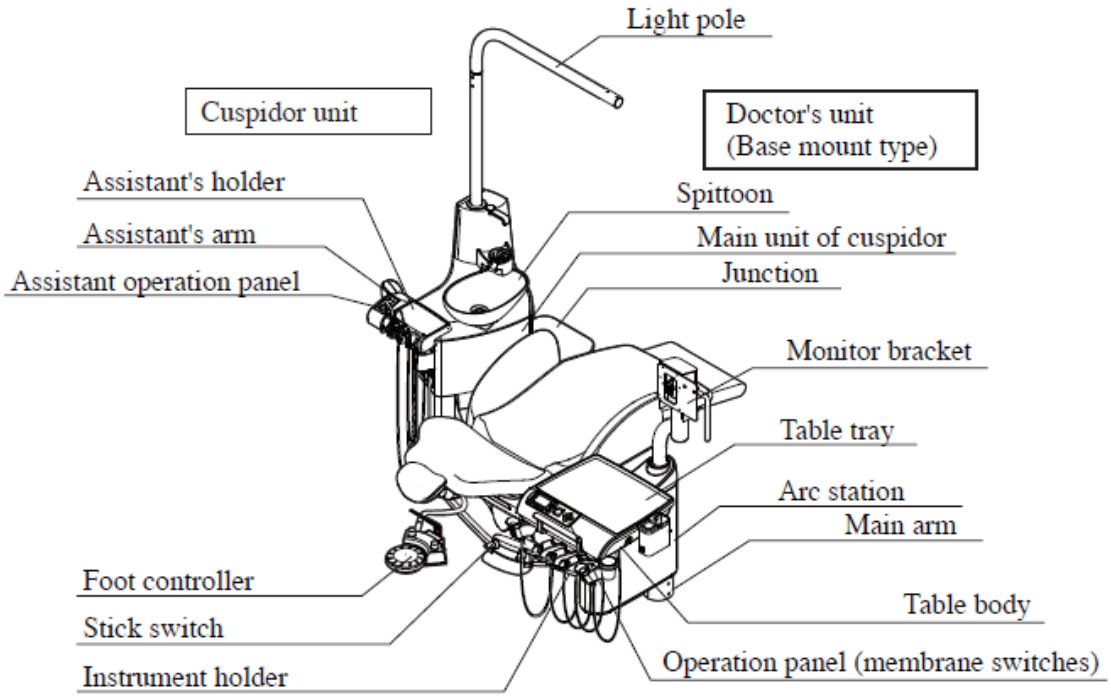
● Handpiece line Turbine Motor Scaler Syringe (Both Doctor' s and Assistant's)	●When cleaning water circuit of handpiece only Approximately 60 seconds per turbine, motor, scaler and syring (When cleaning all of them, as same as it takes Approximately 60 seconds) ● When cleaning cup water feed and spittoon bowl after cleaning handpiece Approximately 7 minutes per turbine, motor, scaler and syring (When cleaning all of them, as same as it takes Approximately 7 minutes) ⚠ CAUTION Perform flush out of the scaler with it attached to the main unit. Otherwise, a malfunction may be caused.
● Cuspidor line Cup filler (water heater) Bowl rinse	Approximately five minutes for water changing in the cup filler line.

Procedure of flush out

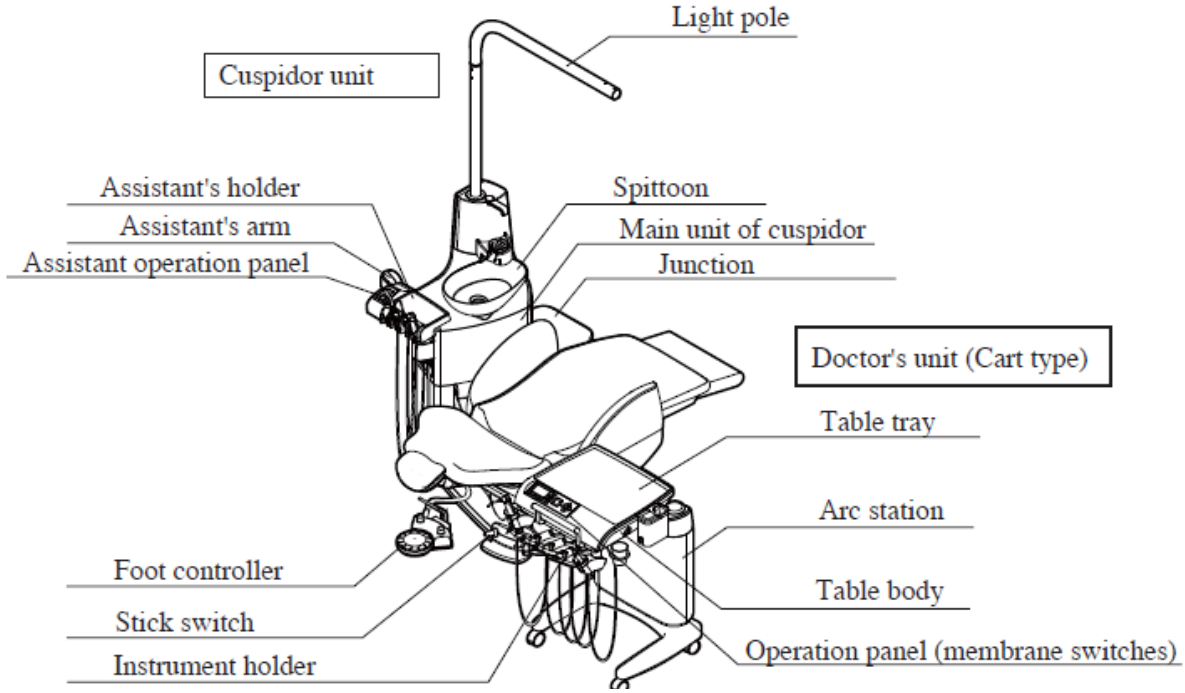
● Handpiece line Pick up handpieces from the holder one at a time, leave the turbine untouched and remove the shank from the motor and hold the motor over the spittoon bowl. (When the flush out function is active, pick up all handpieces in clusters and hold them over the spittoon bowl.)	● Specification with the flush out function ▪ See page 54-55 for the operation procedure for flush out.
● Cuspidor line Cup filler (water heater) Bowl rinse	● Specification with the flush out function ▪ See page 54-55 for the operation procedure for flush out.

OVERVIEW AND MAJOR COMPONENTS

■ Base mount type

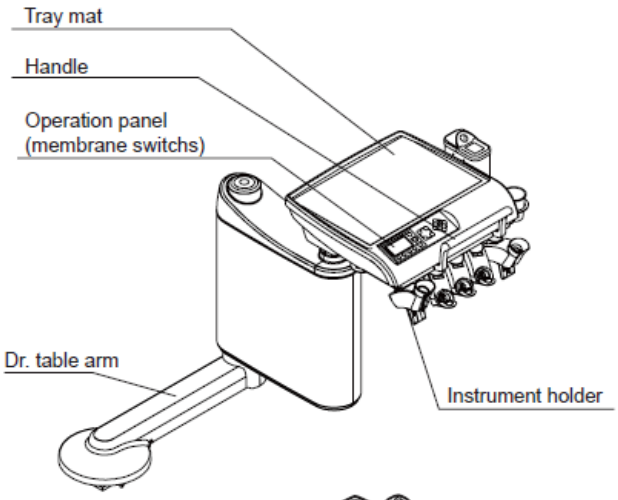


■ Cart type



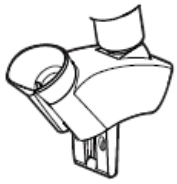
OVERVIEW AND MAJOR COMPONENTS

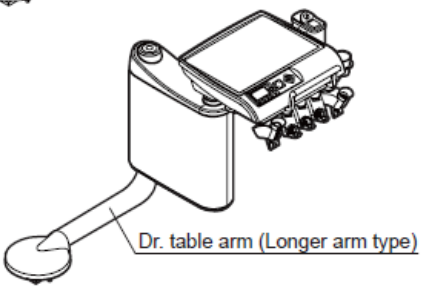
Doctor's table



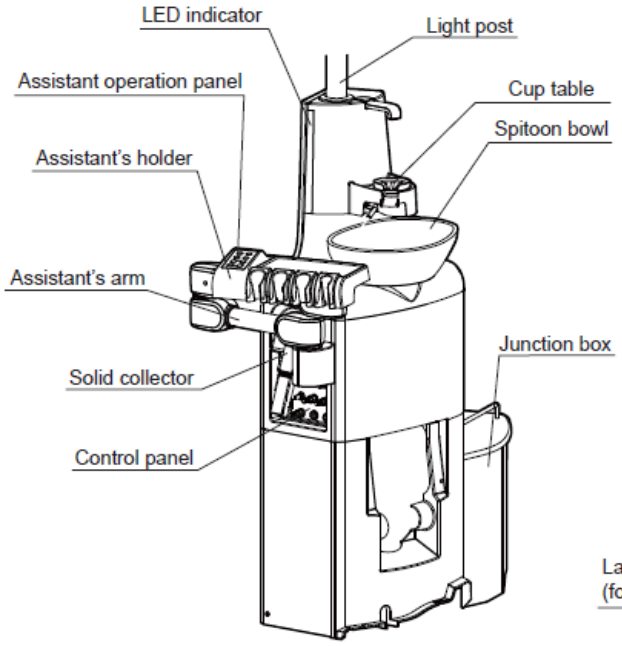
Place type

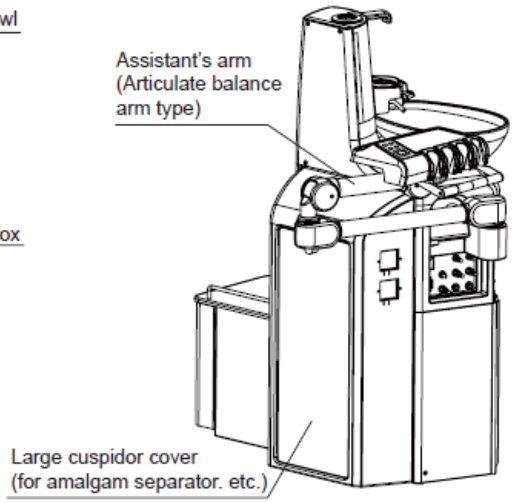
Holder type





Cuspidor

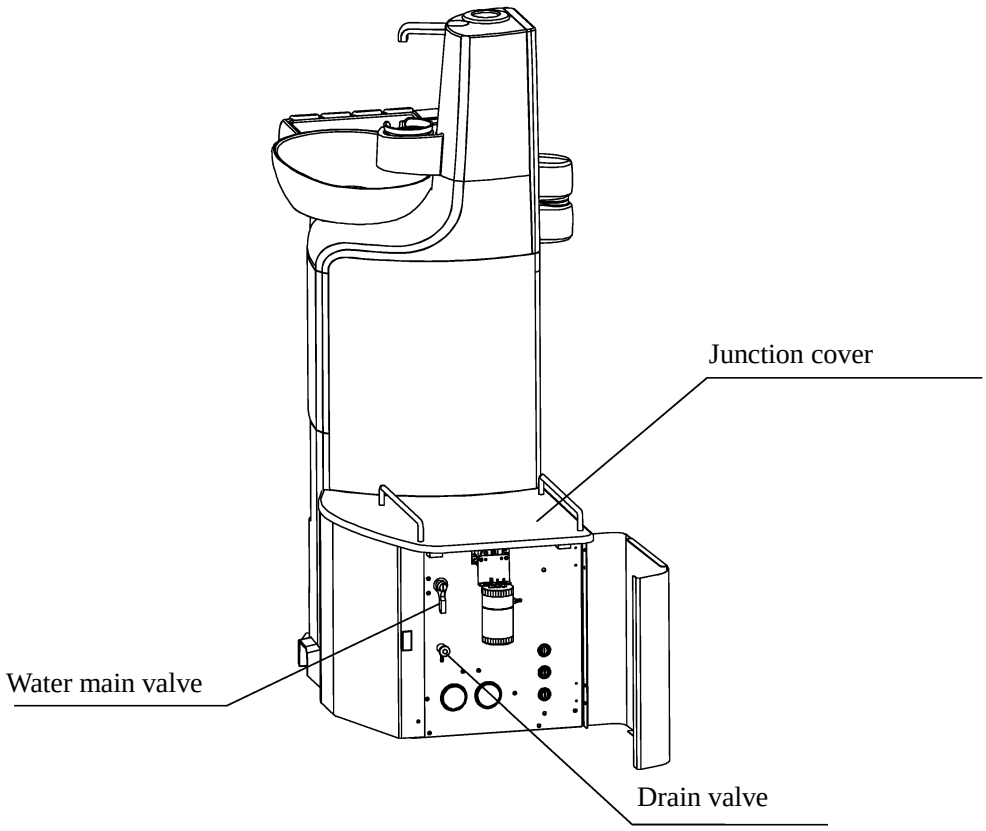




OPERATING INSTRUCTIONS

1 Utility box

■ Major master valves for opening and closing of water and air supply



◆ Air master valve (inside the junction cover)
- The valve can be closed by turning it clockwise and opened by turning it counter-clockwise.
- Open/close the valve with a flathead screwdriver.

◆ Water master valve (inside the junction cover)
- The valve can be closed by turning it clockwise and opened by turning it counter-clockwise.

◆ Water main valve
- The valve can be opened/closed by turning it by 90 degrees. Open/close the valve as indicated.

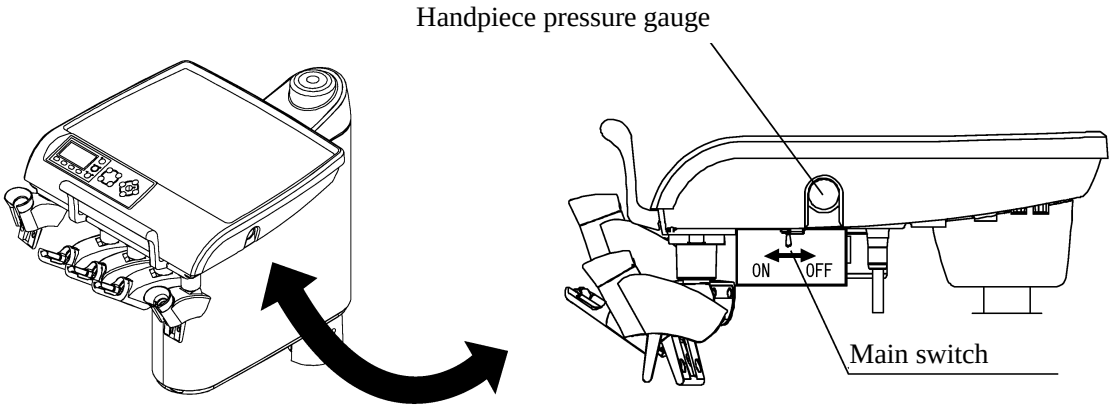
⚠ CAUTION

Be sure to close the water main valve at the end of each work day.

◆ Drain valve
- A valve to drain water retained in the air filter.

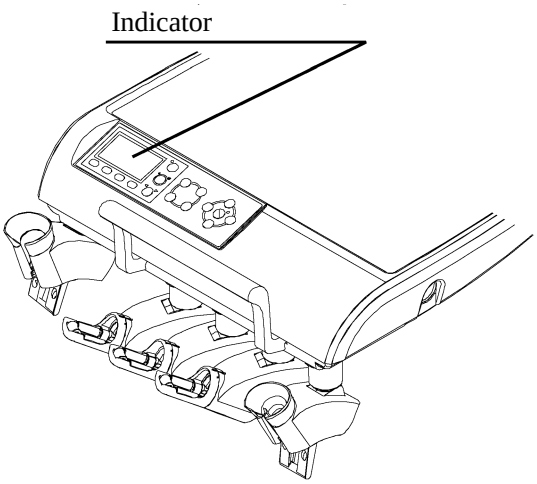
OPERATING INSTRUCTIONS

2 Doctor's unit



Arrow view of the right side of the doctor's table

■ Main switch

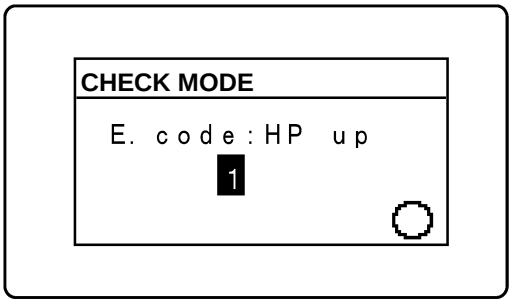


- After turning on the main switch, the indicator of the Doctor's operation panel starts to allow operation of the unit.
- After turning on the main switch,

Belmont

appears on the display of the Doctor's operation panel.

Error checking starts. If there are no errors, the execution screen of flush out will appear. See page 54-55 for the procedure.



- If there are errors, an error will appear on the indicator.

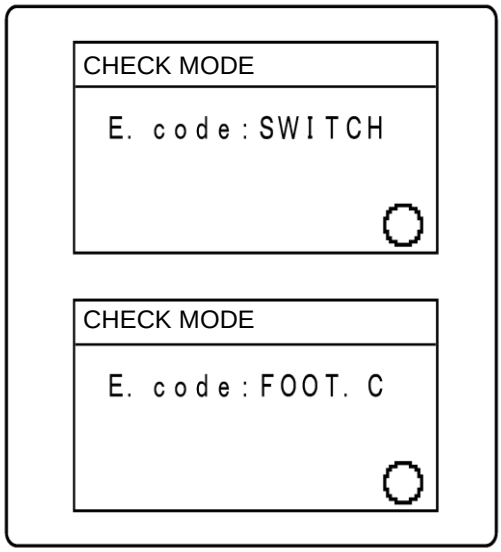
[Errors]

⊙ When a handpiece is picked up at the time the main switch has been turned on.

- The main screen will appear after returning the handpiece to the normal position.
- By pressing ◯ , the function of the handpiece recognized as being picked up will stop and flush out will be executed.

OPERATING INSTRUCTIONS

2 Doctor's unit



⊙ When there are switch inputs on the Doctor's operation panel at the time the main switch has been turned on.

- The main screen will appear when there are no switch inputs.
- By pressing ◯ , the function of the switch input will stop and flush out will be executed.

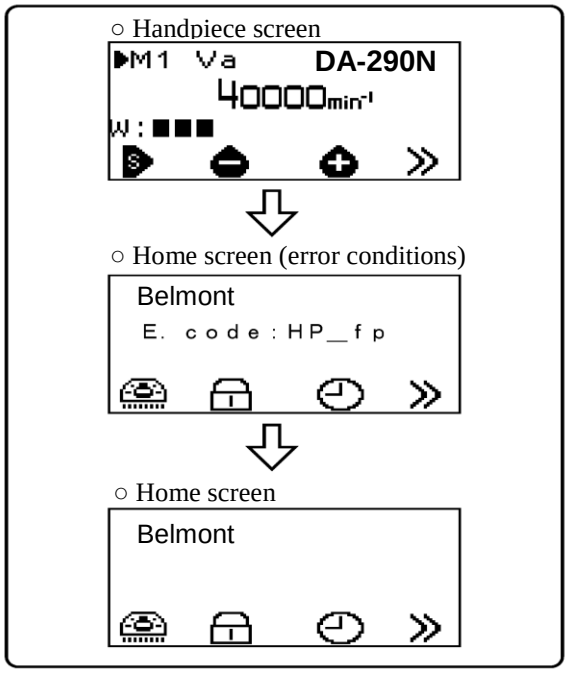
⊙ When the foot controller is stepped on at the time the main switch has been turned on.

- The main screen will appear when there is no input from the foot controller.
- By pressing ◯ , the function of the foot controller will stop and flush out will be executed.

■ Handpieces

- After being removed from the instrument holder, handpieces can be activated by using the foot controller.
- See pages 35-41 for the operation of the foot controller, micromotor and electric scaler.

■ First priority function of handpieces (first priority)



- Only the handpiece that is picked up first can operate. After picking up a handpiece, information on the handpiece appears on the indicator.
- If another handpiece is picked up before the first handpiece is returned to the holder, both handpieces will be inoperable even after the first handpiece is returned to the holder. In this case, the home screen will appear on the indicator, which indicates an error condition.
- When all the handpieces are returned to the holder, the error will be corrected.

* If the second handpiece is first returned to the holder, the first handpiece remains operable.

■ Handpiece pressure gauge

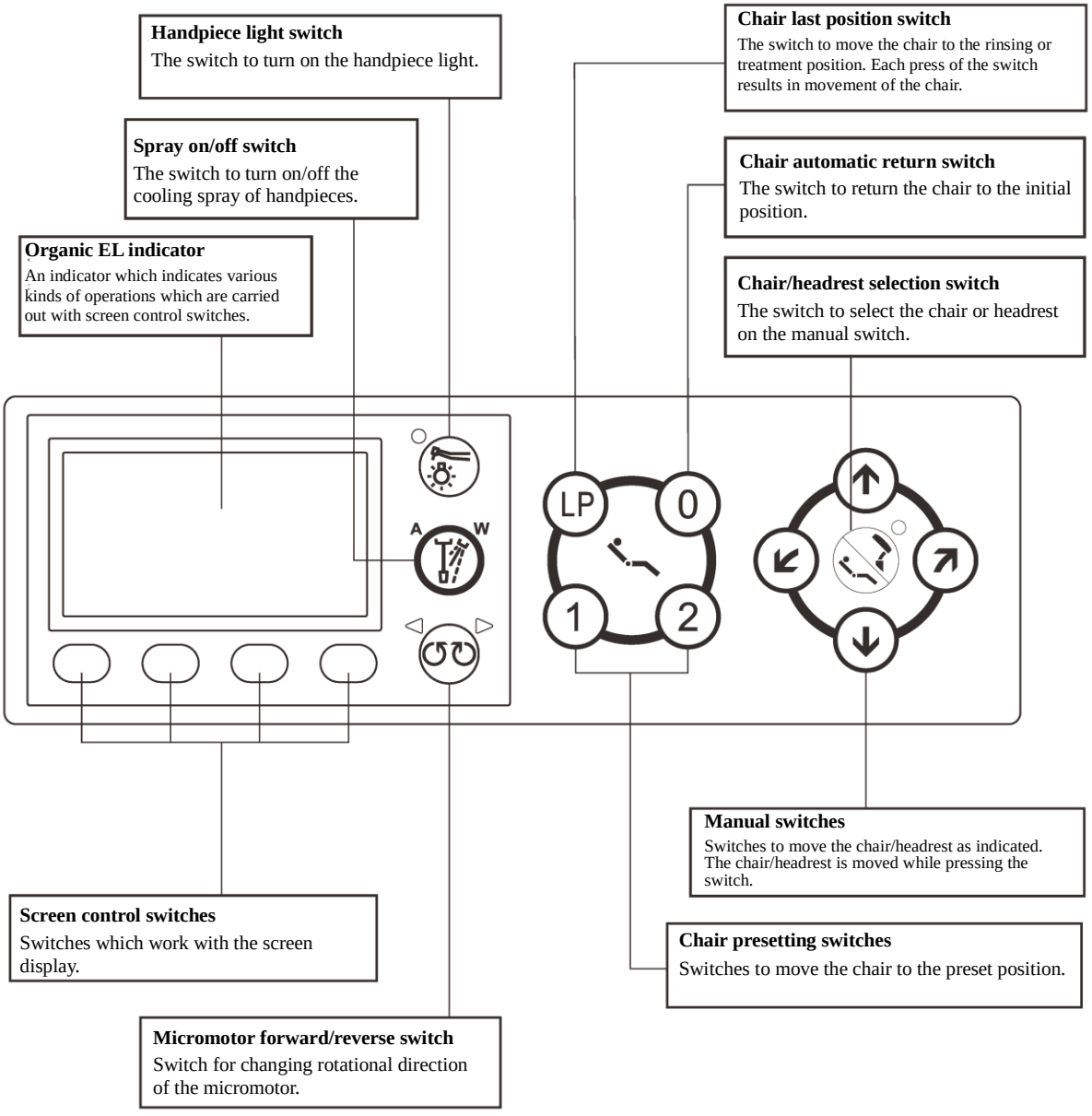
- This gauge indicates the drive air pressure of handpieces.

OPERATING INSTRUCTIONS

2 Doctor's unit

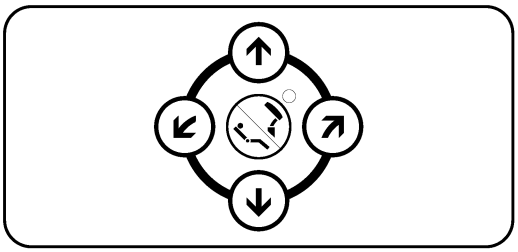
■ Description of the operation panel (membrane switches)

- An overview of the display and switches on the operation panel is presented in the following figure.
- See pages 26-31 for further information on the operation procedure.
- The switches on the operation panel have multiple functions. Various kinds of operations can be set by using them in combination with the function switch. See pages 51-64 for the operation settings.



OPERATING INSTRUCTIONS

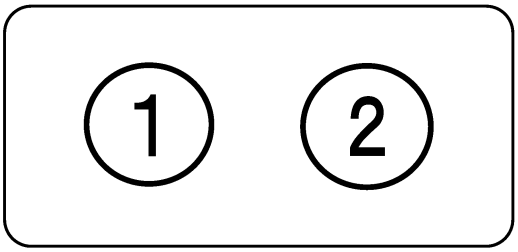
2 Doctor's unit



◆ Chair/headrest manual switches

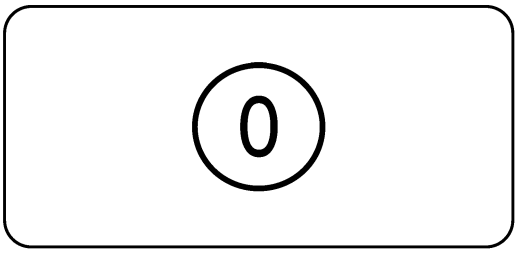
- These switches provide manual operation for elevating/lowering and reclining/raising of the chair/headrest. Pressing will allow the change-over between the chair and the headrest. When the headrest is selected, the LEDs located around these switches light up.

Pressing will move the chair/headrest up.
Pressing will move the chair/headrest down.
Pressing will recline the backrest/headrest.
Pressing will return the backrest/headrest.



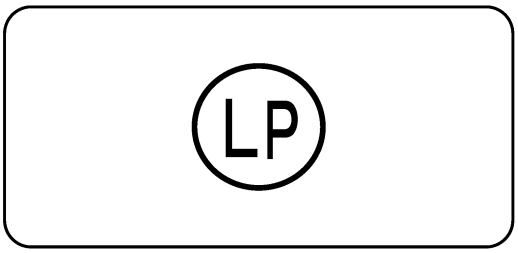
◆ Chair presetting switches

- Pressing either of these switches will move the chair to the preset height and the backrest to the preset angle. To interrupt the movement of the chair, press either of the chair switches.



◆ Chair automatic return switch

- Pressing this switch will lower the chair to the initial position and raise the backrest.
  To interrupt the movement of the chair, press either of the chair switches.
- When the chair is in the initial position and the headrest is raised or tilted forward, pressing this switch will automatically lower and recline the headrest for 10 seconds.



◆ Chair last position switch

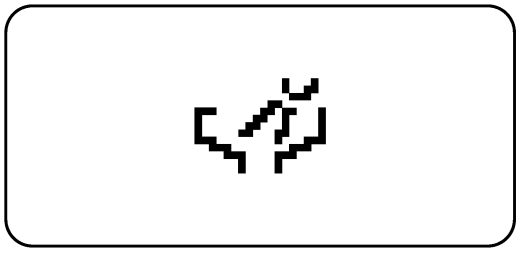
- Pressing this switch with the chair in the treatment position moves the chair to the rinsing position and another press of this switch returns the chair to the original fine-tuned treatment position.
- When the spittoon bowl LP interlocking operation is set with motor-driven spittoon bowl turning (optional), the spittoon bowl automatically moves in and out at the rinsing position in combination with LP operation.

⚠ CAUTION

Be careful that the stool will not be caught in the gap between the chair and the headrest when the chair is operated with an auto-switch. Damage to the backrest, stool or Doctor's table may occur. Confirm that the patient is seated in the proper position before operation of the chair and keep your eyes on the patient during operation.

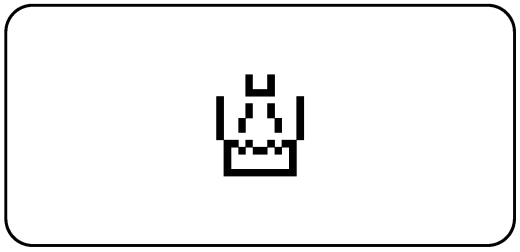
OPERATING INSTRUCTIONS

2 Doctor's unit (indicator)



◆ Bowl rinse switch

- Pressing this switch causes water to come from the bowl rinse nozzle for flushing the spittoon bowl.
- Flushing is timer-controlled. The timer has been set for approximately six seconds.
- Pressing and holding the switch for two seconds or more provides continuous flushing.
- To interrupt flushing, press the bowl rinse switch again.

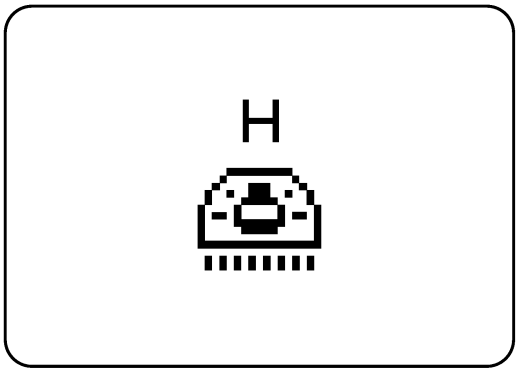


◆ Cupfiller switch

- This switch is the switch for the water feeding, which is separate from the sensor water filling feature.
- By pressing this switch, water comes from the cupfiller nozzle. When this switch works in conjunction with bowl rinsing, water also comes from the bowl rinse nozzle for flushing the spittoon bowl.
- The quantity of water feeding is predetermined. See page 56 for the setting procedure.
- To interrupt water filling, press this switch again.
- Pressing and holding this switch for two seconds or more provides transition to the sensor disabled mode. See page 48 for the sensor disabled mode.

⚠ CAUTION

Do not press the switch in the absence of cups.



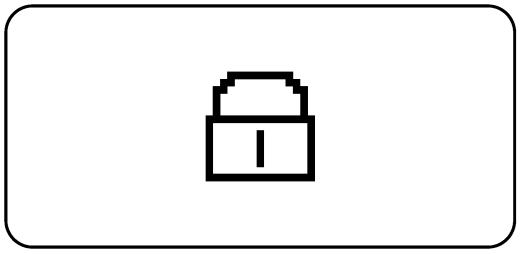
◆ Dental light switch

- This is the ON/OFF switch for the dental light.
- The status of the dental light is presented in English above the pictogram.
  H...HIGH (illuminance)
  L...LOW (illuminance)
  R...Composite mode (resin)
- Pressing and holding the switch transitions to the composite mode (resin).

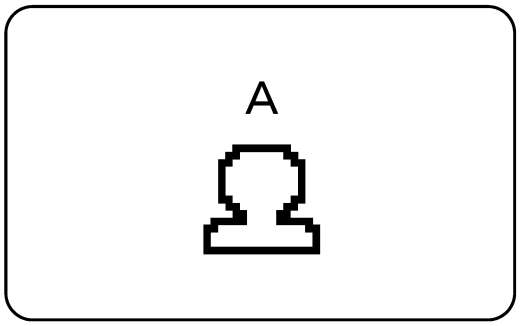
❋ In case of 900 dental light (Type AL-920), the pictogram of H or L is not displayed in the status of HIGH or LOW.

OPERATING INSTRUCTIONS

2 Doctor's unit (indicator)



◆ Lock switch
- Pressing this switch will lock the switches on the operation panel and the stick switch of the chair.
- Another press of this switch will release the lock.
- Please use the chair lock when you clean the operation panel or when you leave the chair.
- 「L」 is presented above the pictogram during locking.



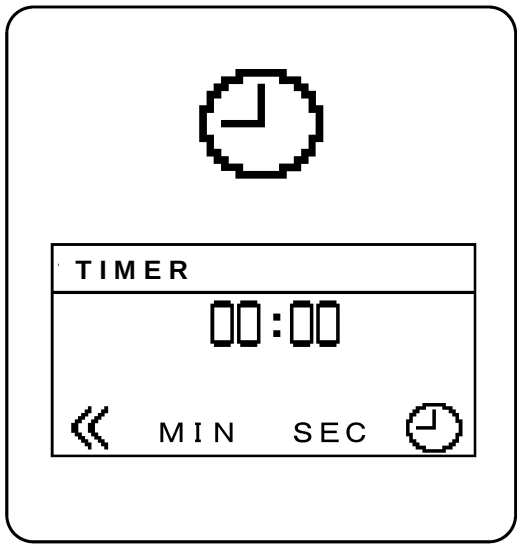
◆ Doctor's number switch
- Chair positions and settings of handpieces for three doctors can be recalled from memories A, B, and C.

⊙ The status of the rotation speed, rotation mode Fix/Variable, automatic reverse, torque and gear ratio from the memory of the micromotor (M1-M4).

* The setting function of torque and automatic reverse may not be included.

⊙ Mode available when the turbine and scaler are picked up.

⊙ Preset position of the chair (up to 3 positions per doctor).
- The current doctor's number is presented above the pictogram.



◆ Dental timer switch
- This is the switch for the dental timer setting.
- Dental timer setting can be initially stored by pressing any 4 preset switches of (0) (1) (2) (LP)
  The factory default setting is 3 minutes for (0), 1 minute for (1), 2minutes for (2) and 5 minutes for (LP).
- Timer starts by pressing 🕘 on the main screen.
  MIN...Time will increase by 1 minute (addition)
  SEC...Time will increase by 10 seconds (addition)
  By pressing « , the time will be cleared to 00:00, if the time is entered.
  The main screen will appear if the time is 00:00.
- The timer stops by pressing 🕘.
- When the timer reaches 0:00, an alarm will beep with a blinking displayed time. The timer can be deactivated by pressing either of the screen control switches.

【Storing method of Dental timer】

① Set a timer for the intended time.

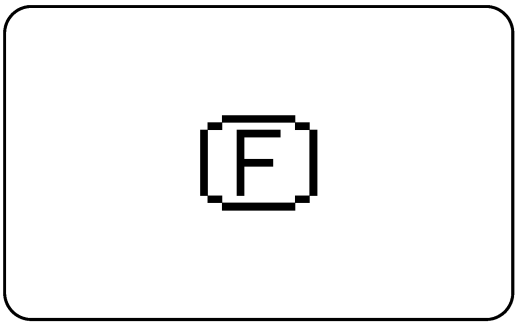
② Press and hold any intended switch as (0) (1) (2) (LP) until beep sound to save.

【Retrieving method for stored time of Dental timer】

Press any switch of (0) (1) (2) (LP) wishes to retrieve.

OPERATING INSTRUCTIONS

2 Doctor's unit (indicator)



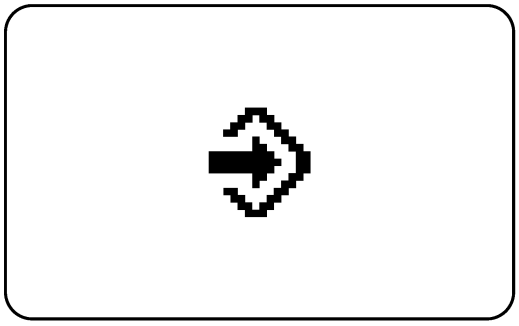
◆ Function switch

- This is the switch to set several operation states. The following operation states can be set.

1. Selection and operation of flush out
2. Setting of cupfiller
3. On/Off setting for interlocking operation between the cupfiller and the bowl rinse
4. On/Off setting of a beeping sound
5. Selection of the timing of lighting of the handpiece light
6. Change-over of spray mode

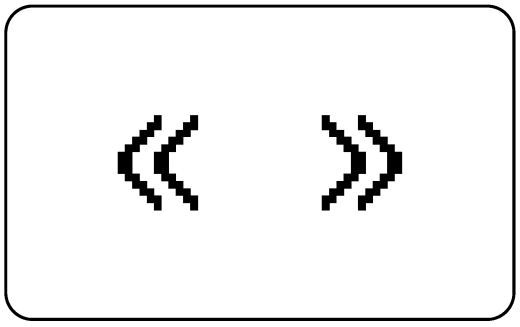
* Do not keep holding down this switch.

* See pages 54-58 for the procedures for operation and setting of the function switch.



◆ Store switch

- This is pressed to store data.
- This switch must be pressed and held. Pressing and holding this switch will produce a beeping sound and allow the display of the indicator to change.
  Only the display of the indicator changes when the beeper is set to “Off.”

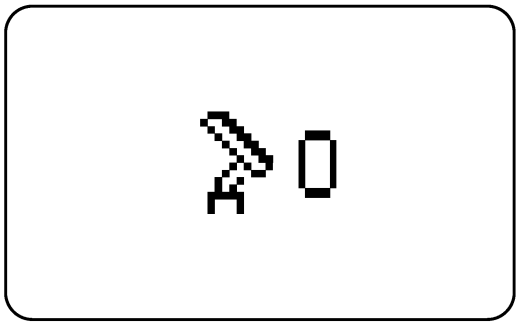


◆ Page forward switch, page back switch

- This switch is used to move pages.
- « also has the function of canceling existing settings.

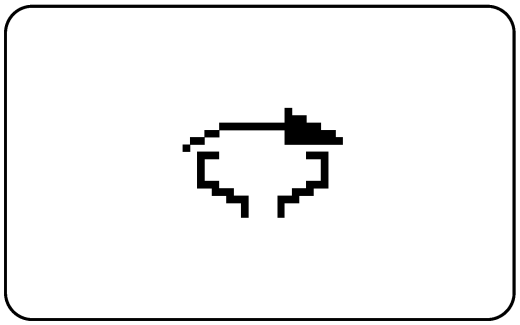
OPERATING INSTRUCTIONS

2 Doctor's unit (indicator)



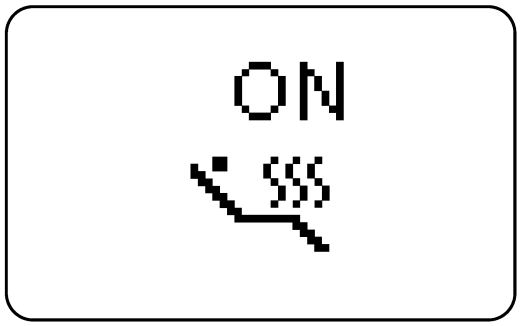
◆ Headrest auto return

- This is presented at the time the chair is in the zero position. Pressing ⓪ with this symbol indicated will house the headrest and this symbol will disappear following completion of the movement.



◆ Bowl turning switch (optional)

- This switch is pressed to automatically turn the bowl.
- Pressing this switch will turn the bowl automatically until the bowel reaches the rinsing position.
- The action of the turn can be interrupted by pressing the switch during turning.
- After interruption, another press of the switch will return the bowl to the original position automatically.
- However, the function of turning the bowl may not work depending on the height of the chair.

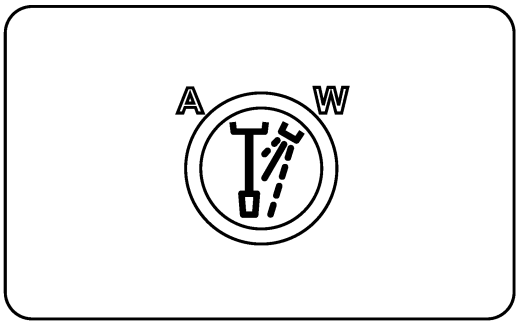


◆ Legrest heater switch (optional)

- This switch is used to turn on/off the legrest heater.
- “ON” is presented above the pictogram when the heater is used.

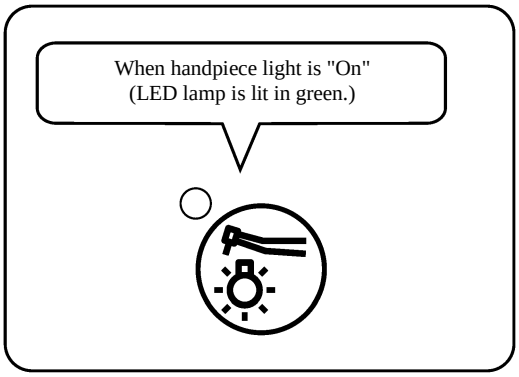
OPERATING INSTRUCTIONS

2 Doctor's unit



◆ Spray on/off switch

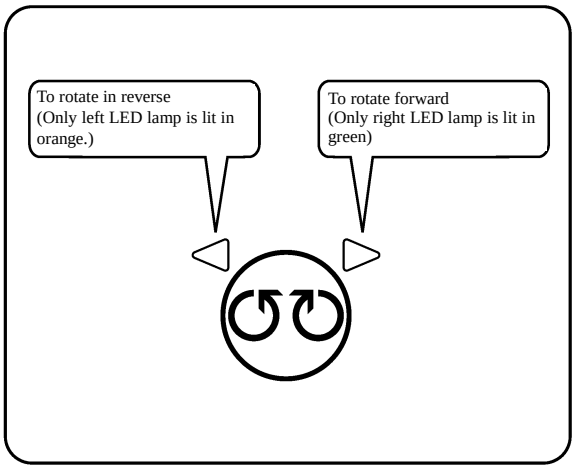
- This is the switch for turning on and off handpiece cooling spray.
  When the handpiece is picked up and this switch is pressed, the LED on the A side (air) or W side (water) goes on, indicating the selected function.
- If the electric scaler is used, only the water (W-side LED) goes on or off, regardless of the mode, when this switch is pressed.
- 2-mode operation and 4-mode operation can be selected by mode change-over setting.
- When this switch is pressed in 2-mode operation, spray ON/OFF is changed.
- In 4-mode operation, spray ON/OFF, water only and air only are changed when this switch is pressed.
- See (vi) on page 58 for mode change-over setting.



◆ Handpiece light switch

- This switch turns On and Off the handpiece light. Every press of the switch alternates between On and Off.
  See (v) on page 58 for lighting timing setting.

2 Doctor's unit



◆ Micromotor forward/reverse switch

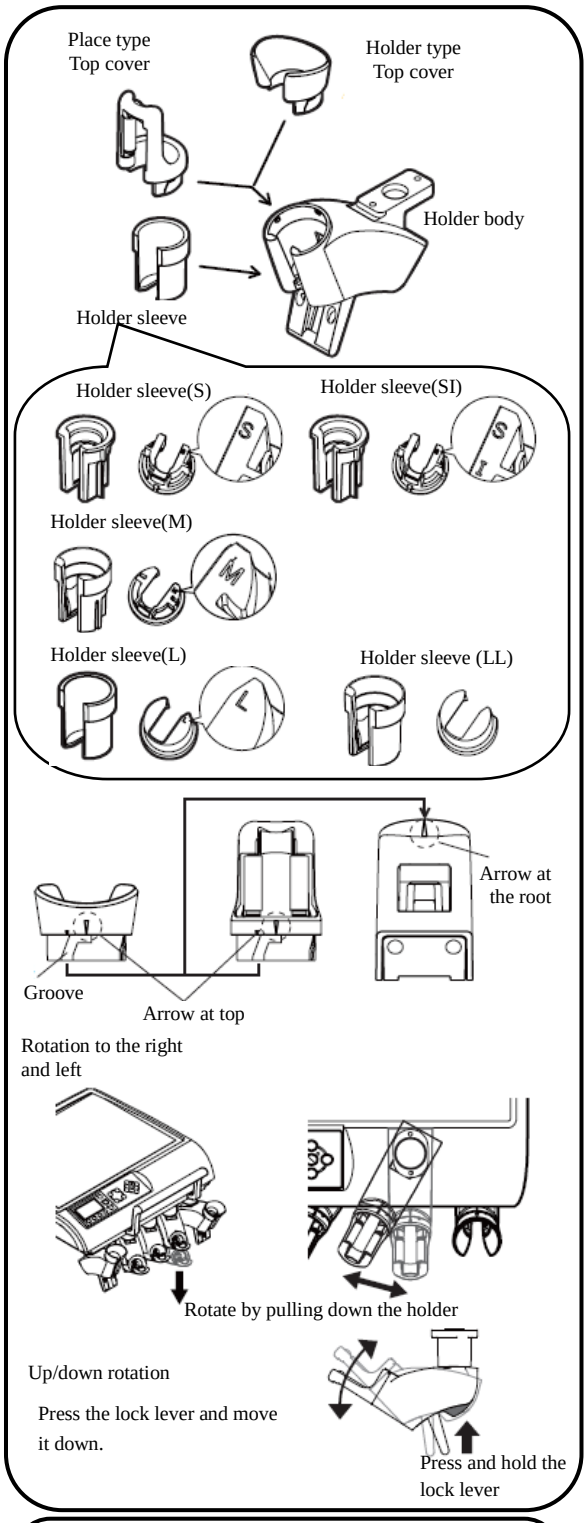
- This switch changes the rotational direction of the micromotor. Every press of the switch changes the forward (clockwise) rotation and reverse (counterclockwise) rotation.
  Immediately after the main switch is turned on, forward rotation is selected.

* The rotational direction cannot be switched during rotation of the micromotor. Use the switch after the micromotor stops.

OPERATING INSTRUCTIONS

2 Doctor's unit

■ Instrument holder



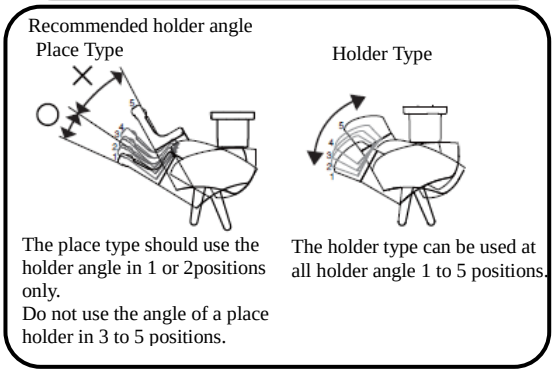
- Two types of instrument holders are available: Holder type and place type.
- The holder type and place type have the same insert ports at the top, which may be detached and replaced with each other.
- Attach the holder along the groove so that the arrow at the top is adjusted to the arrow at the root.
- Turn the top cover counterclockwise to detach.
- It is also possible to detach the holder sleeve and must be used the proper one according to the instrument type.
- The holder sleeves have the letters L, M and S on the back.(No letter on LL sleeve)

LL: Holder sleeve for 77 syringe, DCI syringe
L: Holder sleeve for Faro syringe
M: Holder sleeve for turbine, Motor
(MC3, TIM-40J, EM-6E/7E)
S: Holder sleeve for scaler
LUZZANI syringe, Intraoral camera
SI:For motor (NLX PLUS, NLX nano, MX)

- The instrument holder may be rotated to the right /left and up/down.
- To rotate to the right and left, pull down the instrument holder and rotate it. The instrument holder is fixed at two positions.
- The raise angle of the instrument holder may be adjusted at five positions. To raise the instrument holder, hold it and move it up. To lower the instrument holder, hold the lock lever behind the holder to unlock the holder and move it down.

⚠ CAUTION

Be sure to unlock the holder with the lock lever to move the holder down.
The instrument holder may break if it is moved down without unlocking it.



■Recommended angle of the place holder

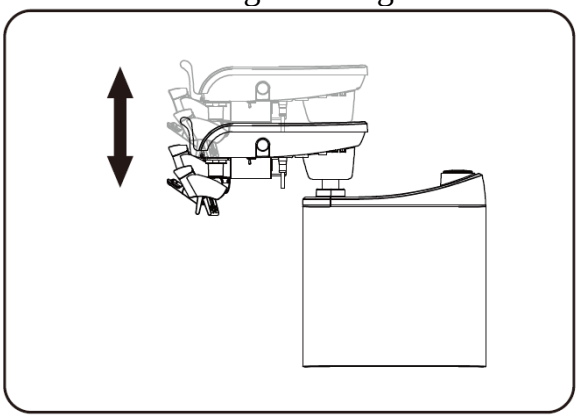
⚠ CAUTION

In use of a place type holder, set the holder angle in 1 or 2 positions only within recommended positions.
If set the holder angle at 3 to 5 positions, the sensor of holder will cause malfunction during an operation and the handpiece will not work properly.

OPERATING INSTRUCTIONS

2 Doctor's unit

■ Table elevating/lowering

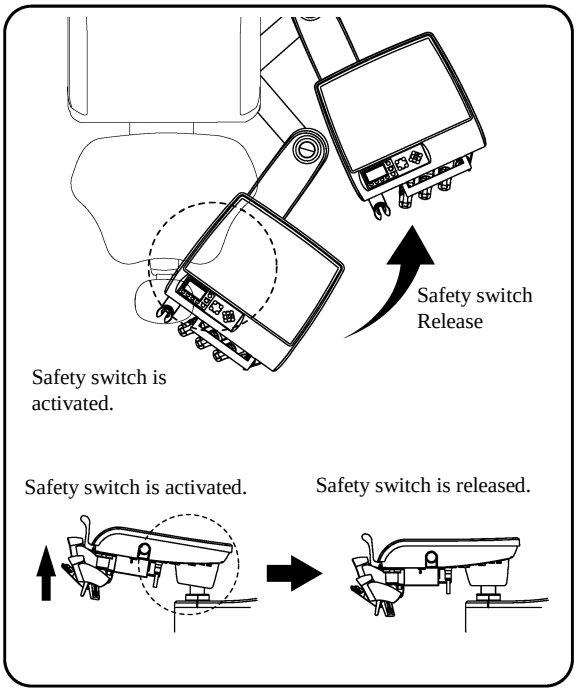


- When the table is moved up, it is fixed at that position.
- When moving the table down, move it up to the highest position and then move it down.

⚠ WARNING

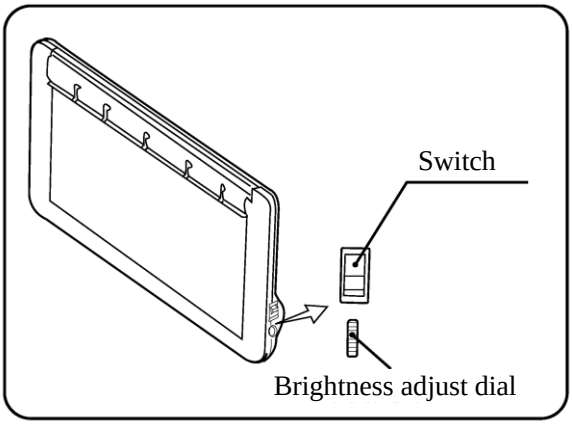
Do not place objects weighing more than 3 kg on the table.
This could cause damage to table, defective function or accidents.

■ Table safety switch



- The Doctor's table has a safety switch to prevent breakage due to interference with the chair and ensure the safety of the patient.
- Automatic operation of the chair is prohibited when the Doctor's table is at the backrest or a position subject to interference with the patient. When the table is pressed up from below, automatic operation of the chair is prohibited and the safety function activates to allow downward and lay-down manual operations only.
  An error is displayed on the indicator when the safety function is active.
  In addition, it is also shown with the LED indicator (optional). See page 49 for details.
- Before moving the chair in automatic operation, move the arm to a position free from interference with the chair and reset the safety switch.

■ Panorama viewer (optional)



- When the switch is turned up, the screen goes on. When it is turned down, the screen goes out.
- When the brightness adjust dial is rotated upward, the screen becomes brighter. When it is rotated downward, the screen becomes darker.

NOTICE

Turn off the viewer when it is not in use.

OPERATING INSTRUCTIONS

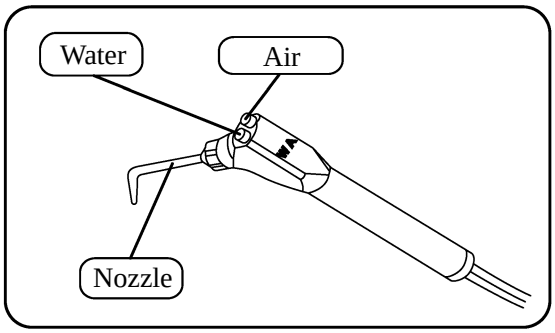
2 Doctor's unit

■ 3-way syringe

⚠ CAUTION

Be careful not to drop the 3-way syringe. (Otherwise, it may break or the nozzle may deform.)

◆ 77 type 3-way syringe



- Water comes out when the button marked "W" is pressed. Air comes out when the button marked "A" is pressed. Water and air come out when both are pressed.
- The nozzle rotates by 360º.

⚠ CAUTION

Be careful not to drop the 3-way syringe. (Otherwise, it may break or the nozzle may deform.)

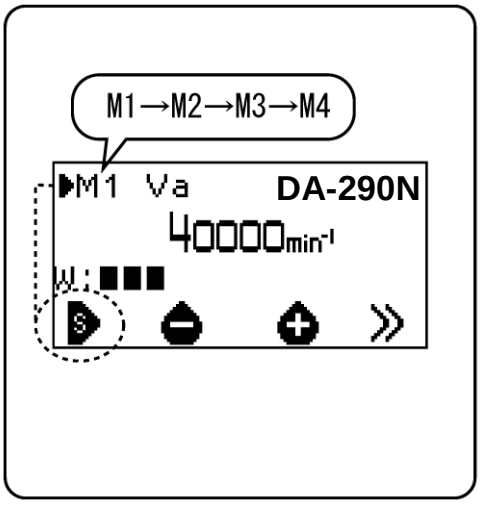
NOTICE

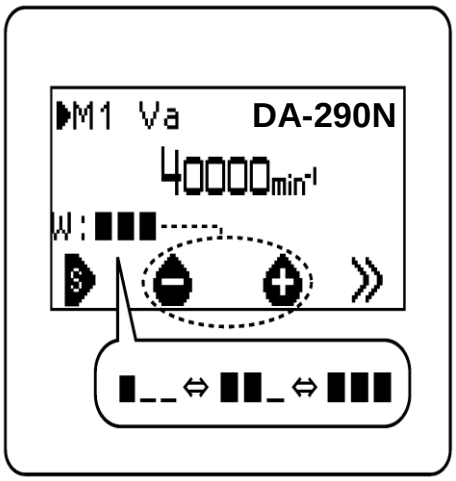
For operation of other syringes, observe the instructions shown in the package inserts and Instruction Manuals included with the syringes.

OPERATING INSTRUCTIONS

2 Doctor's unit

■ Operation and display of micromotor





(i) Explanation and operation of micromotor rotation modes

- When the main switch is turned on and the micromotor is removed from the holder, the rotation mode is displayed on the indicator.
- Four rotation modes of the micromotor may be selected from memory. Every press of changes the mode in the order of M1, M2, M3 and M4.
- The Va and Fix rotation modes can be selected.

⊙ Va (Variable)
The rotational speed of the micromotor may be varied up to the selected upper limit by sliding the foot controller pedal horizontally. The rotational speed range differs with the micromotor types.

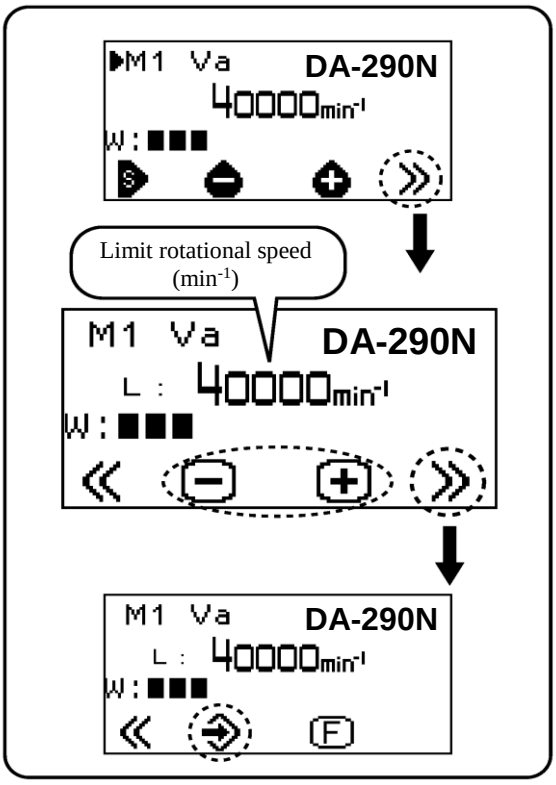
⊙ Fix
The rotational speed varied by sliding the foot controller pedal is fixed. The speed may be changed up to the upper limit displayed on the indicator by stepping on the pedal.
See page 59 for details of setting.

(ii) Setting of the quantity of water injected

- Increase or decrease the water feed quantity with and .
- The water feed quantity increases or decreases in three steps in the order of ■⇔■■⇔ ■■■.
- When the handpiece is returned to the holder, the water feeding quantity is reset to ■■■ (MAX).

OPERATING INSTRUCTIONS

2 Doctor's unit



(iii) Setting limit rotational speed

- When the page feed button » is pressed on the water feeding quantity adjustment screen, the screen changes to the page for setting the limit rotational speed.
- Increase and decrease the limit rotational speed with ⊖ and ⊕.
- Refer to the following "(iv) The memory setting of initial condition at power-on state for limit rotation speed, ON/OFF of light pack and spray condition (ON/OFF, only water or air)".

The speed is reset to the previous speed if the handpiece is returned to the holder, the mode is changed or the main switch is turned off without setting the memory.

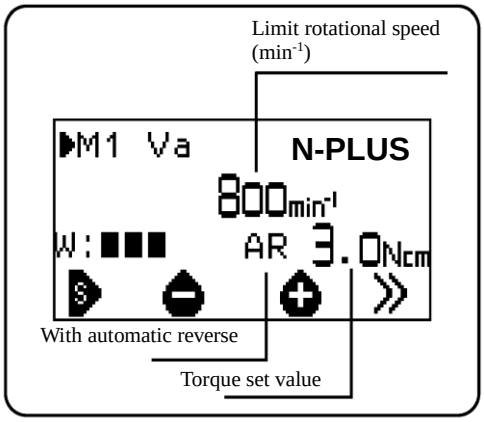
(iv) The memory setting of initial condition at power-on state for limit rotation speed, light pack ON/OFF and spray (ON/OFF, only water or air)

[Setting procedures]

1. Pick the micromotor up from the holder.
2. Select the setting memory (M1, M2, M3, M4) with S.
3. Set the following items for desired condition.
   - Limit rotation speed
   - light pack ON/OFF
   - spray (ON/OFF, only water or air)
4. Press the page feed button » and display the store button.
5. Confirm the setting and press and hold the store button .

OPERATING INSTRUCTIONS

2 Doctor's unit



(iv) Exclusive functions and operations of NLX PLUS only

- The NLX PLUS micromotor has exclusive functions for setting the torque at the low revolution range (100 to 5000 min^{-1}), activating/deactivating the automatic reversing and automatic forward.
  See page 60 for the setting of these functions.
- The automatic reversing function reverses rotation (counterclockwise) automatically when the torque exceeds the set value (0.3 to 3.0 N/cm) in the low revolution range.
- To use this function, pick the NLX PLUS micromotor up from the holder and adjust the rotation mode to the low revolution range (100 to 5000 min^{-1}). The torque set value and automatic reversing active/inactive are displayed on the indicator. Set them with the foot controller.

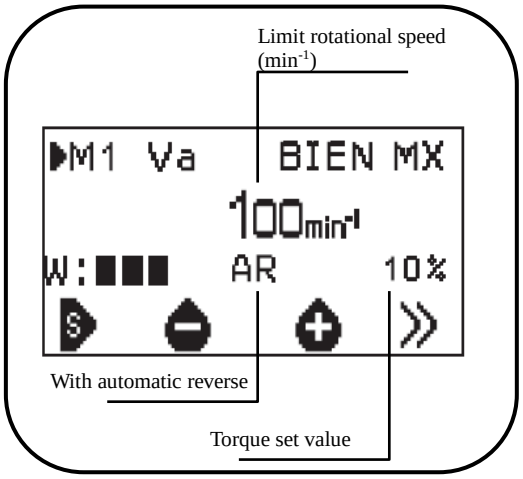
(v) Adjusting rotational speed with the foot controller

- See page 41 for adjusting the rotational speed with the foot controller.

NOTICE

Before use, be sure to carefully read the package inserts and Instruction Manuals included with the micromotors to ensure proper use.

OPERATING INSTRUCTIONS



(i) Exclusive functions and operations of BIEN MX/MX2 only

- The BIEN MX/MX2 micromotor has exclusive functions for setting the torque at the low revolution range (100 to 5000 min^{-1}), extending time to automatic forward and brightness adjustment of handpiece.
  See page 61 for the setting of these functions.
- The automatic reversing function reverses rotation (counterclockwise) automatically when the torque exceeds the set value (10 to 100%) in the low revolution range.
- The automatic forward function reverses rotation (counterclockwise) automatically when the torque exceeds the set value (10 to 100%) in the low revolution range, and rotates to positive rotation (clockwise) after a certain period of time.
- The extending time to automatic forward is a time that reverses rotation (counterclockwise) automatically when the torque exceeds the set value (10 to 100%) in the low revolution range, and rotates to positive rotation (clockwise) after a certain period of time.
- To use this function, pick the BIEN MX/MX2 micromotor up from the holder and adjust the rotation mode to the low revolution range (100 to 5000 min^{-1}). The torque set value and automatic reversing active/inactive are displayed on the indicator. Set them with the foot controller.

(ii) Adjusting rotational speed with the foot controller

- See page 41 for adjusting the rotational speed with the foot controller.

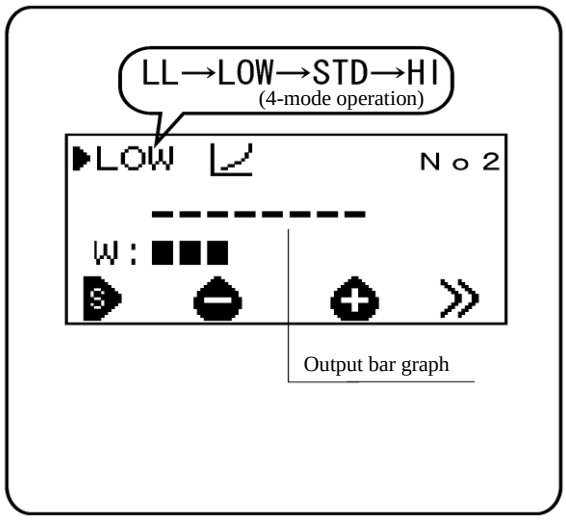
NOTICE

Before use, be sure to carefully read the package inserts and Instruction Manuals included with the micromotors to ensure proper use.

OPERATING INSTRUCTIONS

2 Doctor's unit

■ Operation and display of the turbine



- When the turbine is picked up, the selected rotation mode is displayed.
  Four rotation modes are available: LL, LOW, STD and HI. The degree of output changes when the foot controller is stepped on.

⊙ HI The revolution changes at a high rate with respect to the amount of stepping.
⊙ STD The revolution changes constantly.
⊙ LOW The revolution changes at a low rate with respect to the amount of stepping.
⊙ LL The revolution changes at a rate lower than LOW mode.

Use S on the operation panel to select and change the rotation mode.
Two operation modes can be selected: two modes (LOW and HI) and four modes (LL, LOW, STD and HI).
See page 64 for details of setting.

- Adjust the water quantity of the turbine in the same manner as the micromotor.

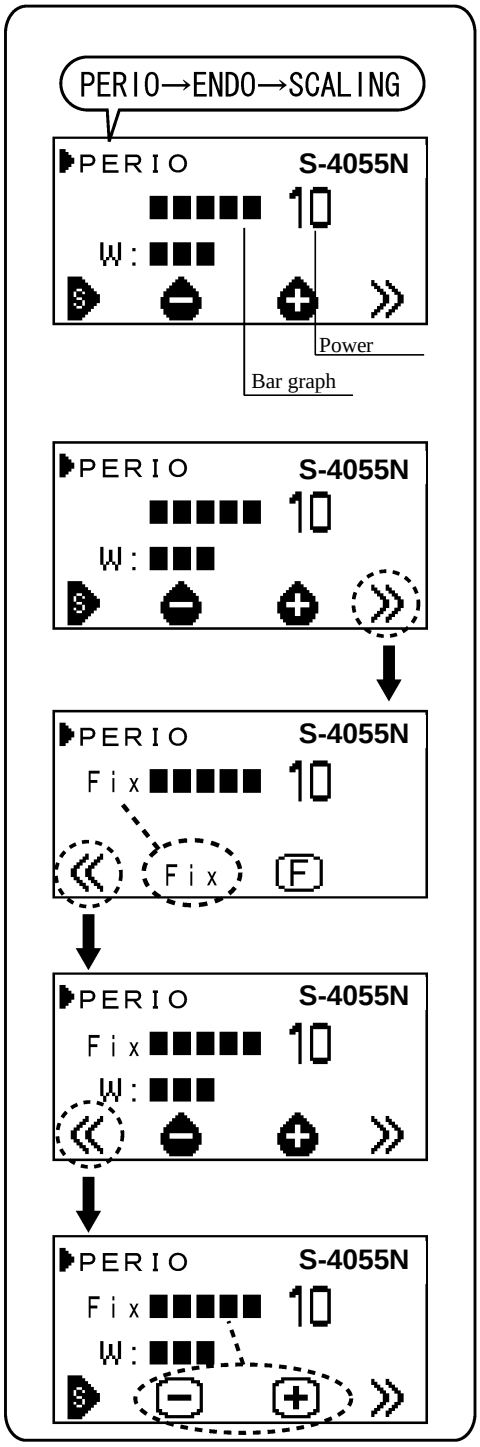
NOTICE

Before use, be sure to carefully read the package inserts and Instruction Manuals included with the turbines to ensure proper use.

OPERATING INSTRUCTIONS

2 Doctor's unit

■ Operation and display of the electric scaler



◆ Setting mode

- When the scaler is removed from the holder, the selected mode of PERIO, ENDO and SCALING is displayed on the indicator. Use S on the operation panel to select and change the mode. The EMS scaler does not have this selection mode and S operation is disabled.

◆ Adjusting power with foot controller

- The scaler power may be adjusted by sliding the foot controller pedal to the clockwise and counterclockwise.
  The power is maximized when the pedal is slid to the right end. A bar graph and the power level are displayed on the indicator before operation starts. Power cannot be adjusted during operation, Stop operation once and adjust power.
- See page 41 for adjusting the output of the foot controller.

◆ Adjusting power with the operation panel

- When the page feed button » is pressed on the water feeding quantity adjustment screen, the screen changes to the screen with the Fix switch. When the Fix switch is pressed, Fix is displayed on the right of the bar graph and the output varied by sliding the foot controller is fixed. Press the page return « switch twice and adjust power with the ⊖ and ⊕ switches on the power adjustment screen.
  When the Fix switch is pressed again, Fix disappears and power may be adjusted by sliding the foot controller.
- Adjust the water quantity of the turbine in the same manner as the micromotor.

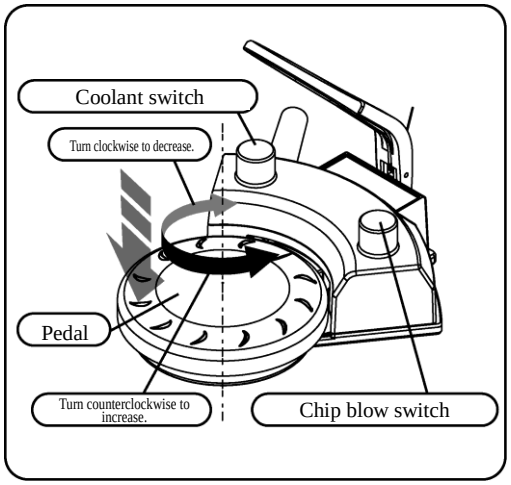
NOTICE

Before use, be sure to carefully read the package inserts and Instruction Manuals included with the scalers to ensure proper use.

OPERATING INSTRUCTIONS

3 Foot controller

■ Sensor type foot controller



◆ Pedal

- The rotational speed of the turbine and output of the air scaler may be adjusted by the degree of stepping on the pedal.

- The rotational speed of the motor may be adjusted by the sliding position and degree of stepping on the pedal. The rotational speed when stepping on the pedal may be increased if the pedal is slid counterclockwise in advance. The rotational speed when stepping on the pedal according to the sliding position is shown on the indicator.

- The output of the electric scaler may also be adjusted by the sliding position of the pedal. The output activated when stepping on the pedal may be increased if the pedal is slid counterclockwise in advance. Output cannot be adjusted when output is activated. When the pedal is slid (rotated) while stepping on it, stop stepping to turn off output once and step on the pedal again to restart.

◆ Coolant switch

- Spray can be turned on and off by stepping on the coolant switch like the membrane switch of the table.
- Four mode operations (turning on and off spraying, water only and air only) may be selected.

◆ Chip blow switch

- Chip air may be blown out to blow out cutting chips, etc., from the handpiece by stepping on the chip blow switch.

NOTICE

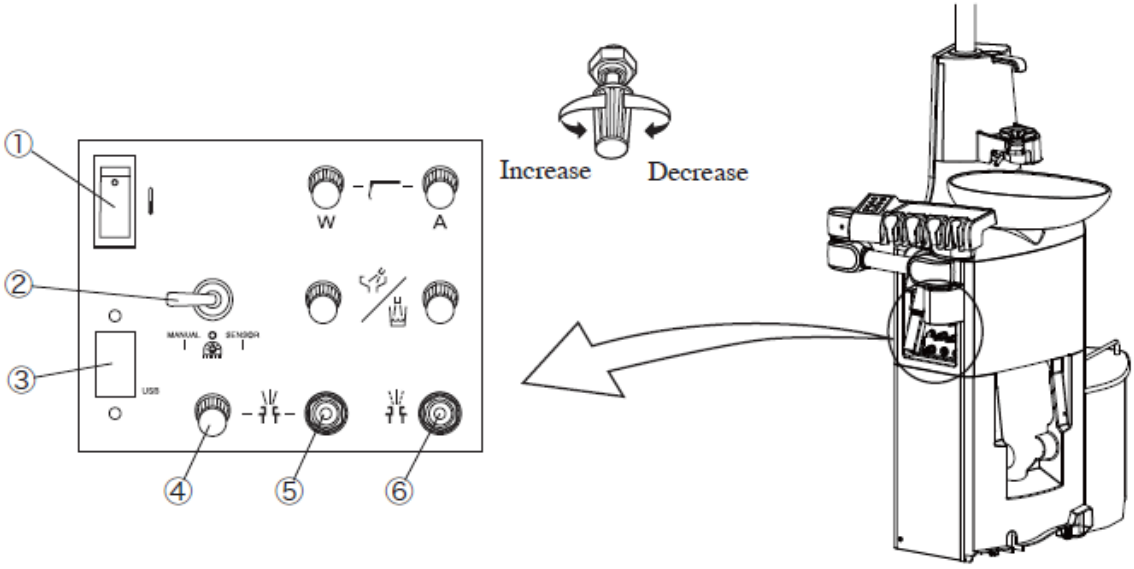
* The | mark on the pedal shows the center of the pedal. It merely shows the standard. It does not mean that the scaler output is the central value.

When a leak or spill has occurred, such as water, wipe the floor immideately.

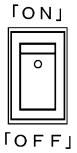
OPERATING INSTRUCTIONS

4 Cuspidor unit

■ Operation and functions of control panel



1. Water heater switch (Optional)
   - This switch turns on and off the heater of the cupfiller water heating unit. Cup feed water becomes hot water when the switch is turned on.



NOTICE

When water in the heating unit becomes hot, water may drip from the cupfiller nozzle.

⚠ CAUTION

Make sure that water is poured into the cup before turning on the heater unit in order to prevent the heater unit from heating the cup without water. Heating of an empty water heater may result in burning of the heater.

2. Dental light selection switch (optional)
   - This switch changes the lighting mode (SENSOR, MANUAL, OFF). According to type of light, the switch may not be work.
   - The dental light can be ON/OFF by touch less switch, when selecting the SENSOR (turn on the selecting switch to the right)
   - Select sensor mode at the ordinary operation condition.
   - If the touch less sensor malfunctions, select manual mode. By doing this, you can continuously use your dental light (High intensity only) before a touch less sensor is fixed.
   - If you use the device that emit electrical noise (i.e. electrical surgical knife of laser knife), use at manual mode.
   - The dental light can be OFF, when setting the selection switch to the OFF (in the middle)

OPERATING INSTRUCTIONS

4 Cuspidor unit

3. USB (Optional)

> **⚠ CAUTION**
>
> The total length of cables to be connected to the USB connector should be 1 m or less. The use of improper cables may cause incorrect operation.

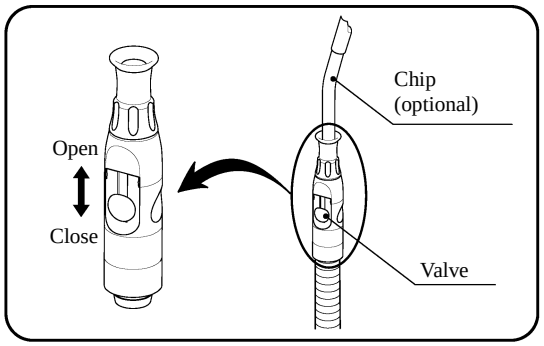
> **⚠ CAUTION**
>
> The USB connections within unit of doctor table side is using 4.5 m cable, as same as 2.5 m cable for the assistant side. It may not work properly depending on the equipment connected to the unit and affect the cable length.

4. Service coupler water quantity control (optional)
   Quantity of water to be supplied outside may be adjusted with this knob.
5. Service coupler (water) (optional)
   Use this to supply water to an external device.
6. Service coupler (air) (Optional)
   Use this to supply air to an external device.

OPERATING INSTRUCTIONS

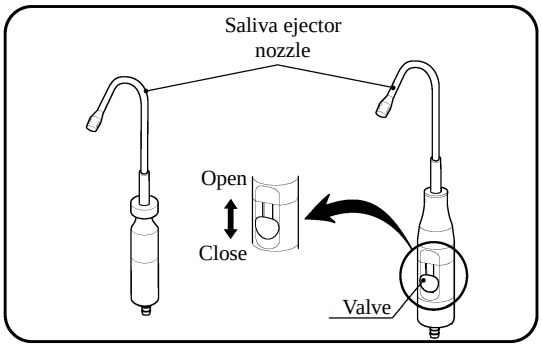
4 Cuspidor unit

■ Vacuum handpiece



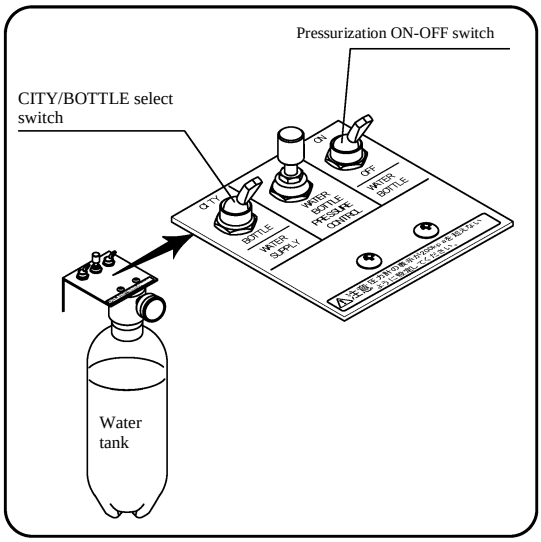
- Suction starts when the vacuum handpiece is removed from the holder.
- In a central vacuum type system, the delay circuits prevents suction from stopping immediately but continues it for approximately 4 seconds after returning to the holder.
- The suction quantity may be adjusted by opening and closing the valve.

■ Saliva ejector (option)



- Suction starts when the saliva ejector is removed from the holder. It stops when the saliva ejector is returned to the holder.
- The suction quantity of a saliva ejector with a valve may be adjusted by opening and closing the valve.

■ Water tank (optional)



- The water tank CITY/BOTTLE select switch can be changed between municipal water and water tank.
  CITY...tap water
  BOTTLE...Water tank
- When the pressurization ON-OFF switch is set to ON, the water tank may be used.

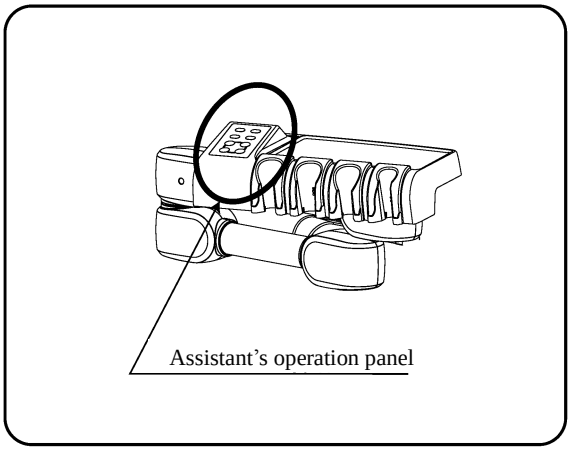
⚠ CAUTION

The water tank is intended only for use with purified water, distilled water and pure water. Do not use mouthwash or electrolyzed water, as they may cause clogged tubing or affect internal valves and equipment.

OPERATING INSTRUCTIONS

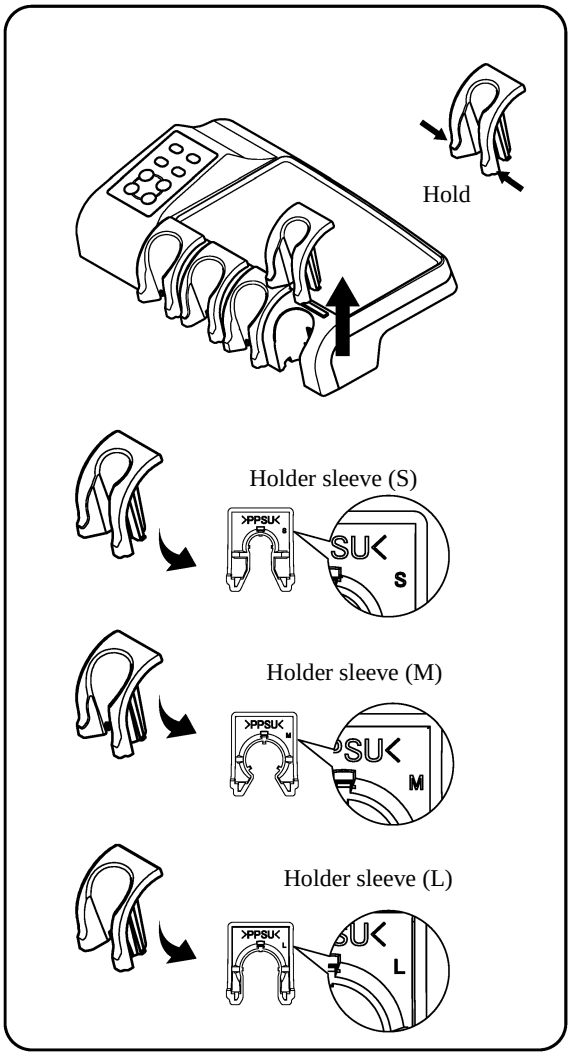
4 Cuspidor unit

■ Assistant's operation panel



- Operations and functions of the switches are the same as those on the operation panel of the Doctor's unit.
  See pages 26-27 for the operation procedure.
- (#) is an extra switch. The switch can select bowl rotation, legrest heater, spray changing and bell functions. It is set to OFF by default.

■ Assistant's holder



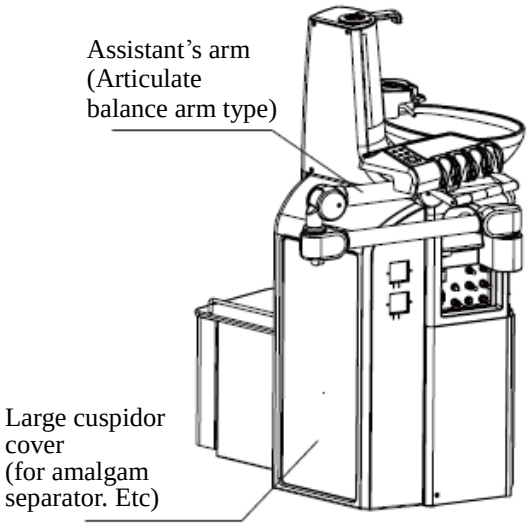
- The Assistant's holder sleeves are available in three sizes and must be changed according to the handpieces in use.
- The holder sleeves have the letters S, M and L on the back.
  S: Holder sleeve for Saliva ejector (BT06/Durr),
  LUZZANI syringe
  77 syringe
  DCI syringe
  Intraoral camera
  M: Holder sleeve for Faro syringe
  L : Holder sleeve for HVE (BT06/Durr)

- Hold the holder bottom and lift the holder to detach it.
- When attaching the holder, insert it until a click is heard.

OPERATING INSTRUCTIONS (Optional)

4 Cuspidor unit

■ Assistant arm

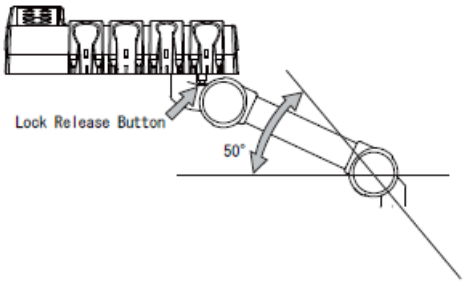


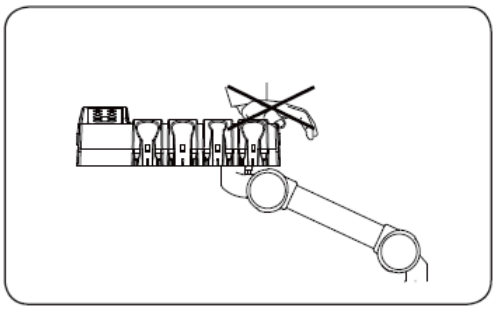
- Height Adjustment Assistant Arm (Optional)
  Press the lock release button and raise arm to adjust the assistant holder height.
  Position at desired height and release the lock button after that.

Note: Support the arm with your hand until it is positioned at the desired height.

⚠ CAUTION

Do not apply more than 2 kg of weight on the holder section.

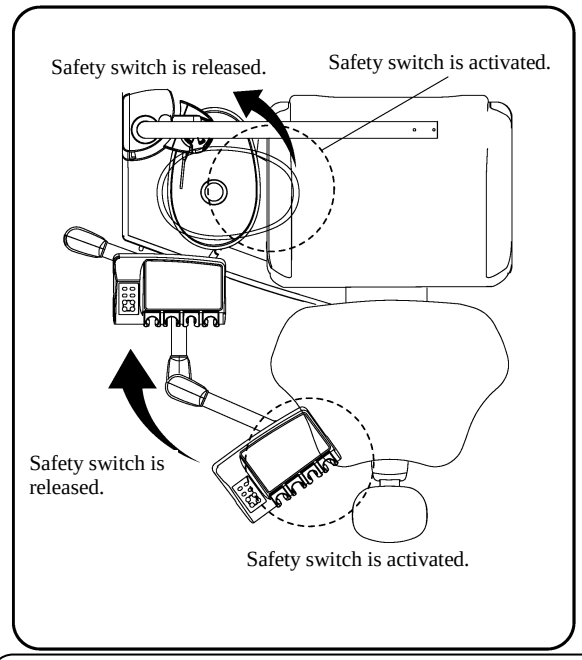




OPERATING INSTRUCTIONS

4 Cuspidor unit

■ Assistant's arm and spittoon bowl safety switch

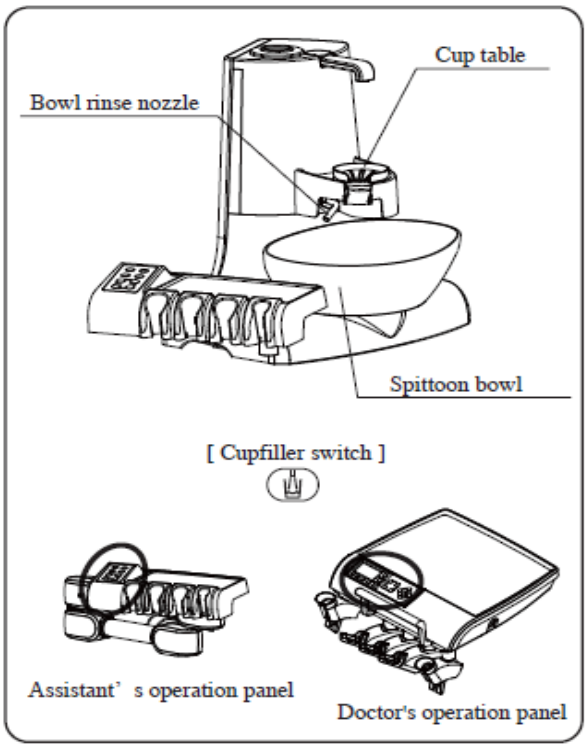


- The Assistant's arm has a safety switch to prevent breakage due to interference with the chair and ensure the safety of the patient.
- When the assistant's holder is located at the backrest or a position subject to interference with the patient, automatic operation of the chair is prohibited and the safety function activates to allow manual operation only.
- Automatic operation and elevation of the chair are prohibited when the spittoon bowl is at the armrest or a position subject to interference with the patient.
- An error is displayed on the indicator when the safety function is active. In addition, it is also shown with the LED indicator (optional). See page 49 for details.
- Before moving the chair in automatic operation, move the Assistant's holder, arm and spittoon bowl to a position free from interference with the chair and reset the safety switch.

NOTICE

Confirm whether the spittoon bowl is positioned so that the safety switch is released.
When the spittoon bowl is at a position interfering with the chair, move it to a position where the safety switch is released before starting operation.

■ Weight-sensing cup filling sensor



- When a rinsing cup is placed on the cup table, the sensor detects it and water is poured into it until its weight reaches the set weight. Press the cupfiller switch ⏻ on the operation panel to stop water feeding halfway.
- The set water weight is stored. When a cup with remaining water in it is put on the cup table again, water is only added to the diminished quantity.

* However, no water may be added if the diminished quantity is too small.

* The sensor may not work if a hand touches the cup placed on the table.
Release the hand from the cup when feeding water into it.

* When the cup is removed from the cup table and placed onto it again, the sensor does not work for one second. Wait for one second or more before adding water into the cup again.

OPERATING INSTRUCTIONS

4 Cuspidor unit

- If bowl rinse link operation is active, water comes out of the bowl rinse nozzle to clean the spittoon bowl as soon as cup water feeding starts. Press the bowl rinse switch on the assistant's operation panel or Doctor's operation panel to stop spittoon bowl rinse halfway.
- When turning on the main switch of the unit, do so in a condition where no objects are placed on the cup table.
  * The buzzer may sound if the main switch is turned on with something placed on the cup table. If the buzzer sounds, turn off the main switch once, make sure that nothing is placed on the cup table and turn on the main switch again.
- Use a cup with a weight of 3 g or more.
  (Reference) Paper cup for dental use: Approximately 3.5 g
  Stainless steel cup for dental use: Approximately 60 g
- If you touch the cup table with no cup on it, the sensor may work and water may come out of the cupfiller nozzle. Turn off the main switch or select the sensor off mode if you will touch the cup table for cleaning, etc.

⊙ Sensor disabled mode

The mode changes to the sensor off mode when on the Doctor's or Assistant's operation panel is held for 2 seconds or more. In the sensor off mode, the buzzer generates a "beep, beep" sound continuously and automatic water feeding with the sensor is disabled.

Press on the Doctor's operation panel or assistant's operation panel again to cancel the sensor off mode.

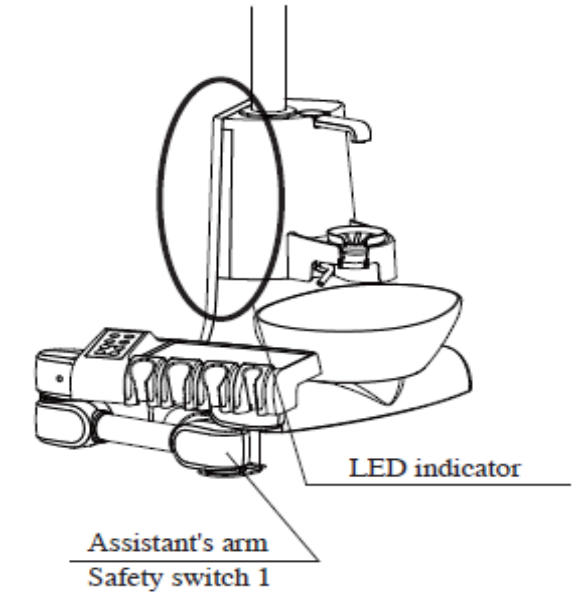
* Cancel the sensor off mode in a condition where the cup table is installed and nothing is placed on the cup table. If the sensor off mode is canceled under other conditions (e.g., a cup is placed on the cup table), water may be fed unnecessarily or no water may be fed even though a cup is placed.

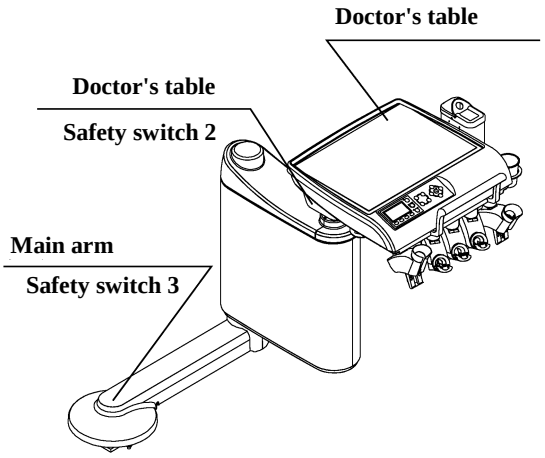
- If air flow from an air conditioner touches the cup table with no cup on it, the sensor may work and water may come out of the cupfiller nozzle. Decrease the volume of air flow, change the air flow direction or change other air conditioner settings in such a case.
- The sensor may break if a large force is applied to the cup table (such as the cup table is pressed strongly or a heavy object is placed on it). Be careful.

OPERATING INSTRUCTIONS

4 Cuspidor unit

■ Various types of LED indicators





LED indicator function of Cuspidor unit (optional)

The LEDs are lit in the specified color under the following conditions:

- Orange in upper part
  This indicator goes on when the safety switch is active.
  It is off under normal safe conditions.

  Chair operation: Automatic chair operations (preset, last position and automatic return) are disabled. Safety switch 2 is incapable of manual upward and raising operation.

  Countermeasures: Move the chair with the manual switch and ensure the safety of the table.

  Safety switch 1:
  If the assistant's table may have come into contact with the chair when the chair moves.

  Safety switch 2:
  The table has come into contact with something and a pressing force is applied to the Doctor's table.

  Safety switch 3:
  If the table may have come into contact with the chair when the chair moves.
- Blue (3 levels)
  These indicators are lit according to the preset spray volume of the handpiece.
  Spray volume 1 -> Only lower LED is lit.
  Spray volume 2 -> Lower and middle LEDs are lit.
  Spray volume 3 -> All LEDs are lit.
  Spray off or air only -> Off
- Yellow
  This LED is lit when the light pack is set to on.
- Green or orange
  Rotational direction of micromotor is set to forward -> Green
  Rotational direction of micromotor is set to reverse -> Orange

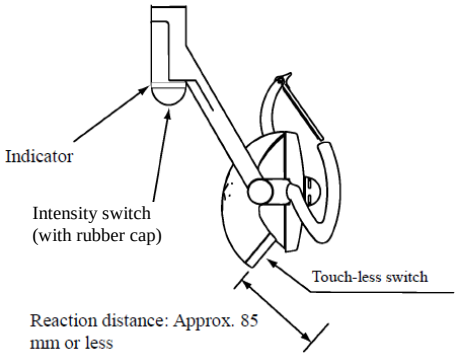
NOTICE

The indicator functions indicated above are the standard for visual check. Make sure that the chair is locked according to the indication function using the operation switches at the beginning of each work day.

OPERATING INSTRUCTIONS

5 Operation and functions of the dental light

■ 701 dental light (Type AL-720S)



1. Main switch and operation switch

- When the main switch of the dental unit is turned on, the indicator shown in the figure is lit in green or orange and the dental light power is turned on.
- The dental light may be turned on and off with the touchless switch or the dental light switch on the operation panel of the unit side.

2. Turning on and off of the light by the touch-less switch

The dental light turned on when you shake your hand within approximately 85 mm from the touchless switch surface. It goes out when you shake your hand again
If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor. Please wipe the surface of a touchless switch with a soft cloth.

3. Intensity switch

- This switch changes intensity in the examination mode.
  Two kinds of intensity are available as shows below.

Mode	Indicator lighting color
HIGH	Green
LOW	Orange

- The intensity changes when you press up the rubber cover of the intensity switch from below.

4. Changing into composite mode

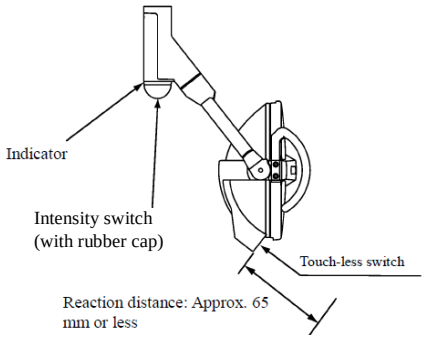
- The indicator begins to blink in green and the mode changes to the composite mode, when you hold your hand within 85mm from the touchless switch for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds. The indicator is lit in green and the mode changes to the treatment mode, when you leave your hand once and hold it above the switch again for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds.
  *When the light is turned off in the composite mode, it goes on in the treatment mode when it is turned on again.

Mode	Indicator blinking color
COMPOSITE	Green or orange

OPERATION SETTING

5 Operation and functions of the dental light

■ IO5000TA dental light (Type AL-820S)



1. Main switch and operation switch

- When the main switch of the dental unit is turned on, the indicator shown in the figure is lit in green or orange and the dental light power is turned on.
- The dental light may be turned on and off with the touchless switch or the dental light switch on the operation panel of the unit side.

2. Turning on and off of the light by the touch-less switch

The dental light turned on when you shake your hand within approximately 65 mm from the touchless switch surface. It goes out when you shake your hand again.
If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor. Please wipe the surface of a touchless switch with a soft cloth.

3. Intensity switch

- This switch changes intensity in the treatment mode. Two kinds of intensity are available as shows below.

Mode	Indicator lighting color
HIGH	Green
LOW	Orange

- The intensity changes when you press up the rubber cover of the intensity switch from below.

4. Changing into composite mode

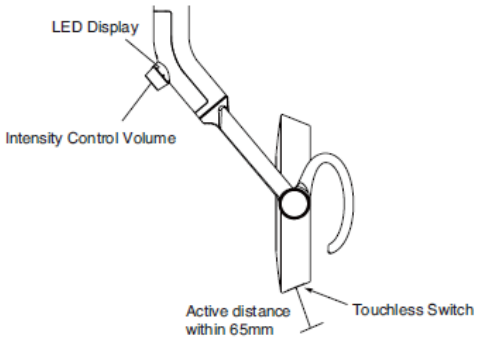
- The indicator begins to blink in green and the mode changes to the composite mode, when you hold your hand within 65mm from the touchless switch for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds. The indicator is lit in green and the mode changes to the treatment mode, when you leave your hand once and hold it above the switch again for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds.
  *When the light is turned off in the composite mode, it goes on in the treatment mode when it is turned on again.

Mode	Indicator blinking color
COMPOSITE	Green or orange

OPERATING INSTRUCTIONS

5 Operation and functions of the dental light

■ 900 dental light (Type AL-920)



1. Main switch and operation switch

- When the main switch of the dental unit is turned on, the indicator shown in the figure is lit in green and the dental light power is turned on.
- The dental light may be turned on and off with the touchless switch or the dental light switch on the operation panel of the unit side.

2. Turning on and off of the light by the touch-less switch

The dental light turned on when you shake your hand within approximately 65 mm from the touchless switch surface. It goes out when you shake your hand again.
If the surface of a touchless switch becomes unclean, this may affect the sensitivity of the sensor. Please wipe the surface of a touchless switch with a soft cloth.

3. Intensity control volume

It can adjust intensity between 4,000 ~ 32,000lx by stepless intensity control volume

	INTENSITY	LED DISPLAY (Green)
NORMAL TREATMENT MODE	4000 ~ 32000Lux	Light ON (Green)
COMPOSITE MODE	5500 Lux	Blinks (Green)

4. Changing into composite mode

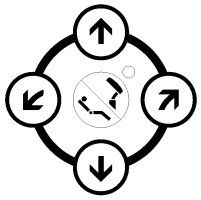
The indicator begins to blink in green and the mode changes to the composite mode, when you hold your hand within 65mm from the touchless switch for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds. The indicator is lit in green and the mode changes to the normal treatment mode, when you leave your hand once and hold it above the switch again for 2 seconds or keep pressing dental light switch on the operation panel for 2 seconds.
*When the light is turned off in the composite mode, it goes on in the normal treatment mode when it is turned on again.

OPERATION SETTING

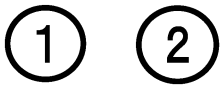
1 Automatic operation settings of chair

* Refer to the manual of the Chair part.

■ Presetting



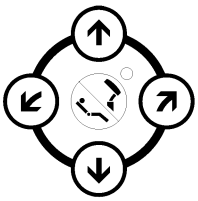
Manual switch



Preset switch

1. Move the chair to the intended examination position with the manual switch.
2. Hold the preset switch ① or ② for approximately 5 seconds when the examination position is determined. The buzzer of the chair generates a “beep” sound and the setting is completed.
3. Carry out operations 1 and 2 indicated above to change the set position.

■ Setting of last position



Manual switch

Last position switch

1. Move the chair to the intended examination position with the manual switch.
2. Hold the last position switch Ⓛ for approximately 5 seconds when the gargle position is determined. The buzzer of the chair generates a “beep” sound and the setting is completed.
3. Carry out operations 1 and 2 indicated above to change the set position.

■ Setting of patient’s up-and-down position

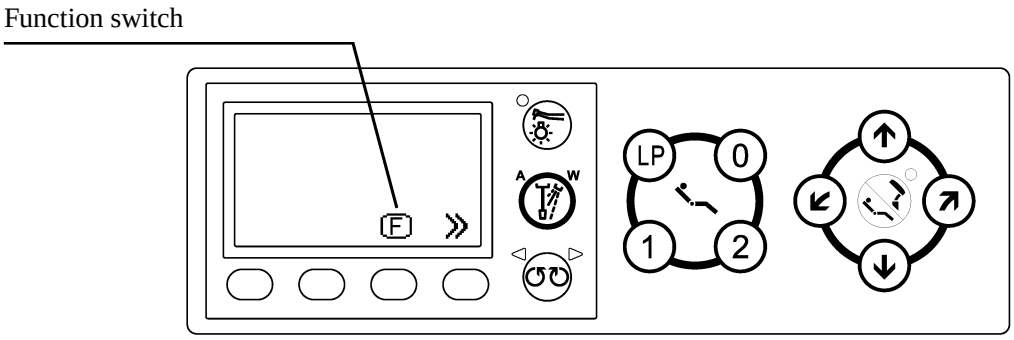
Automatic chair return switch

1. Move the chair to the intended examination position with the manual switch.
2. Hold the automatic chair return switch ⓪ for approximately 5 seconds when the patient getting off position is determined. The buzzer of the chair generates a “beep” sound and the setting is completed.
3. Carry out operations 1 and 2 indicated above to change the set position.

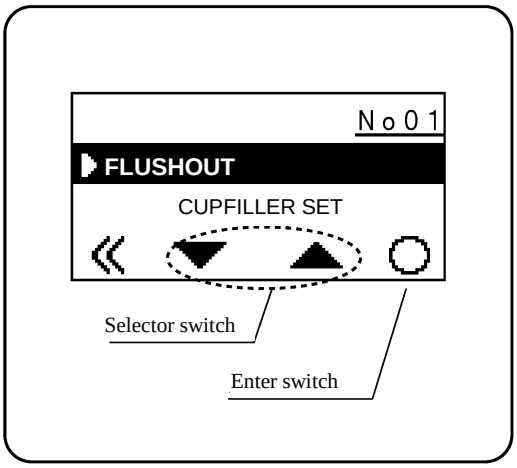
OPERATION SETTING

2 Function switch

■ Settings and sequence of function switch



- Intended setting is enabled by selecting the Function switch on the indicator.
  The setting details and order are as shown below.



(i) Selection and operation of flush out

(ii) Setting of cupfiller

(iii) On/Off setting for interlocking operation between the cupfiller and the bowl rinse

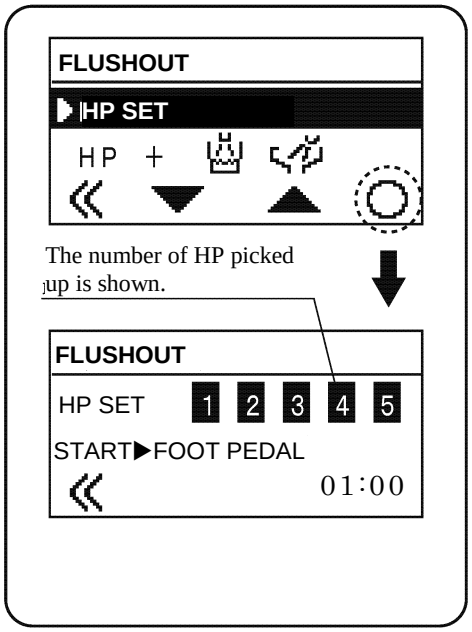
(iv) On/Off setting of beeping sound

(v) Selection of the timing of lighting of the handpiece light

(vi) Change-over of spray mode

OPERATION SETTING

2 Function switch



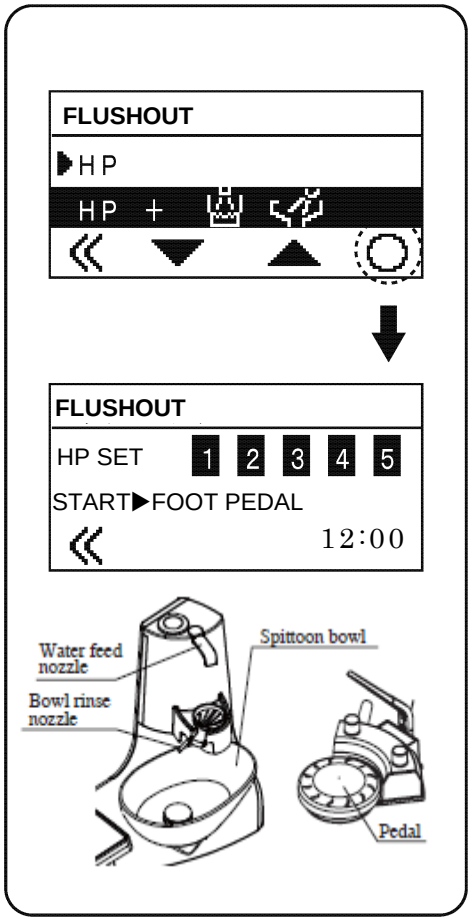
(i) Selection and operation of flush out

- Two cleaning methods can be selected.

[Operation procedures]

⊙ When cleaning water circuit of handpiece only

1. Select Flush out from the functions.
2. Select HP and press ○.
3. Remove the handpiece to be cleaned and set it on the spittoon bowl, etc.
4. Step on the foot controller pedal. Water flows from the handpiece for 60 seconds when you release the pedal.



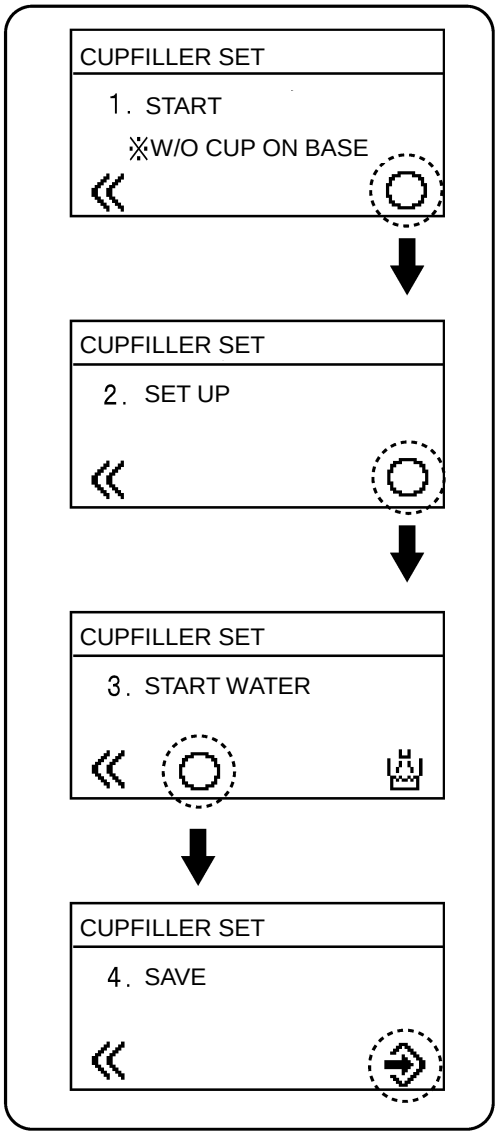
⊙ When cleaning cup water feed and spittoon bowl after cleaning handpiece

1. Select Flush out from the functions.
2. Select HP +   and press ○.
3. Remove the handpiece to be cleaned and set it on the spittoon bowl, etc.
4. Step on the foot controller pedal. Water flows from the handpiece for 7 minutes when you release the pedal. After cleaning the handpiece, water keeps on flowing for 5 minutes from both the cup water feeding and bowl washing nozzles to clean the spittoon bowl.

* Press any switch or step on the foot controller pedal to stop flush out operation halfway.

OPERATION SETTING

2 Function switch



(ii) Setting of cupfiller

- The cup water feeding quantity is set.
- The cup water feeding quantity has been adjusted before shipment. Change it, if needed, as shown below before use.

[Setting procedures]

Select CUPFILLER SET from the functions.
-> A "beep" sound is generated.

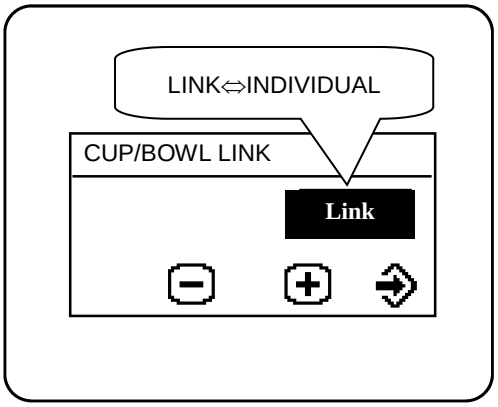
1. Press ○ without setting a cup on the cup table.
   -> The buzzer sound changes to "be-beep, be-beep..."
2. Press ○ after setting an empty cup on the cup table.
   -> The buzzer sound changes to "be-be beep, be-be beep..."
   * Use a dry and empty cup.
3. Water is fed when is pressed. Press ○ to determine the feed quantity when a certain volume of water is fed.
   -> The buzzer sound changes to "be-be-be beep, be-be-be beep..."
   * The water feeding quantity and water feeding time using the switch (forced water feeding) are decided in these operations.
   * If water is fed several times, the total quantity and time are the water feeding quantity and forced water feeding time.
   * If water is fed over the intended water feeding quantity to be set, the quantity of water having been fed till that time is not reset even though fed water is disposed of. Press « once and retry setting from the beginning.
4. Move to the next screen and press → to save.
   -> The buzzer stops sounding. Setting is complete.

OPERATION SETTING

2 Function switch

Precautions for setting water feeding quantity

- Carry out setting in a condition where water comes out of the cupfiller nozzle normally. Water may not be fed as set if setting is carried out in a condition where water contains air, etc.
- If « is pressed during setting, setting done till that time is invalidated and the initial status immediately after starting setting is restored. (The buzzer sound changes to "beep, beep".)
- The water feeding quantity may be less than the set quantity, if "Cup/linked with bowl" is used.
- If the flow rate (water pressure) of water in use changes after setting, the water feeding quantity may change.
  * If the cup water feed control valve is adjusted, the flow rate changes and accordingly the water feeding quantity may change.
- Set the quantity so that the total weight of the cup and water is 200 g or less.
  (Reference) Paper cup for dental use (approximately 3.5 g): The quantity may be set to a cup of water.
  Stainless steel cup for dental use (approximately 60 g): The quantity may be set to approx. 80% of the cup (approximately 140 cc).
  * Water may not be fed as set if the total weight exceeds 200 g.
- Be sure to set the water feeding quantity, if the type of cup to be used is changed (e.g., paper cup is changed to stainless steel cup).
- Be sure to set the water feeding quantity, if the flow rate of feed water is changed with the cup water feed adjustment knob.
- An error may occur and the buzzer near the cup table may sound after setting, if the water feeding quantity is not set properly. Retry the setting of the water feeding quantity from the beginning, if the buzzer sounds.
- Set the water feed time between 1 and 12 seconds. If the water feed time is less than 1 second, an error may occur and the buzzer may sound after completion of setting. Retry the setting of the water feeding quantity from the beginning, if the buzzer sounds. Water feeding is disabled and the water feed time is set to 12 seconds, if the water feed time exceeds 12 seconds during setting.
- Set the water feeding quantity over 20 cc. The buzzer may sound after setting if the water feeding quantity is less than 20 cc. Retry the setting of the water feeding quantity from the beginning, if the buzzer sounds.



(iii) On/Off setting for interlocking operation between the cup filler and the bowl rinse

⊙ Individual mode
The spittoon bowl is not cleaned when cup water feeding starts.

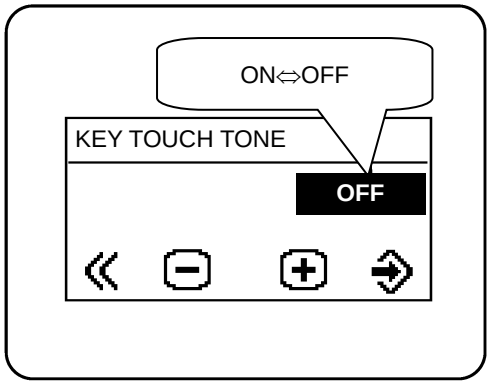
⊙ Link mode
The spittoon bowl is cleaned as soon as cup water feeding starts.

[Setting procedures]

1. Select "CUP/BOWL LINK" from the functions.
2. Select intended setting with ⊖ or ⊕ and press ➔ to save.

OPERATION SETTING

2 Function switch

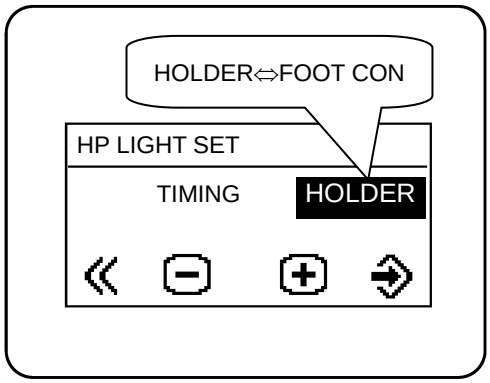


(iv) On/Off setting of key touch tone

- Change ON and OFF setting of the key touch tone generated when pressing the switch.

[Setting procedures]

1. Select KEY TOUCH TONE from the functions.
2. Select intended setting with ⊖ or ⊕ and press ➔ to save.

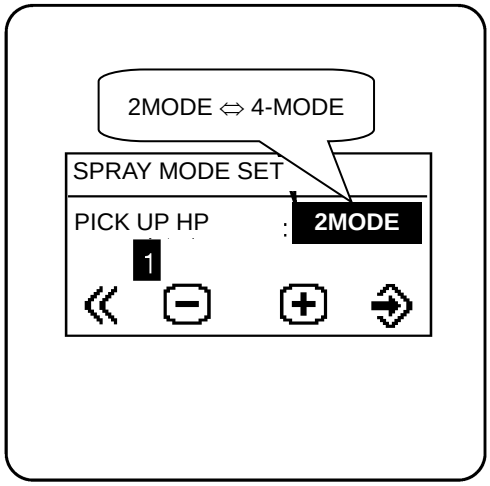


(v) Selection of the timing of lighting of the handpiece light

- Two kinds of lighting timing may be selected.
  1) Rotation mode (FOOT CON)
     The light is on when the handpiece is rotating. It goes out when the preset light remaining time has passed after rotation stops.
  2) Holder mode
     The light is on when the handpiece is removed from the holder.

[Setting procedures]

1. Select HP LIGHT SET from the functions.
2. Select intended setting with ⊖ or ⊕ and press ➔ to save.



(vi) Spray mode setting

⊙ 2-mode spray
Only ON/OFF of the spray

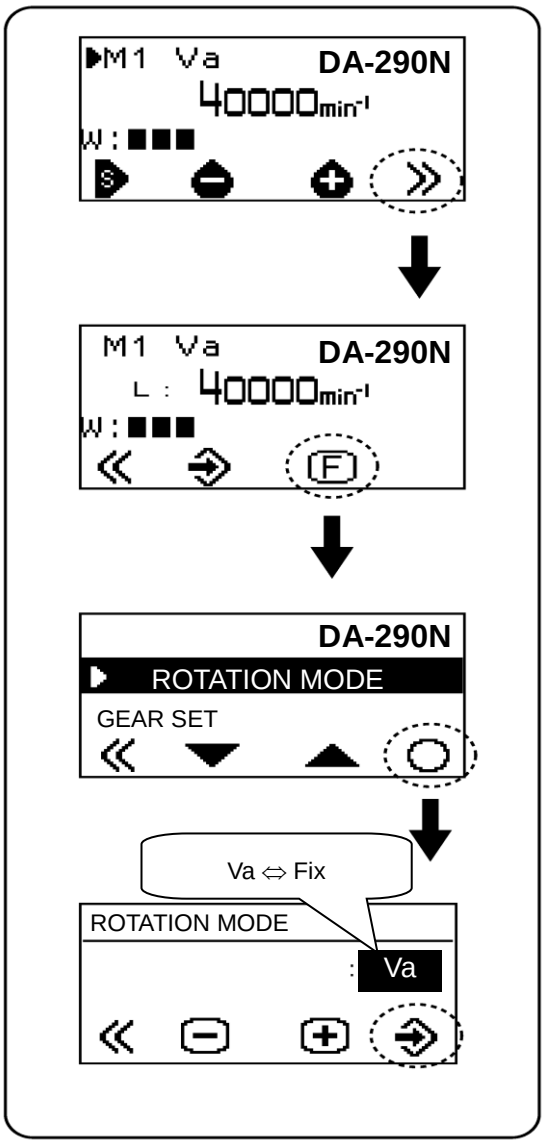
⊙ 4-mode spray
ON/OFF of the spray, only water and only air

[Setting procedures]

1. Select “SPRAY MODE SET” from the functions.
2. Pick up the micromotor or turbine, select intended setting with ⊖ or ⊕ and press ➔ to save.

OPERATION SETTING

3 Micromotor forward/reverse switch



⊙ Va

The rotational speed of the micromotor may be varied up to the selected upper limit by sliding the foot controller pedal horizontally. The rotational speed range differs with the micromotor types.

⊙ Fix

The rotational speed varied by sliding the foot controller pedal is fixed. The speed may be changed up to the upper limit displayed on the indicator by stepping on the pedal.

[Setting procedures]

1. Pick the micromotor up from the holder.
2. Press the page feed button » twice and hold (F) to select it.
3. Select "ROTATION MODE" and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press ➔ to save.

▪ Setting is stored in memory (M1 to M4).

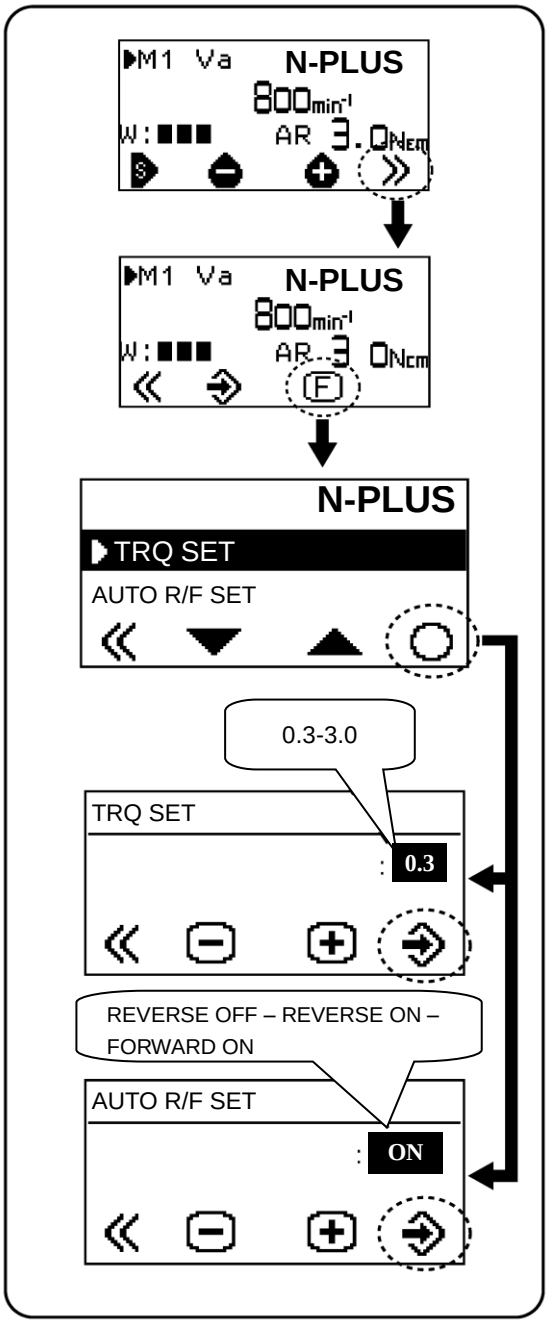
⚠ CAUTION

Do not change the rotational speed while the micromotor is running.

OPERATION SETTING

4 Setting of the functions exclusive to NLX PLUS

■ Setting of NLX PLUS torque, automatic reverse, and automatic forward



- The NLX PLUS micromotor has functions of setting the torque at the low revolution range (100 to 5000 rpm), activating/deactivating the automatic reversing and automatic forward.
- The functions of setting torque, automatic reverse and automatic forward are exclusive to the NLX PLUS micromotor.

[Setting procedures]

1. Remove NLX PLUS from the holder.
2. Press the page feed button » twice and select (F).
3. To change the set torque, select "TRQ SET" and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press → to save. The torque is selectable within the range from 0.3 Ncm (minimum) to 3.0 Ncm (maximum).
5. To activate/deactivate automatic reverse or to set the automatic forward, select "AUTO R/F SET" and press ○ to determine.
6. Select intended setting with ⊖ or ⊕ and press → to save.

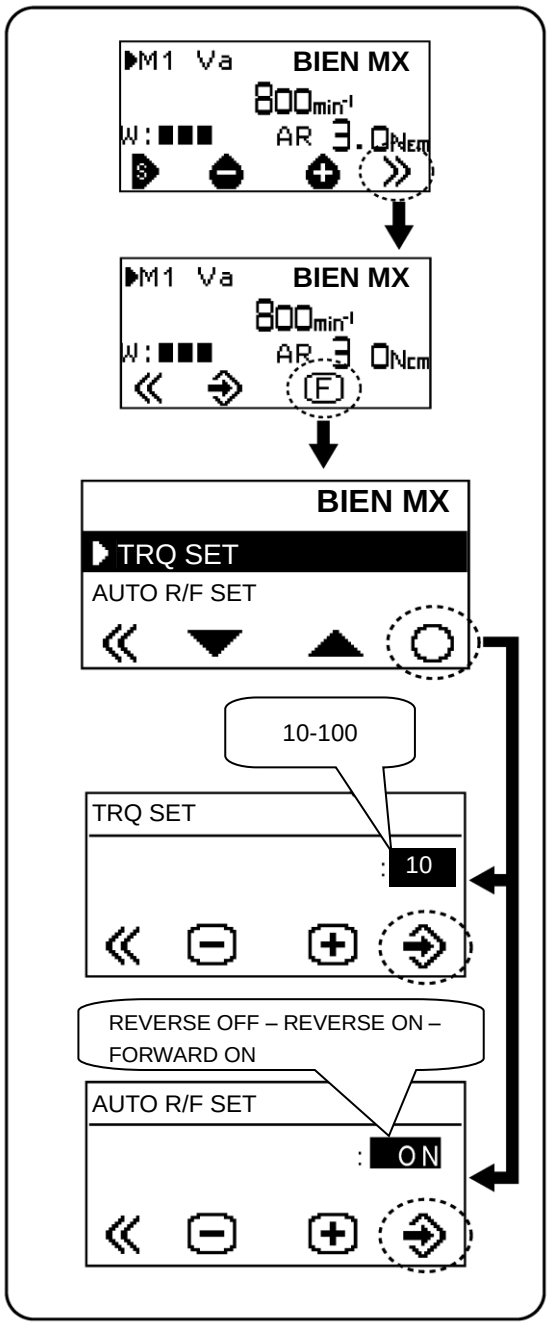
- Setting is stored in memory (M1 to M4).

⚠ CAUTION

Be sure to turn off the automatic reverse and switch the rotation direction using the micromotor forward/reverse switch when root canal therapy is performed using NLX PLUS with a left-handed screw-shaped file. Use with the automatic reverse on may cause fracture of files.

OPERATION SETTING

4 Setting of the functions exclusive to BIEN MX/MX2



- The BIEN MX/MX2 micromotor has functions of setting the torque at the low revolution range (100 to 5000 rpm), activating/deactivating the automatic reversing and automatic forward.
- The functions of setting torque, automatic reverse and automatic forward are exclusive to the BIEN MX/MX2 micromotor.

[Setting procedures]

1. Remove BIEN MX/MX2 from the holder.
2. Press the page feed button » twice and select (F).
3. To change the set torque, select "TRQ SET" and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press → to save. The torque is selectable within the range from 10 % (minimum) to 100 % (maximum).
5. To activate/deactivate automatic reverse or to set the automatic forward, select "AUTO R/F SET" and press ○ to determine.
6. Select intended setting with ⊖ or ⊕ and press → to save.
7. For the setting of extending time to automatic forward, select AF TIME SETTING and press ○ to save.
8. Select intended setting with ⊖ or ⊕ and press → to save. It takes between 0.0 – 25.4 seconds.
9. For the setting of brightness adjustment of handpiece, select handpiece light and press ○ to save.
10. Select intended setting with ⊖ or ⊕ and press → to save. It takes between 0.0 – 15.0 (16 steps).

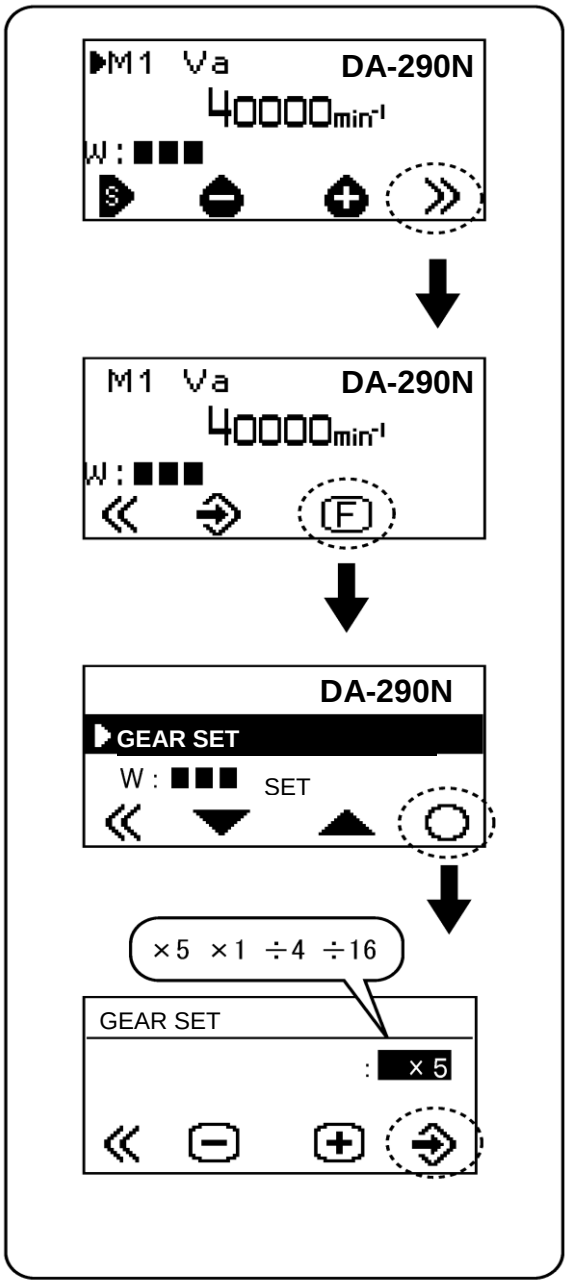
- Setting is stored in memory (M1 to M4).

⚠ CAUTION

Be sure to turn off the automatic reverse and switch the rotation direction using the micromotor forward/reverse switch when root canal therapy is performed using BIEN MX/MX2 with a left-handed screw-shaped file. Use with the automatic reverse on may cause fracture of files.

OPERATION SETTING

5 Function of calculating and displaying the micromotor gear ratio



- **This setting function converts the gear ratio of the contra-angle handpiece to be mounted to the micromotor and displays values near the actual revolutions.**
- **Four gear ratios are converted: ×5, ×1, ÷4 and ÷16.**
- **No gear ratio is displayed in the constant-speed mode.**

[Setting procedures]

1. Pick the micromotor up from the holder.
2. Press the page feed button » twice and select (F).
3. Select "GEAR SET" and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press → to save.

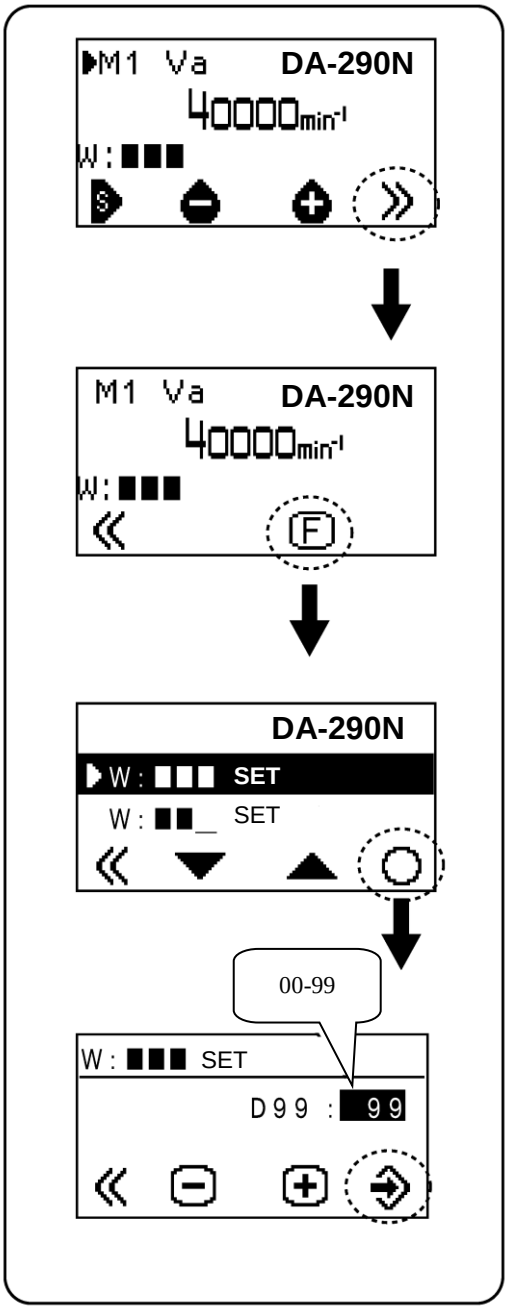
- Setting is stored in memory (M1 to M4).

⚠ CAUTION

Check the gear ratios and revolutions marked on the high-, regular- and slow-speed contra-angle handpieces and indicator before use.
Never carry out work requiring large load at low revolutions such as PMTC using a rubber cup or brush for the regular-speed contra-angle handpiece, etc. Otherwise, the devices may break down earlier or rotation may stop due to insufficient torque. For such works, use the exclusive slow-speed contra-angle handpiece.

OPERATION SETTING

6 Setting of the quantity of water injected by the micromotor



- The water feeding quantity in each stage may be set (in the 00 to 99 range). The value D shows the initial value set before shipment.
- Setting of each handpiece may be stored.

[Setting procedures]

1. Pick the micromotor up from the holder.
2. Press the page feed button » and select F.
3. Select W : ■■■／W : ■■_／W : ■___ and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press → to save.

⊙ Default mode memory
The current water capacity level (W:■■■, W■■_, W■_ _) may be set as the initial condition of micromotor at power-on state.

〔Setting procedures〕

1. Pick the micromotor up from the holder.
2. Keep the desired water capacity level (W:■■■, W■■_, W■_ _).
3. Press the page feed button » and select F.
4. Select the default mode memory and press ○.
5. Confirm the setting and press and hold the store button →.

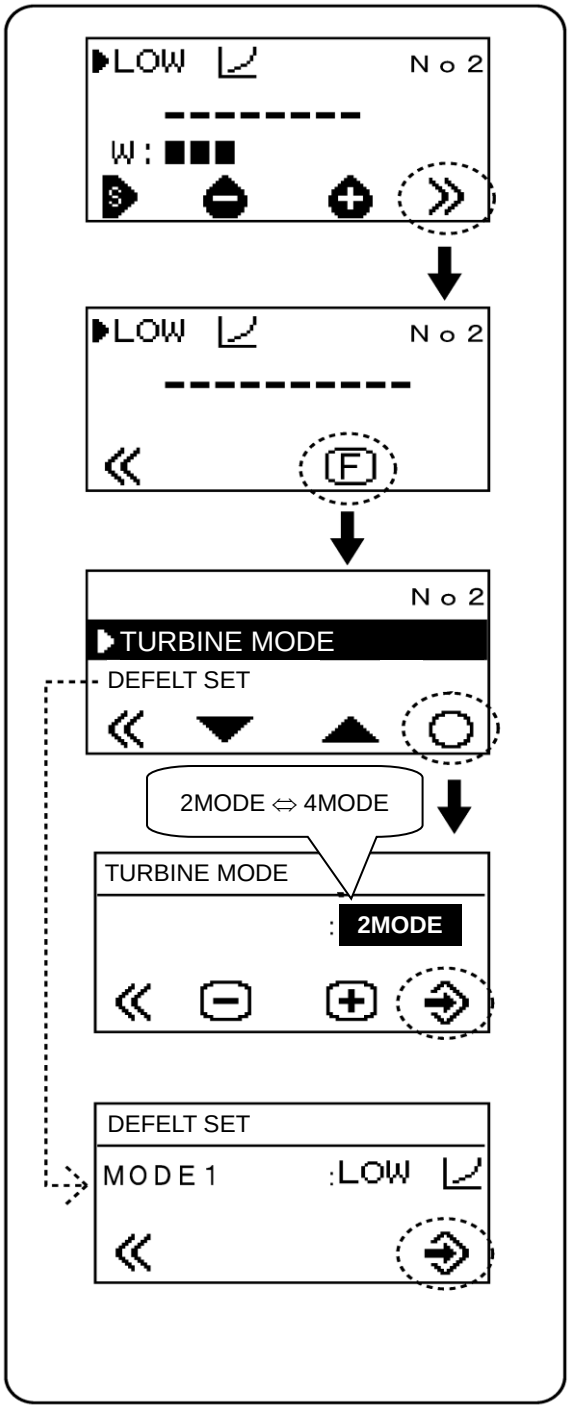
* The default mode of the scaler may also be set.
The scaler setting can be set for the contents of scaler mode (PERIO/ENDO/SCALING), ON/OFF of light pack, spray condition (ON/OFF, water only, air only), water capacity level (W: ■■■, W■■_, W■_ _) and power adjustment (FIX).

⚠ CAUTION

The water feeding quantity differs with the main pressures of water and air, different equipment and the water feed characteristics of the contra-angle handpiece. Pay attention to influences upon the dental pulp when grinding.

OPERATION SETTING

7 Turbine mode setting



⊙ 2-mode turbine
HI/LOW turbine mode only
⊙ 4-mode turbine
HI/LOW, STD and LL turbine modes

[Setting procedures]

1. Pick the turbine up from the holder.
2. Press the page feed button » and select Ⓕ.
3. Select "TURBINE MODE" and press ○ to determine.
4. Select intended setting with ⊖ or ⊕ and press → to save.

⊙ Default mode memory
The current setting may be set as the default of the turbine.
It can be set for the contents of turbine mode (HI/LOW/STD/LL), ON/OFF of light pack, spray condition (ON/OFF, water only, air only) and water capacity level (W:■■■, W■■__, W■__ __).

[Setting procedures]

1. Pick the turbine up from the holder.
2. Press the page feed button » and select Ⓕ.
3. Select "DEFAULT SET" and press ○ to determine.
4. Check setting and press → to save.

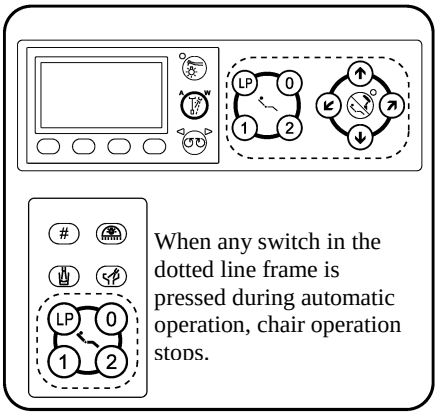
8 Indicator

■ Fault display and possible solutions for the indicator

- Abnormal display may be given on the indicator due to influences of noise.
  Turn off the main switch and turn it on again approximately 5 seconds later in such a case.
  * Abnormal conditions may not be reset if noise influences continue.
    Eliminate the cause of noise and turn on power again.
    Contact the dealer or our company if the cause of noise is unknown.

OPERATION STOPPING FUNCTION

■ Chair operation stopping function

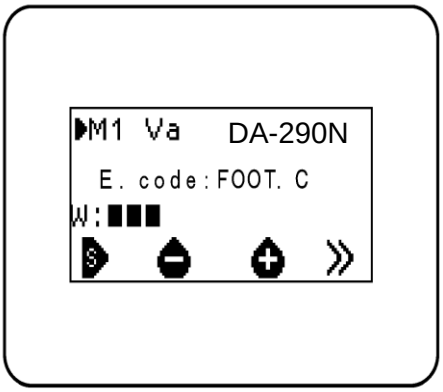


- The safety mechanism for stopping chair operation is activated in the following cases.

1. When the foot controller pedal is stepped on.
2. When the spittoon bowl is turning toward the patient (Automatic operation and manual upward movement stop.)

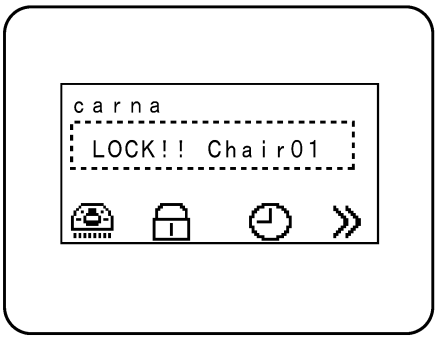
* In some cases, other display functions may give information. Be sure to read page 49.

■ Handpiece rotation stopping function



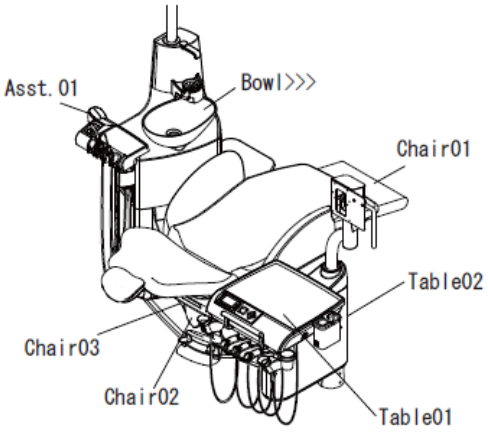
- The handpiece does not rotate if it is removed from the holder under the condition where you step on the foot controller pedal. At this time, the message shown on the left is displayed on the indicator, showing that the safety mechanism is activated. Be sure to pick up the handpiece first and then step on the foot controller pedal.

■ Numbers and locations to indicate safety functions



- When the safety mechanism is activated, the position where the safety switch is activated is displayed on the indicator.

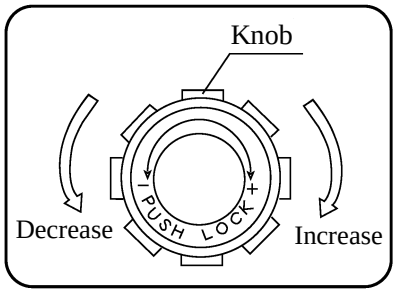
Chair01: Below roll-up
Chair02: Below flange
Chair03: Below main link
Table01: Table raise
Table02: Table rotation
Asst.01: ASST holder rotation
Bowl>>>: Bowl rotation



ADJUSTMENT OF PARTS

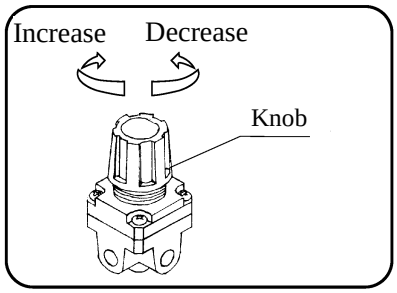
1 Utility box

■ Main air pressure reducing valve



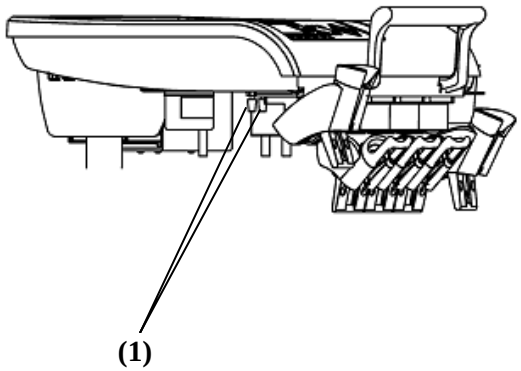
- This knob adjusts the main pressure of air supplied to the unit.
- Pull the knob and turn as shown in the drawing so that the main air pressure gauge reads a value between 0.45 and 0.5 MPa.
- Be sure to press the knob to lock it after setting.
- This knob is adjusted when installing the unit. Do not change the setting under normal conditions.

■ Main water pressure reducing valve



- This knob adjusts the main pressure of water supplied to the unit.
- Pull the knob and turn as shown in the drawing so that the main water pressure gauge reads a value between 0.1 and 0.2 MPa.
- Be sure to press the knob to lock it after setting.
- This knob is adjusted when installing the unit. Do not change the setting under normal conditions.

2 Doctor's unit

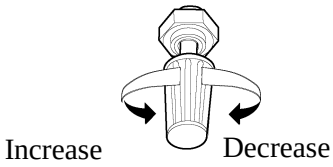


■ Water/air adjustment of the syringe spray

- The water and air flow rates of the syringe of the Doctor's unit may be adjusted with the knob (1).

Blue cap ... Water
Yellow cap ... Air

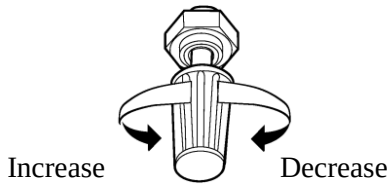
* The flow rate is decreased by turning any knob clockwise. It is increased by turning the knob counterclockwise.



* Flow rate adjustment knobs are intended to increase/decrease the flow rate, but do not serve as stop valves. Caution should be exercised as turning the knob excessively may cause it to loosen.

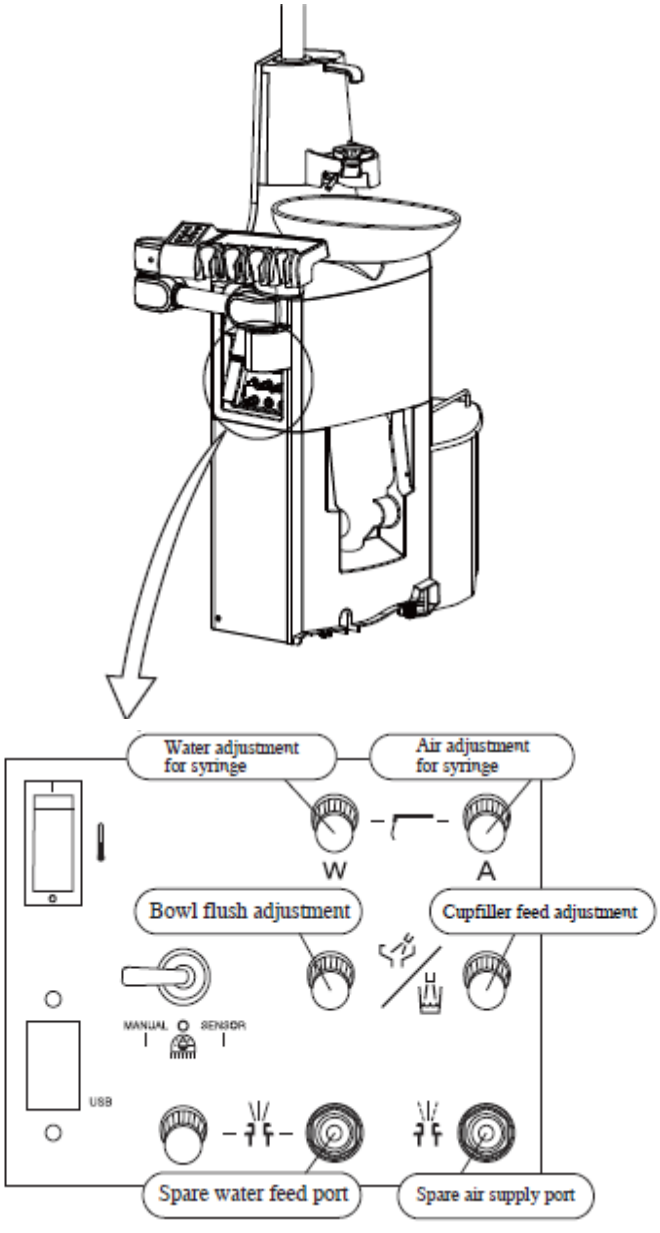
ADJUSTMENT OF PARTS

3 Cuspidor unit



■ Water feed port adjustment knob (optional)

- This knob adjusts the water feeding quantity from the spare water feed port.
- The water quantity is decreased by turning the knob clockwise. It is increased by turning the knob counterclockwise.



■ Adjustment of the syringe spray

- Use the syringe water quantity adjustment knob (blue cap) and syringe air quantity adjustment knob (yellow cap) for adjustment.
- The flow rate is decreased by turning any knob clockwise. It is increased by turning the knob counterclockwise.

■ Cupfiller adjustment knob

- This knob adjusts the water feeding quantity.
- The flow rate is decreased by turning the knob clockwise. It is increased by turning the knob counterclockwise.

* Be sure to set the water feeding quantity, if the flow rate of feed water needs to be changed. See page 57 for setting of the water feeding quantity.

■ Bowl flush adjustment knob

- This knob adjusts the flow rate of bowl rinse.
- The flow rate is decreased by turning the knob clockwise. It is increased by turning the knob counterclockwise.

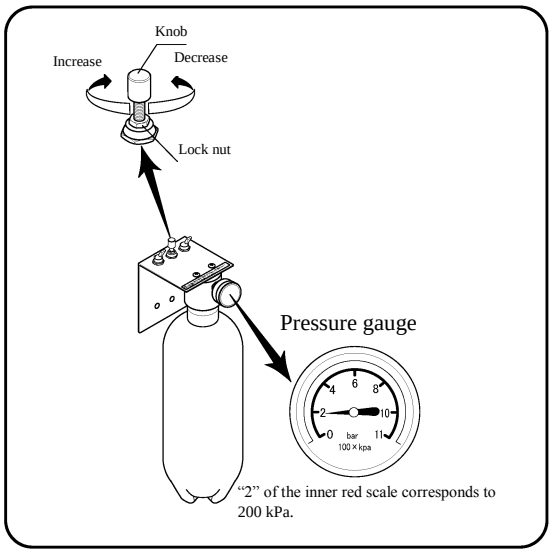
NOTICE

Flow rate adjustment knobs for water and air are intended to increase/decrease the flow rate, but do not serve as stop valves. Caution should be exercised as turning the knob excessively may cause it to loosen.

ADJUSTMENT OF PARTS

3 Cuspidor unit

■ Pressure adjustment of the water tank (optional)



- Adjust the pressure of air to be supplied to the water tank.
- Loosen the lock nut and turn the knob as shown in the drawing so that the pressure is lowered below 200 kPa.
- Be sure to tighten the lock nut after completion of the setting.
- This knob is adjusted when installing the unit. Do not change the setting under normal conditions.

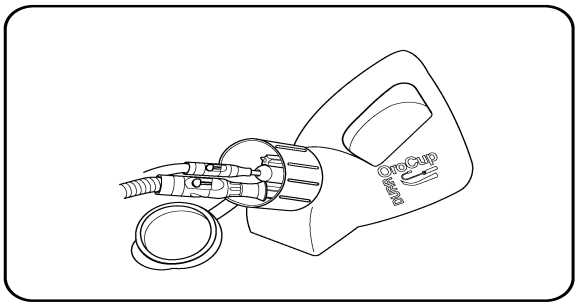
⚠ CAUTION

If the pressure exceeds 400 kPa, the water tank may break. Set the pressure below 200 kPa for safety.

CLEANING

1 Cuspidor unit

■ Cleaning vacuum and saliva ejector lines

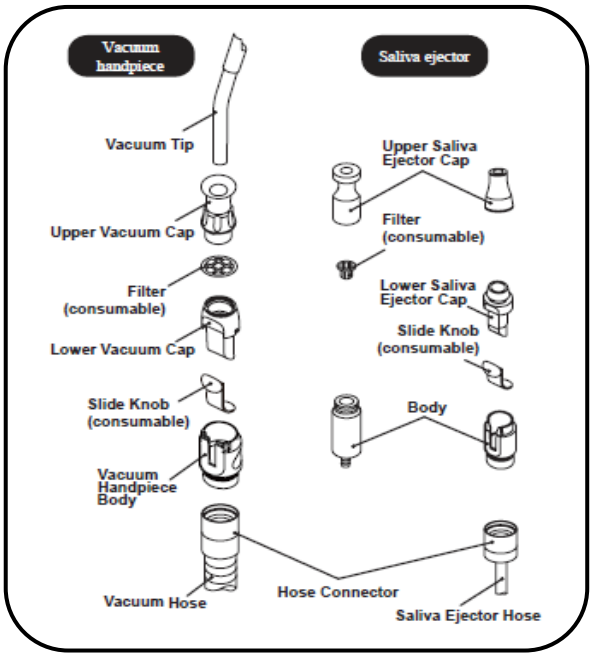


- The sucking unit comes into contact with secretions, spit and blood that contain bacteria every day. Be sure to clean and sterilize it with ORTLO PLUS made by DURR at the end of each work day.

⚠ CAUTION

Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc/

■ Cleaning vacuum handpiece and saliva ejector

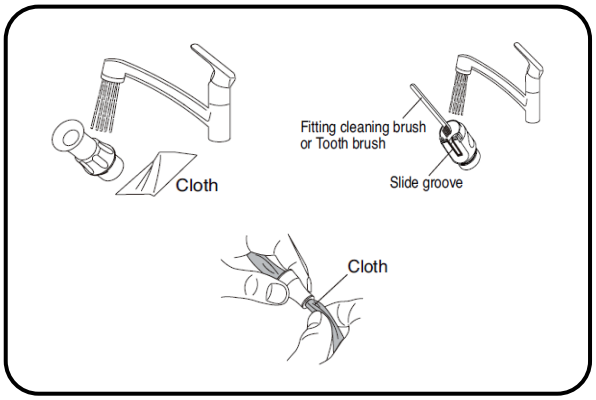


- For effective sterilization, washing for removing contamination and immersion by a cleaning agent are required. Then, rinse by water in order to remove residual cleaning agent on medical device.
  Take following procedures from cleaning to sterilization.
- Use the disposable saliva ejector tip.

Disassembly

Disassemble the handpiece for the preparation of cleaning as shown on the left.
Pull the hose connector to disconnect the vacuum hose.

■ Cleaning by hand



- Wipe off the surface contamination by a cloth while rinsing the surface by running clean warm water at 40±5 degrees.
  Scrub the intubation or hole, slide groove and filter by a cleaning brush or by a tooth brush with running clean warm water at 40±5 degrees. Wipe off by a cloth for the area which brush is unable to reach.
- Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.
- Check whether contamination is removed or not after cleaning.
  Continue the cleaning if contamination is remained.
- Immersed with an alkaline disinfection or detergent for 5 minutes. (We recommend to use ID212 made by DURR)
- Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.

CLEANING

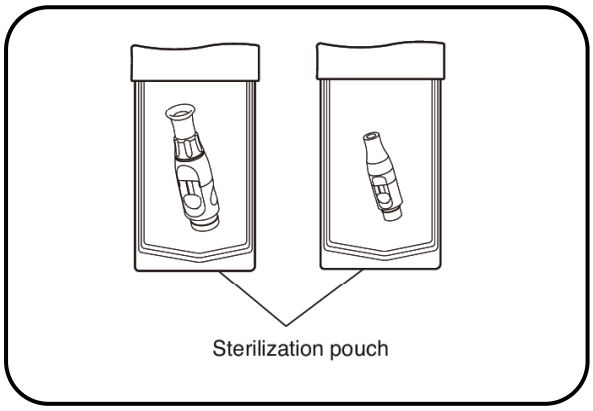
1 Cuspidor unit

■ Cleaning of the vacuum handpiece body

⚠ CAUTION

Cleaning must be done every after use to patients.
Cleaning must be done within 1 hour after use. Replace with a new vacuum handpiece and saliva ejector handpiece for following cases.
• Any waste material can not be removed by clogged hole.
• Contamination and solid material attached to vacuum handpiece and saliva ejector can not be removed.

■ Sterilization



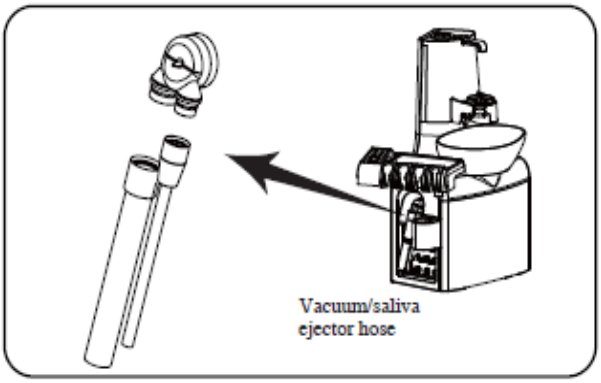
Vacuum Tip/Vacuum Cap/ Vacuum Handpiece Body/Saliva Ejector Handpiece Body can be autoclave.
Vacuum handpiece body and
saliva ejector body have to assemble before autoclave.
Sterilization with autoclave is permitted up to 250 times. However, sterilization of the slide knob with autoclave is permitted up to 100 times (because of application of load at the time of sliding).
・Insert the handpiece in a sterilization pouch and seal it.
・Autoclave for 3 min. at 134℃ and dry for 15 min..

Storage
After sterilizing the handpiece, keep it in the sterilization pouch and store in a dark and cool place.

⚠ CAUTION

• Sterilization must be done every after use to patients.
• Sterilization by class B cycles.
• Sterilization temperature is 135 degrees or less.
• The cap, filter and body are made of resin.
They may become deteriorated if they are sterilized in an autoclave many times.
• After autoclave sterilization, the cap, filter, body and valve are subject to discoloration, which does not have a negative effect on performance.
• The slide knob can be autoclave 100 times and is expendable supplies.
• Dry naturally if the temperature for drying process is to exceed 135℃.
• If damage occurs to the sterilization pouch, discard and sterilize again using a new pouch.

■ Cleaning of the vacuum and saliva ejector hoses

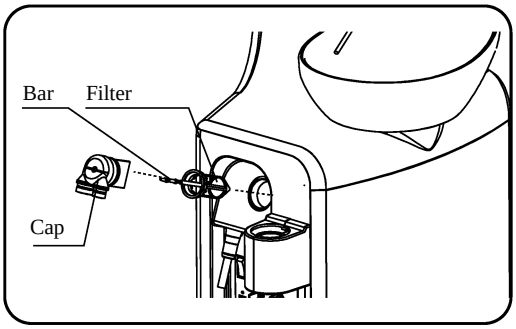


▪ The vacuum hose and saliva ejector hose may be disconnected by pulling them down. They may be cleaned in running water. Turn off the main switch of the unit when cleaning them. Insert the hoses to the very end when connecting them.

CLEANING

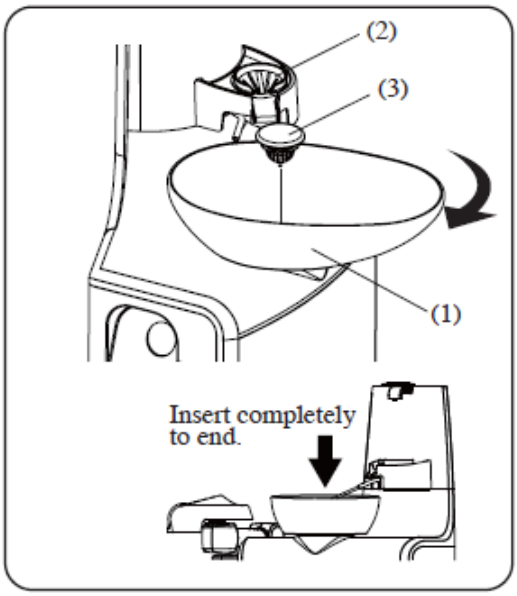
1 Cuspidor unit

■ Cleaning of the solid collector



- Detach and wash the filter in the solid collector of the Cuspidor unit at the end of each work day.
- If sucked substances are collected, the suction force of the vacuum is reduced.
- When the cap is removed and the bar is pulled, the filter is also drawn out with the bar. The filter only may be detached when the filter is turned.

■ Cleaning spittoon unit



- Use OROTOL PLUS made by DURR to clean the spittoon bowl.
- The spittoon bowl (1) may be detached and washed in running water. Turn it in the direction of the arrow and lift it to detach. After attaching the spittoon bowl, make sure that it is attached firmly before using it.

* Be sure to turn off the main switch or deactivate the weight sensing type cup water feed sensor before detaching the spittoon bowl or water feed cup tray (2). See page 48 for the sensor disabled mode.

- The dust filter (3) in the spittoon bowl is easily clogged. Clean it at the end of each work day.

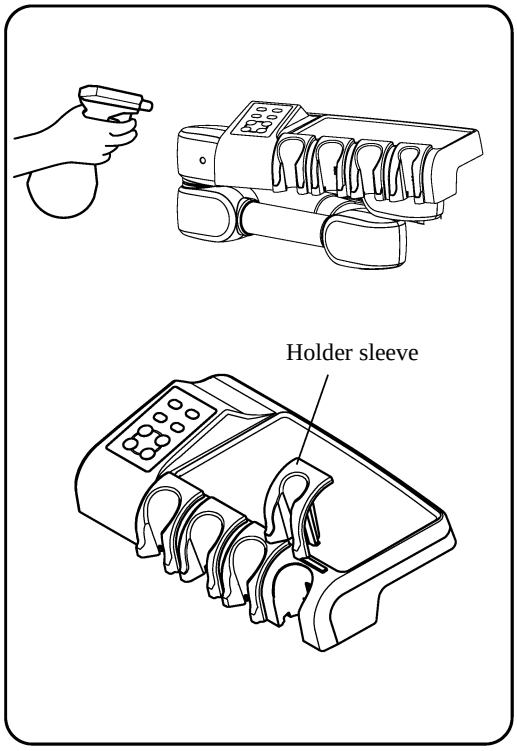
⚠ CAUTION

- Never use sandpaper, metal scrub brushes and abrasive cleaning agents to clean the bowel.
- Do not use strongly acidic cleaning agents or alkaline pipe cleaning agents, which may cause corrosion of metals, etc.
- Turn off the main switch when mating/unmating the spittoon bowl or cup filler tray. Otherwise, response to hands or objects during mating/unmating may produce discharge of water, including bowl rinse water, leading to rusting of metals.
- The spittoon bowl is made of glass. It may break if it is impacted.
  Do not wash it with hot water. Otherwise, it may break.
- The spittoon bowl may be detached easily. Be careful not to apply unnecessary force to it when cleaning. (Be careful not to hit or drop it.)
- If the safety switch is defective, the chair may move up and the spittoon bowl may break, even though the spittoon bowl is rotating. Stop using and contact the dealer or our company if the chair moves under the condition where the spittoon bowl is rotating.

CLEANING

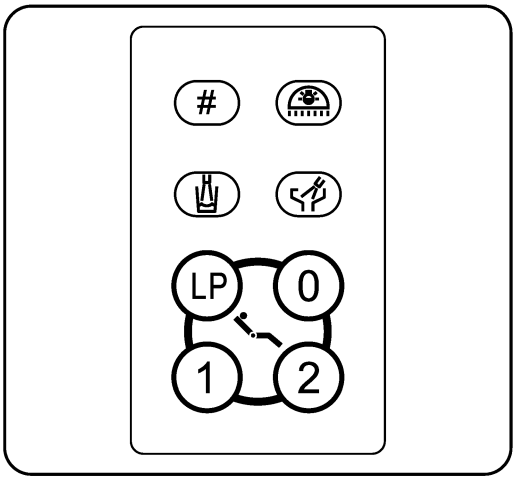
1 Cuspidor unit

■ Cleaning of Assistant's holder



- Use the cleaner FD333/FD366 manufactured by DURR. (Spray disinfectant mainly composed of disinfection ethanol and wipe it off, when general disinfectant is used.)
- The Assistant's holder sleeve may be detached and sterilized in an autoclave (for 20 minutes at 121℃ or 12 minutes at 132℃). Remove residues and clean carefully with running water before sterilization.
- Be sure to put into a sterilization pouch when sterilizing.
- The holder sleeves are made of resin and may become deteriorated if they are sterilized in an autoclave many times. The allowable sterilization frequency in an autoclave is 250 times.
- After autoclave sterilization, the holder sleeves are subject to discoloration, which does not have a negative effect on performance.

■ Assistant's operation panel

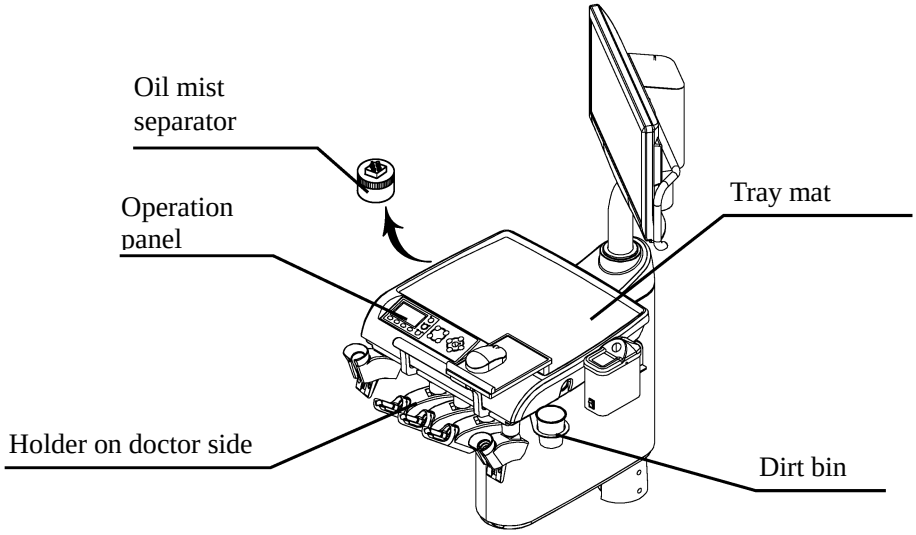


⚠ CAUTION

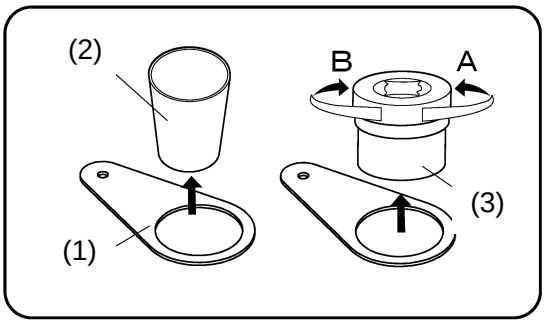
When the surface of the operation panel is cleaned with disinfectant, etc., wipe off disinfectant completely. If it penetrates into the back of the sheet, the membrane switches may malfunction.

CLEANING

2 Doctor's unit

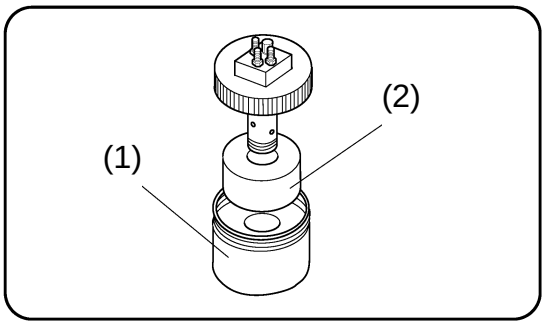


■ Waste receptacle (Optional)



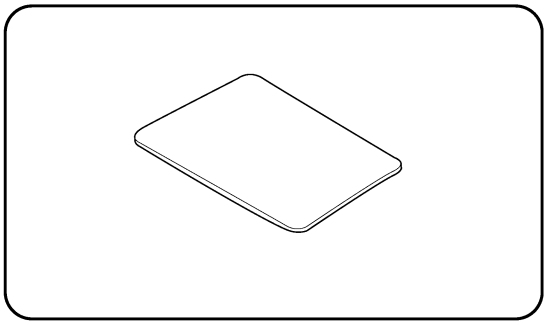
- When waste accumulates, remove the paper cup (2) from the waste receptacle holder (1) and replace it.
- The stainless waste receptacle (3) (optional) may be detached when it is turned in direction A. It is fastened when turned in direction B.
  The lid has sharp portions that can easily catch cotton, etc. Be very careful when cleaning it.

■ Oil mist separator



- The oil mist separator collects oil contained in exhaust air from the handpieces.
- Be sure to dispose of oil when oil is collected up to the red line of the oil reservoir (1).
- The oil reservoir may be detached when it is rotated counterclockwise.
- Replace the moisture absorbing sponge (2) if a lot of dirt or oil adheres to it.

■ Tray mat

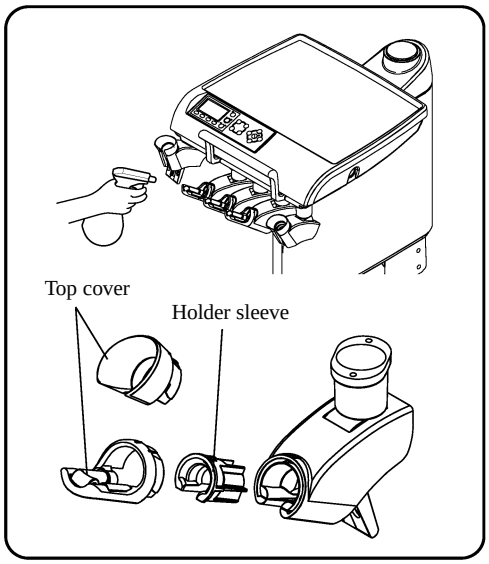


- The tray mat may be detached and sterilized in an autoclave (for 20 minutes at 121°C or 12 minutes at 132°C). Remove residues and clean carefully with running water before sterilization.
- Be sure to put into a sterilization pouch when sterilizing.
- The tray mat is made of resin and may become deteriorated if it is sterilized in an autoclave many times.
  The allowable sterilization frequency in an autoclave is 250 times.
- After autoclave sterilization, the holder sleeves are subject to discoloration, which does not have a negative effect on performance.

CLEANING

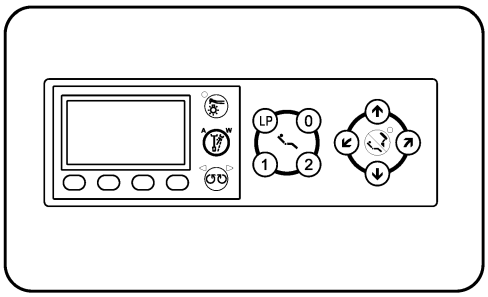
2 Doctor's unit

■ Holder on doctor side



- Use the cleaner FD333/FD366 manufactured by DURR. (Spray disinfectant mainly composed of disinfection ethanol and wipe it off, when general disinfectant is used.)
- The holder sleeve may be detached and sterilized in an autoclave (for 20 minutes at 121°C or 12 minutes at 132°C). Remove residues and clean carefully with running water before sterilization.
- Be sure to put into a sterilization pouch when sterilizing.
- Holder sleeves and top covers are made of resin and may become deteriorated if they are sterilized in an autoclave many times. The allowable sterilization frequency in an autoclave is 250 times.
- After autoclave sterilization, the holder sleeves are subject to discoloration, which does not have a negative effect on performance.

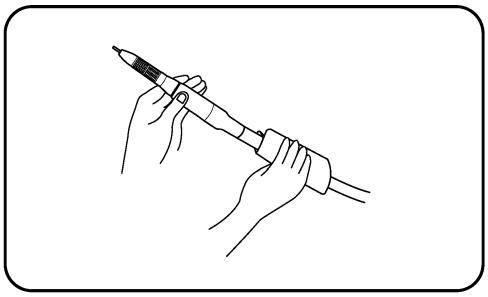
■ Operation panel (membrane switches)



⚠ CAUTION

When the surface of the operation panel is cleaned with disinfectant, etc., wipe off disinfectant completely. If it penetrates into the back of the sheet, the membrane switches may malfunction.

■ Handpiece hose



- Remove dirt from the handpiece hose by wiping with a soft cloth moistened with alcohol, etc.

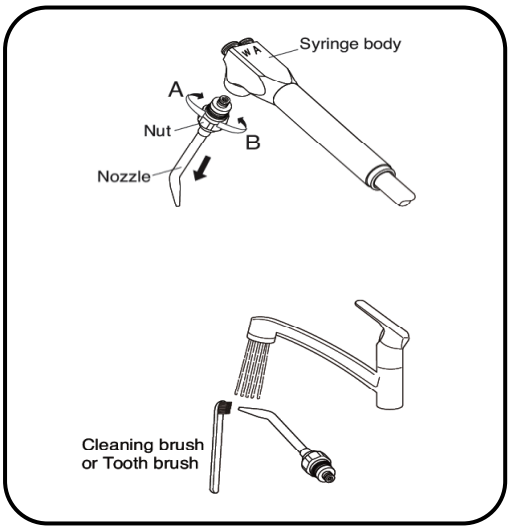
NOTICE

Observe the instructions given in the package insert and Instruction Manual included with the handpiece to clean it.

CLEANING

2 Doctor's unit

■ 77 type 3-way syringe

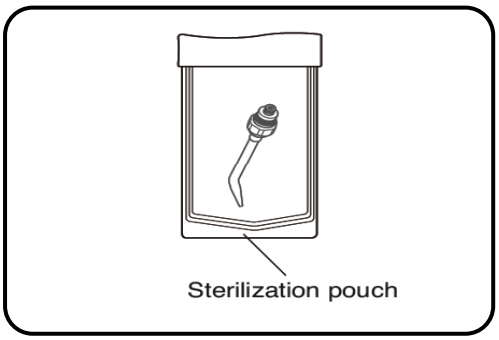


Disassembly

Remove the nozzle from syringe by turning it in direction A.

Cleaning by hand

- Wipe off the surface contamination by a cloth while rinsing the surface by running clean warm water at 40±5 degrees. Scrub the tip and joint part of nozzle by a cleaning brush or by a tooth brush with running clean warm water at 40±5 degrees.
- Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.
- Check whether contamination is removed or not after cleaning.
  Continue the cleaning if contamination is remained.
- Immersed with an alkaline detergent for 5 minutes.
  (We recommend to use ID212 made by DURR)
- Rinse thoroughly by distilled water at ordinary temperature or by clean water for more than 1 minute.



Sterilization

The nozzle can be sterilized with autoclave. Sterilization with autoclave is permitted up to 250 times.

- Insert the handpiece in a sterilization pouch and seal it.
- Autoclave for 3 min. at 134℃ and dry for 15min..

Apply Vaseline thinly and evenly to the two O-rings after sterilization.

Tighten the nut firmly in direction B to undo the nozzle.

Storage

After sterilizing the nozzle, keep it in the sterilization pouch and store in a dark and cool place.

⚠ CAUTION

Cleaning must be done every after use to patients.
Cleaning must be done within 1 hour after use. Replace with a new syringe nozzle if contamination and solid material attached to syringe nozzle can not be removed.

⚠ CAUTION

- Sterilization must be done every after use to patients.
- Sterilization by class B cycles.
- Sterilization temperature is 135 degrees or less.
- Dry naturally if the temperature for drying process is to exceed 135℃.
- If damage occurs to the sterilization pouch, discard and sterilize again using a new pouch.
- Before use, make sure that the nut is firmly tightened.

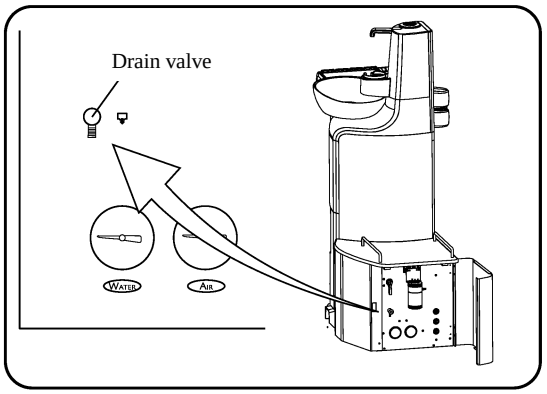
NOTICE

For operation of other syringes, observe the instructions shown in the package inserts and Instruction Manuals included with the syringes.

CLEANING

3 Utility box

■ Cleaning air filter drain valve and discharging water from air compressor



- This valve is used to discharge water from the air filter.
- Turn the drain valve counterclockwise to discharge water collected in the air filter once a week at least.
- If water enters the unit, the air turbine, air motor or syringe, etc., may become defective. Be sure to turn the drain valve clockwise to close the valve after discharging water from the air filter.
- Open the drain valve of the air compressor to discharge collected water once a week.

4 Outside of the product

■ Cleaning outside of the product

- Clean the metallic parts with a dry soft cloth.
  Wipe off water immediately if water is put on the product. Water may cause rusting.
- Clean the resin parts with a wet soft cloth.

■ Disinfecting outside of the product

- Use FD333/FD366 manufactured by DURR to clean and disinfect the outside of the product.

NOTICE

Wipe off remaining water and disinfectant immediately. They may facilitate rust generation.

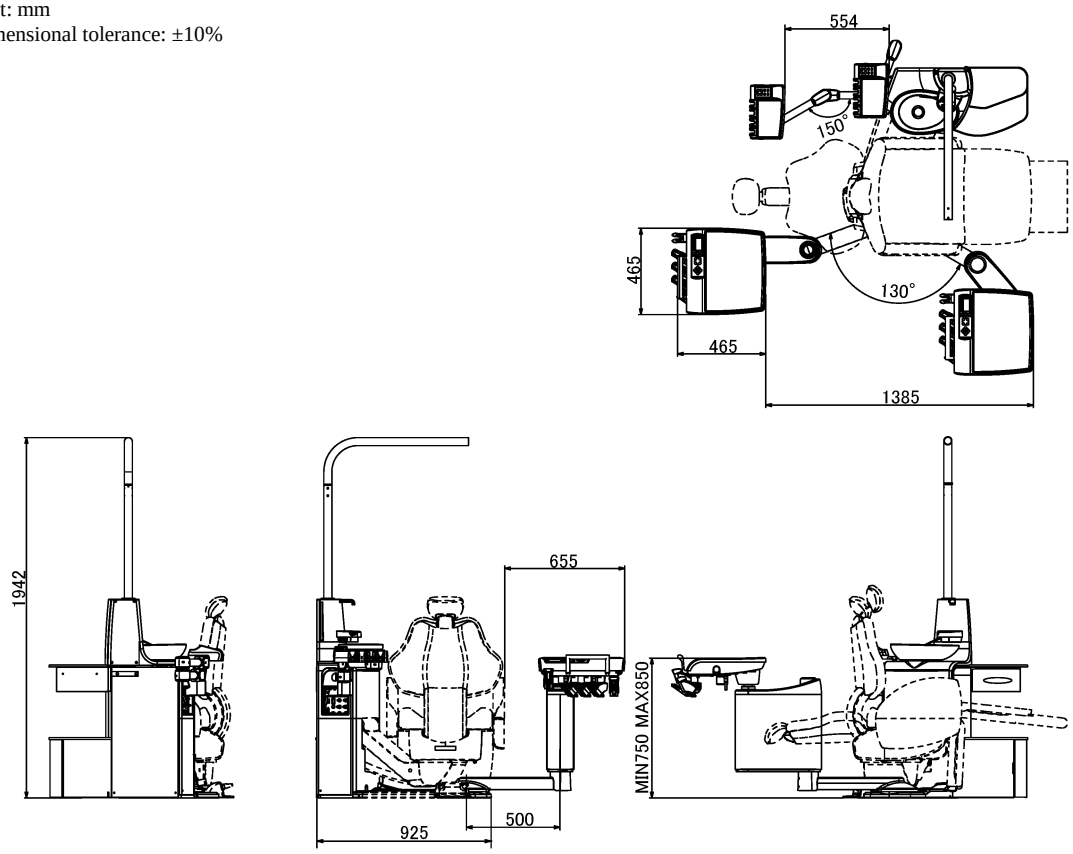
SPECIFICATIONS

■ Base mount type

● Rated power	: 230 VAC, 50/60 Hz, 4.7/4.4 A	
● Fuse	: 7A/250V (Current Rating: 200A at 250VAC) Fast-blow	
● Main air pressure	: 0.45-0.5 MPa	
● Main water pressure	: 0.1-0.2 MPa	
● Weight	: Cuspidor unit: 45 kg Doctor's unit: 45 kg Chair : 176kg	
● Movable load of chair	: 135kg	
● Class of foot controller	: IPX1 (applicable standards, IEC60529)	
● Protection class against electric shock	: Class I equipment	
●Applied part	: type B applied part: Seat for chair,	
		Handpieces for unit
		(List of compatible handpieces)
● Usage environment	: Temperature	10 to 40ºC
	Humidity	30 to 75%
	Air pressure	700 to 1060 hPa
● Mode of operation	: Non-Continuous Operation ON Time: 3min, OFF Time: 15min	
● Service life	: 10 Years	

Dimensions (Values are the standard values.)

Unit: mm
Dimensional tolerance: ±10%



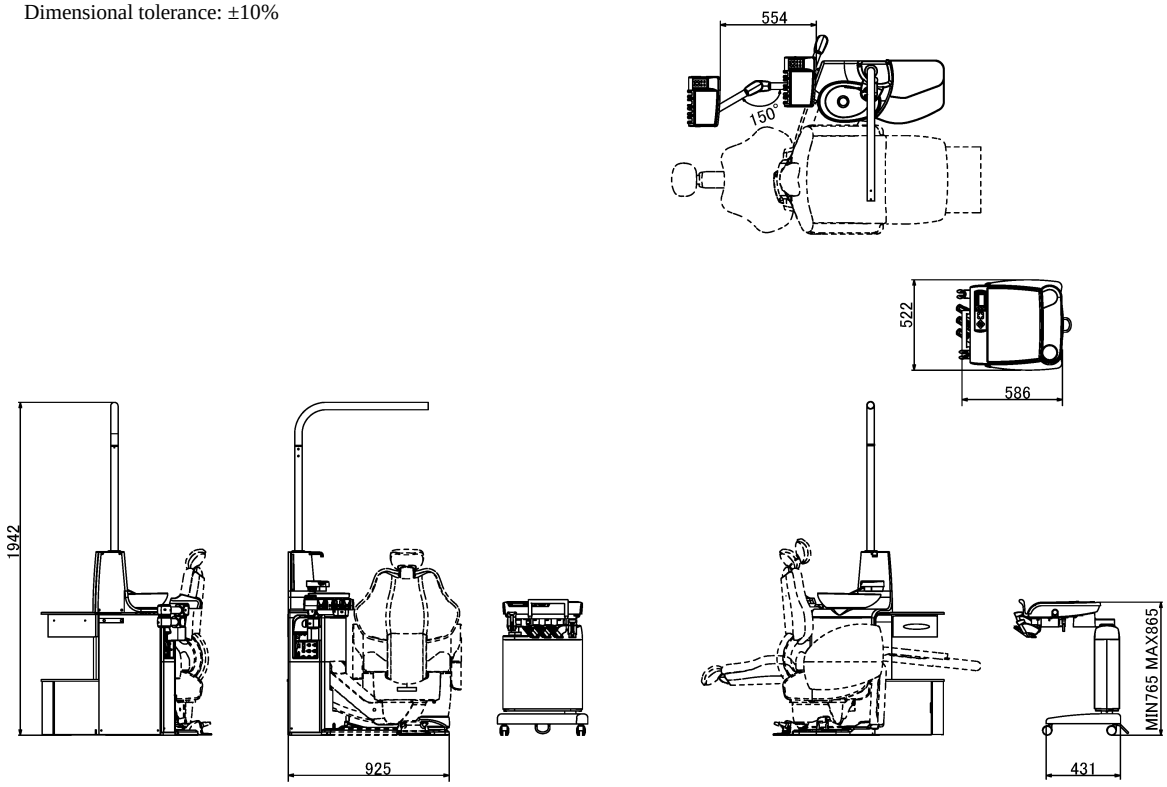
SPECIFICATIONS

■ Cart type

● Rated power	: 230 VAC, 50/60 Hz, 4.7/4.4 A	
● Fuse	: 7A/250V (Current Rating: 200A at 250VAC) Fast-blow	
● Main air pressure	: 0.45-0.5 MPa	
● Main water pressure	: 0.1-0.2 MPa	
● Weight	: Cuspidor unit: 45 kg Cart : 45 kg Chair : 176k	
● Movable load of chair	: 135kg	
● Class of foot controller	: IPX1 (applicable standards, IEC60529)	
● Protection class against electric shock	: Class I equipment	
●Applied part	: type B applied part: Seat for chair, Handpieces for unit (List of compatible handpieces)	
● Usage environment	: Temperature	10 to 40ºC
	Humidity	30 to 75%
	Air pressure	700 to 1060 hPa
● Mode of operation	: Non-Continuous Operation ON Time: 3min, OFF Time: 15min	
● Service life	: 10 Years	

Dimensions (Values are the standard values.)

Unit: mm
Dimensional tolerance: ±10%



BEFORE REQUESTING REPAIR SERVICES

Check the following parts first before requesting repair services, if the following phenomena take place.

Phenomenon	Cause	Countermeasure
Product does not work at all.	Main switch has not been turned on.	Turn on the main switch.
	Power of the compressor has not been turned on.	Turn on the power.
	Equipment breaker in the clinic has not been turned on.	Turn on the equipment breaker.
The chair does not operate.	Locking device for stopping operation is activated.	Release the lock. See page 47.
No water flows out.	Main water valve is closed.	Open main water valve.
	Water quantity adjust valve or knob of handpiece, etc., is closed.	Open valve or knob.
No water is fed to cup. (Weight detecting type)	Cup of less than 3 g is used.	Use a paper cup weighing 3 g or more.
Vacuum suction is not executed.	Power of the vacuum pump has not been turned on.	Turn on the power.
	Solid collector filter is contaminated.	Clean the filter.
	Vacuum handpiece filter is contaminated.	Clean the filter.
Saliva ejector does not suck.	Saliva ejector filter is contaminated.	Clean the filter.

Check the above and take the proper countermeasures. If the equipment still fails to work normally, stop using it, turn off the main switch and contact the dealer or our company.

STORAGE/DURABLE PERIOD/HOLDING OF PARTS/DISPOSAL/RESTRICTION ON USE

■ Storage method

Strictly observe the following points when the product will not be used for a long period of time (following the completion of work, during the suspension of business, etc.).

1. Main switch
   - Be sure to turn off the main switch at the end of each work day . (To stop supply of air, water, electric power, etc.)
   - Strictly observe this instruction to prevent water leakage and electric accidents.
2. Water main valve
   - Be sure to turn the main water valve counterclockwise to the Close position at the end of each work day.
   - Strictly observe this instruction to prevent water leakage accidents.
3. Water master valve
   - Turn the water master valve clockwise to the Close position if the product is not used for a long time for suspension of business.
4. Air master valve
   - Turn the air master valve clockwise to the Close position if the product is not used for a long time for suspension of business.
5. Main gas valve
   - Be sure to turn off the gas main at the end of each work day. Strictly observe the instruction to prevent gas leakage accidents.
6. Be sure to open the compressor breaker and then discharge air from the compressor. (Be sure to turn off the power.)
7. Be sure to turn off the vacuum pump breaker. (Be sure to turn off the power.)
8. Be sure to turn off the equipment breaker on the clinic’s electrical panel. (Be sure to turn off the power.)

■ Procedure for storage of the chair

Make sure to carry out works of items described below, when it is anticipated that the chair will not be used for a long period of time for recess or the like.

1. Make sure that the chair must be lowest position and to limit reclining position for the backrest.
2. Disconnect the power plug of chair or turn off the equipment circuit breaker in examination room.

CARE AND MAINTENANCE

■ Exterior Cleaning

- The surface of the chair's seating area is made of synthetic leather. Apply dry wiping or wipe the surface with cloth moistened with either water or diluted neutral detergent for the care.
- If the color of clothing or belt remained on the synthetic leather, wipe it off with cloth moistened with diluted neutral detergent as soon as possible, to avoid its penetration caused by plasticizer.
- In case the synthetic leather is wiped with a wet cloth, fully wipe off the moisture. If it remains, hydrolytic degradation may be accelerated. Do not use solvent or bleach.
- Apply dry wiping using a dry and soft cloth to metallic areas. If any metallic area is wetted, wipe off the moisture as soon as possible. It will rust otherwise.
- Wipe the resin cover with a wet and soft cloth.

■ Exterior Sterilization

- Use FD333/FD366 made by Durr or ethanol as sprayed to a soft cloth or paper towel for cleaning and sterilization of the product exterior. Do not operate the product until the liquid used for sterilization has fully dried up.

⚠ WARNING

- Do not place any hard and heavy article or any article having a sharp tip or edge on the chair's seating area. The synthetic leather may be damaged otherwise.
- For cleaning the resin cover, do not use solvent or detergent containing abrasive agent. In addition, do not use any chemical that is other than specified for this unit. The resin cover may crack otherwise. Use a soft cloth moistened with either water or diluted neutral detergent

MAINTENANCE AND INSPECTION

Guide for daily maintenance and inspection (Maintenance and inspection by user)

- Management of maintenance and inspection of medical equipment should be implemented by the user (medical institution). In case the user does not implement such management, it is permitted that such management is outsourced to a qualified entity such as a medical equipment repair company.
- For safe use of this product, it is necessary that inspection should be conducted in the specified frequency on the items described below.

No	Item	Frequency	Inspection method and diagnosis	Influence if inspection not conducted	Maintenance required in case of nonconformity
1	Check of safety functions	Before start	① Chair operation switches shall not work when foot controller pedal is depressed. ② When cuspidor section is turned to the patient side, cuspidor indicator shall light up in pink, and chair operation switches shall not work.	Unexpected personal injury and troubles may arise due to motion of the chair during medical treatment and due to pinching between doctor section and chair.	Contact your dealer or our office if any abnormality arises.
2	Check for leakage of water and air	Before start	Leakage of water and air shall not be observed around the product.	The product will not normally work, and troubles may arise.	Contact your dealer or our office if any abnormality arises.
3	Cupfiller	Before start	When a paper cup is placed on the cupfiller, the cup shall be detected and cupfilling shall be executed. * Malfunction may arise if the cup is of another material grade (such as stainless steel and plastics) or if the paper cup is of dark color or pattern.	Cupfilling may not be executed.	Execute re-inspection in accordance with "Method for operation" described in the instruction manual. Contact your dealer or our office if recovery is not achieved as a result of re-inspection.
4	Check of motions of equipment	Before start	① Air turbine revolution, water flow, air flow and so forth shall be free of abnormality. ② Micromotor revolution, water flow and so forth shall be free of abnormality. ③ Scaler vibration, water flow and so forth shall be free of abnormality.	Troubles such as injury in patient's oral cavity and equipment failure may arise.	Control the water flow in accordance with "Control of components" described in the instruction manual. If any other abnormality arises, refer to the instruction manual attached to individual equipment. Contact your dealer or our office if recovery is not achieved.
5	Check of air turbine bar	For each patient	Appropriate bar shall be positively mounted. Make sure to refer to the instruction manual attached to individual equipment.	The bar will not normally work and troubles may arise.	The bar will not normally work and troubles may arise.
6	Check of scaler tip	For each patient	Appropriate tip shall be positively mounted and be correctly used. Make sure to refer to the instruction manual attached to the scaler.	The tip will not normally work and troubles may arise.	If the tip was worn or deformed, replace the tip in accordance with the instruction manual attached to the scaler. Contact your dealer or our office if any other trouble arises.
7	Check of tightness of syringe nut	For each patient	The nut for fixing the nut of Type 77, 3-way syringe shall be positively tightened.	Troubles may arise if the nut comes off.	Turn and positively retighten the nut that fixes the nozzle.
8	Matters attached to micromotor	After closing	Excessive handpiece oil or the like shall not be attached to the motor section.	The motor section will not work normally and troubles may arise.	Execute care in accordance with the instruction manual attached to individual micromotor.

MAINTENANCE AND INSPECTION

No	Item	Frequency	Inspection method and diagnosis	Influence if inspection not conducted	Maintenance required in case of nonconformity
9	Care Vacuum and saliva ejector handpiece	After closing	Flush the suction line, and then clean the filter of the vacuum or saliva ejector handpiece	Faulty suction may arise	Clean the suction line and filter in accordance with "Method for care" described in the instruction manual.
10	Care Cuspidor section	After closing	Clean the cuspidor and dust filter.	Faulty water drainage may arise.	Execute dust removal and cleaning in accordance with "Method for care" described in the instruction manual.
11	Care Solid collector	After closing	Clean the filter of the solid collector.	Vacuum suction will become weak.	Clean the filter in accordance with "Method for care" described in the instruction manual.
12	Care Exterior	After closing	Chemical, filthy water and so forth shall not be found (attached or remaining) on the product exterior.	Discoloration and deterioration to the exterior, and corrosion and rusting to metallic components may arise.	Execute wiping in accordance with "Method for care" described in the instruction manual.
13	Check of main switch and main valves	After closing	The product main switch shall be off, and water/air main valves shall be closed.	Product failure and troubles may arise.	Contact your dealer or our office if the main switch cannot be turned off or if the main valve cannot be closed.
14	Product's moving parts	Once every week	No abnormal noise or the like shall be produced from product's moving parts when the product is operated.	The product will not normally work and troubles may arise.	Contact your dealer or our office if any abnormality arises.
15	Care Drain valve		Water may enter the air line, and equipment failure may arise.	Drain the water from the air filter drain valve.	Drain the water from the air filter in accordance with "Method for care" described in the instruction manual.
16	Check of Water pressure and air pressure		Check the water pressure and air pressure by reading pressure gauges in the cuspidor section. Basic set pressure : Water: 0.1 to 0.2 MPa Air: 0.45 to 0.5 MPa	The product will not normally work, and troubles may arise.	Contact your dealer or our office if the set pressure is abnormally high or low.
17	Check of conditions of table section		The table shall be free of inclination, and water shall not flow on the table.	Injury caused by falling of goods located on the table and other troubles may arise.	Contact your dealer or our office if any abnormality arises.
18	Care Oil mist separator		The oil level in the oil mist separator shall be lower than the red line.	Normal output will not be produced due to inferior handpiece exhaust.	Discharge the oil in accordance with "Method for care" described in the instruction manual.

MAINTENANCE AND INSPECTION

Guide for Periodical Check-up

- Some parts and components of the products are degraded or deteriorated depending on the frequency of use.
  Annual check-up and maintenance, as well as replacement of consumable parts, are required.
- The required parts (including consumable parts) are listed below. It may be different from the following list depending on the option of the unit.
- For check-up and repair, call a technician of our authorized dealer.

Parts and components that require periodical check-up

No.	Parts Description	Standard lifetime	No.	Parts Description	Standard lifetime
1	Vacuum handpiece body	3 years	8	Regulator	3 years
2	Saliva ejector handpiece body	3 years	9	Valves	3 years
3	Foot controller	5 years	10	Switches	5 years
4	Water supply hose	3 years	11	Film viewer body part	5 years
5	Drain hose	3 years	12	Pressure gauge	3 years
6	Air supply hose	3 years	13	Arm section of moving part	7 years
7	Electric wiring of moving part	5 years	14	Control PCBs.	5 years

Consumable parts

No.	Parts Description	No.	Parts Description
1	Valve for vacum handpiece body	6	Filter for oil mist separator
2	Vacuum tip	7	Filter (Air & Water)
3	Handpiece tubings	8	O-ring, Packing, Diaphragm
4	Vacuum hose		
5	Saliva ejector hose		

⚠ CAUTION

Execute the maintenance in accordance with this instruction manual and operating manual attached
to each individual equipment (Dental light, Handpiece, etc..) .
Failure to maintain this product may lead to physical injury or property damage.

EMC INFORMATION

ELECTROMAGNETIC COMPATIBILITY (EMC)

***Applicable standard: IEC60601-1-2:2007**

Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.
Portable and mobile RF communications equipment can affect medical electrical equipment.
The equipment or system should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the equipment or system should be observed to verify normal operation in the configuration in which it will be used.

Guidance and manufacture's declaration – electromagnetic emissions

The CP-ONE PLUS is intended for use in the electromagnetic environment specified below. The customer or the user of the CP-ONE PLUS should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The CP-ONE PLUS uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The CP-ONE PLUS is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacture's declaration – electromagnetic immunity

The CP-ONE PLUS is intended for use in the electromagnetic environment specified below. The customer or the user of the CP-ONE PLUS should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic file. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycle 70% U_T (30% dip in U_T) for 25cycle <5% U_T (>95% dip in U_T) for 5 s	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycle 70% U_T (30% dip in U_T) for 25cycle <5% U_T (>95% dip in U_T) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the CP-ONE PLUS requires continued operation during power mains interruptions, it is recommended that the CP-ONE PLUS should be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

NOTE U_T is the a.c. mains voltage prior to applications of the test level.

EMC INFORMATION

Guidance and manufacture's declaration – electromagnetic immunity			
The CP-ONE PLUS is intended for use in the electromagnetic environment specified below. The customer or the user of the CP-ONE PLUS should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the CP-ONE PLUS, including cables, than the recommended separation distance calculated from the equation applications to the Frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz outside ISM bands[a]	3 Vrms	$d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2.5 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 80 MHz and 800MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.			
[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the CP-ONE PLUS is used exceeds the applicable RF compliance level above, the CP-ONE PLUS should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the CP-ONE PLUS. [b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.			

Essential performance (purpose of IMMUNITY testing)
Unless operated by the switches for chair control, the chair section of the CP-ONE PLUS does not make any movements, except for sounding a buzzer and switching on/off the indicator.

EMC INFORMATION

Recommended separation distances between
Portable and mobile RF communications equipment and the CP-ONE PLUS

The CP-ONE PLUS is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the CP-ONE PLUS can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the CP-ONE PLUS as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitter m**		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1 At 80 MHz and 800MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by adsorption and reflection from structures, objects and people.

COMPATIBILITY OF HANDPIECES

	DESCRIPTION
Syringe	77 SYRINGE
	FARO(3-way) SYRINGE
	LUZZANI(3-way) Minilight w/Light
	LUZZANI(6-way) Minilight w/Light
	DCI(3-way) SYRINGE
Turbine	BIEN AIR BORA S36L / UNIFIX with LIGHT
	NSK Ti-Max X
Air motor	BIEN AIR Aquilon 830 / UNIFIX with LIGHT /PM1132
	NSK EX-203 / EX-6
Micromotor	BIEN AIR MC3 / PLMP021PCB. / PM1132
	BIEN AIR MX / DMX PCB. / PM1132
	BIEN AIR MX2/DMX2 PRO PCB./PM1132
	NSK TIM-40J / DA-290N PCB. / EX-6
	NSK NLX PLUS
	NSK NLX NANO
	W & H EM-E6/ EM-E7 LED
Scaler	SATELEC SP4055 w/Light
	SATELEC SP4055 NEWTRON w/LED
	NSK VARIOS 170 w/LED
	EMS SCALER

NOTE

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