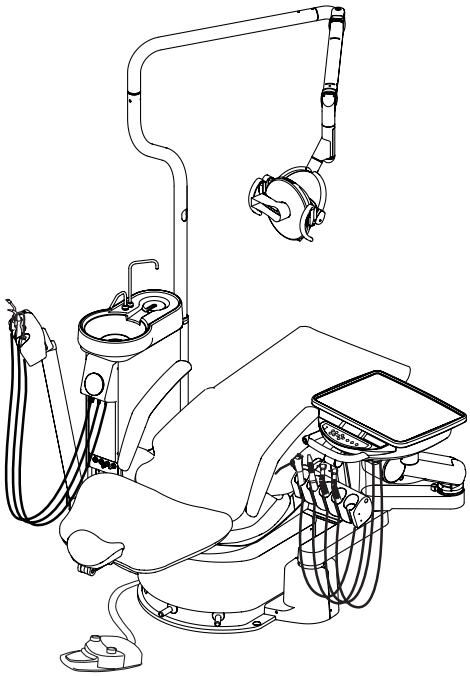
DENTAL UNIT AND CHAIR

CLEO II

OPERATING INSTRUCTIONS

This Instruction Manual describes how to use the CLEO II.



IMPORTANT

Read these instructions thoroughly before use and keep for future reference.
This product is designed as a dental unit, for dentistry, medical examination and treatment.
The product must be operated by trained personnel only.

Belmont

CE 0197

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 staff 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 intended.
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 +5˚C - +40˚C	Storage -10˚C - +50˚C
Humidity	10% - 80%	
Atomspherical pressure	600 hPa – 1,060hPa	

Compatibility of handpieces

Please refer to the list of compatible handpieces on P. 48 of this manual.

Important note

For faults and maintenance, please contact your dealer/installer or the nearest official representative of Takara Belmont Corporation.
Do not attempt to repair, alter and/or disassemble any part of product if you are not an authorised engineer or technician of Takara Belmont Corporation, as this may cause serious accidents and/or damage to property.

Symbols

LP	Chair last position	0	Chair auto return	1	Chair preset 1	2	Chair preset 2
	To raise the chair		To lower the chair		To recline the the backrest		To raise the the backrest
LP	Chair last position	0	Chair auto return	1	Chair preset 1	2	Chair preset 2
	Chair manual control		Chair auto control		To raise the chair		To recline the the backrest
	To lower the chair		To raise the the backrest		Chair manual control		Handpiec coolant sprayon/off
	handpiece Setting		Fibre optic handpiece light on/off		Rotation mode select		Micro motor Forward/Reverse select
	Fibre optic handpiece light on/off		Syringe	F	Function		Store
min.	Minus	 sec.	Plus		Bowl flush		Cupfiller
	Dental light on/off		Dental light mode selection		Service outlet water flow control		Service outlet (water)
	Service outlet (air)		Water heater	W	Water	A	Air
	Non-ionizing radiation		Authorized representative in the European community		Manufacturer		Date of manufacture
	Caution		Flammable		Separate collection for electrical and electronic equipment		Type B applied parts

1. SAFETY PRECAUTIONS

Carefully read the following safety information before use.
The precautions describe potential hazards due to improper handling of the product and classify the hazards into three stages according to the risk.
Please follow the precautions for safe use.

Definitions	
⚠ WARNING	Warning! Risk of fatal or serious injuries.
⚠ CAUTION	Caution! Risk of minor or moderate injuries and/or property damage.
WARNING	Notice. Important information.

⚠ WARNING
1. Ensure the isolating switch is off when the equipment is not in use for a long period of time.
When the equipment will not be in use for a long period of time, such as at the end of the day, make sure the applicable isolating switch is off. Failure to heed this warning may result in electrical leakage or fire due to deterioration of insulation.
2. Ensure the main switch on the equipment is off when not in use.
When the equipment is not used, such as break times, make sure the main switch on the equipment is off. This will prevent malfunctions and resulting hazards due to accidental contact or unauthorised use of the equipment.
3. Do not attempt to repair, alter and/or disassemble the equipment.
Only authorised personnel should repair, alter and/or disassemble the equipment. Doing so may result in personal injury or death by electric shock, malfunction and/or fire.
4. The equipment must be properly earthed.
Ensure the equipment is properly earthed by a qualified electrician. Failure to heed this warning may result in injury or death by electric shock, malfunction and/or fire.
5. Keep the equipment free from any electrical interference.
This product may malfunction when exposed to electrical interference. Do not install the product close to communication equipment, or elevator that generates electromagnetic waves. Devices such as mobile phones should be switched off in the vicinity of the equipment.
6. Turn off the main switch while any high frequency surgical instrument (HF-Surg) is operated.
High frequency surgical instruments (HF-Surg) may generate electrical noise which may cause the equipment to malfunction. In order to minimise risk of damage, turn off the main switch while any high frequency surgical instrument (HF-Surg) is operated.
7. Caution should be applied when treating patients with a pacemaker.
The product generates electrical noise which may interfere with a pacemaker. If the patient experiences anything unusual while the equipment is being operated, turn off the equipment at the main switch.
8. Maintenance and inspections must be carried out at regular intervals.
Failure to perform regular maintenance and inspections may result in personal injury or property damage. (Please refer to Page 43 for maintenance and inspection details).
9. Be sure that the reflector cover is in place when in use.
The reflector cover must be in place when using the dental light. The light bulb becomes very hot when in use which may result in burns if the bulb is touched directly and/or neighboring parts. (Please refer to the dental light instruction manual for details of cleaning/replacement.)

⚠ WARNING
10. Switch off the equipment to replace bulb
Ensure the main switch on the equipment is turned off when replacing the light bulb. Failure to heed this warning may result in electric shock. The specified halogen light bulb must be used. Do not touch glass part of the bulb with bare hands. The light bulb becomes very hot when in use which may result in burns if the bulb is touched directly. Allow the bulb to cool down or take adequate precautions and/or neighbouring parts. (Please refer to the dental light instruction manual for details of cleaning/replacement.)
11. Maximum weight of items placed on the doctor table must not exceed 3kg.
Do not put any items with a total weight of more than 3 kgs on the doctor table. Exceeding the maximum load may cause breakage and/or malfunction and may result in accidents.
12. Do not apply excessive force to the equipment.
Do not apply unnecessary force to the equipment especially the unit arms and the patients' armrests. Applying unnecessary force may cause an accident, the unit to tip over and/or damage to the equipment or property may occur.

⚠ CAUTION
1. The equipment must be operated by trained personnel only.
The equipment must be operated and/or handled by trained personnel or by staff under their supervision.
2. Carry out safety checks before use.
Before operating the equipment check that all parts are operating normally and safely and ensure there are no obstacles in the area.
3. Continually monitor the patient.
Continually monitor the patient to ensure there is no misuse of the equipment (Children in particular).
4. Stop using the equipment immediately if faulty.
During use, pay particular attention to any abnormal vibration, sounds, overheating or smell. If something is out of place, even slightly, stop using the equipment immediately.
5. Handle with care.
Accidental or deliberate hitting or knocking the equipment may result in breakage or damage.
6. Operate the switches by hand.
Except the foot controller, all other switches are designed to be operated by hand.
7. Use care when using additives to mains water.
The equipment is designed for use with mains water. Use of additives (such as water-line sterilization system) may cause damage to the equipment. The recommended water line sterlization is Alpron or a similar diluted sterilizer.
8. Flush the system before use.
In order to maintain the quality and supply of water to the handpieces, ensure that any remaining water in the system is completely flushed out before starting treatment. (Refer to the page 28 for flushing out procedures)
9. Take care when moving the doctor table.
Caution should be used when moving/positioning the doctor table. Failure to heed this warning may result in injury caused by the tips of the handpieces. The handle must be used when moving/positioning the doctor table.

⚠ CAUTION
10. Do not place hot objects on the doctor table.
Hot items may damage or discolour the doctor table
11. Clear up spills immediately.
If chemicals or water are spilled on the equipment, immediately remove and dry with a soft cloth. Failure to do so may cause electric shock, damage, stains or rust.
12. Ensure that there is adequate water in the water heater for planned use.
Activating the water heater without sufficient water will burn out the heating element, damage the heater and may cause a fire.
13. Replace the cover on the scaler tip when not in use.
After using the scaler, always replace the cover (if applicable) before returning it to the holder to avoid injury.
14. Handling the handpieces.
Do not try to detach the burr of the air turbine/airmotor/micromotor and/or adjust the rotation speed of the micromotor until the micromotor has completely stopped. (Refer to the operating instructions for individual handpieces)
15. Handling the film viewer.
The film viewer must be handled with care as it contains a fluorescent lamp. Ensure that the lamp is switched off when not in use.
16. Cart umbilical
At all times ensure that the cart umbilical does not become a trip hazard. Also ensure that it does not become trapped, trodden on or have any objects placed on it as this may cause injury or damage.
17. Adjusting the height of the doctor table (cart-type).
Ensure that the lock knob is fastened after adjusting the height to avoid damage and possible injury.
18. Automatic operation of the treatment unit
Check the area is clear and the patient is in the correct position before initiating automatic operation of the treatment unit to prevent damage or injury. Continually monitor during system operation.
19. Cleaning the control panels (Membrane Switch).
Lightly apply sterilization/cleaning fluids to a paper towel or soft cloth, to ensure that cleaning fluids are not allowed to seep into the back of the control panels as this will cause switch failure.
20. Cleaning the Spittoon Bowl.
Do not use sandpaper, wire wool, or anything abrasive including detergents containing abrasive compounds to clean the spittoon bowl. Do not use overly acidic or alkaline pipe cleaning agents as they may corrode metals.
21. Detaching the Cupfiller Nozzle and Bowl Flush Nozzle.
Ensure the main switch is off before detaching the nozzles, as the water supply sensor will activate the bowl flush mechanism during the detachment process and water spillage may cause damage.
22. Cleaning the plastic covers.
Do not use anything abrasive including detergents containing abrasive compounds to clean the covers. The recommended disinfectant for use is Durr FD333 or a similar diluted neutral detergent to prevent the plastic from cracking. After cleaning ensure covers are dried using a dry soft cloth.
23. Air pressure of the water tank
The air pressure of the water tank must be regulated to less than 0.2Mpa. Excessive pressure may rupture the water tank.

⚠ CAUTION
24. Water tank
Use only purified, distilled or pure tap water in the water tank. Do not add any mouth wash or electrolytic solution as this may cause clogging in tubings or adverse effect on inner valves and instruments.
25. Water Main Valve
Ensure that the main water valve is switched off at the end of the day to prevent water leakage.

NOTICE
1. Ensure the Air Compressor is switched on before use.
The equipment will only function if it is supplied with compressed air. Check that the power supply to the air compressor is switched on before use.
2. Air turbines used must have a water check valve.
If the air turbine does not have a water check valve, contact your dealer/installer or nearest official representative of Takara Belmont Corporation.
3. In the event of a power failure
The equipment will only function if it is supplied with compressed air. Check that the power supply to the air compressor is switched on before use.

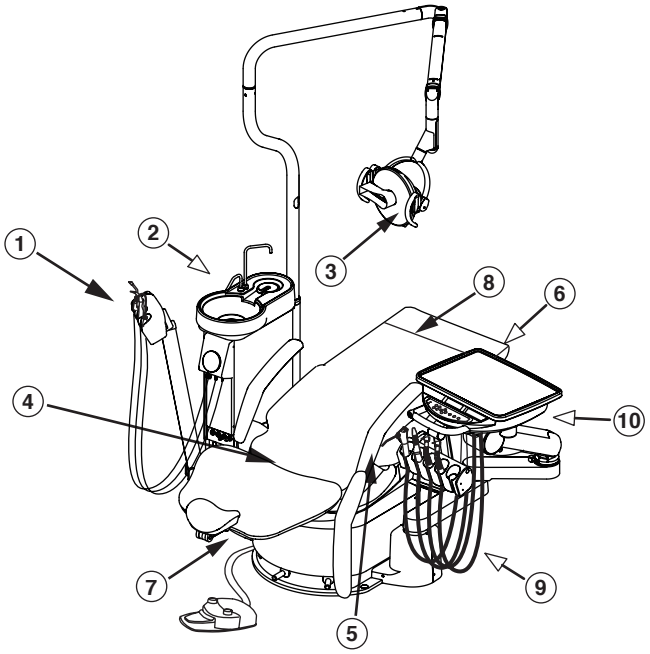
1. SAFETY PRECAUTIONS

Safety Precautions during operation of the equipment including patients' safety especially children:
(Base Mount Type)

Description of Symbol Marks

→ Caution areas such as moving parts, rotating parts and detachable parts to which caution should be paid.

→▷ Caution areas that are provided with an emergency stop mechanism



① **Be aware of contact with the Assistant Instrument holder.**
Ensure that the upper body of the patient does not go beyond the armrest into the Cuspidor unit.

② **The cuspidor unit's rotation**
Make sure that patient does not lean on the cuspidor unit, as pushing on the spittoon bowl causes it to swing outwards.

③ **Ensure that the reflector cover is securely in place.**
The reflector cover must be installed securely.

④ **Take care not to be trapped by moving parts of the backrest.**
Do not allow hands or feet into the gap between the backrest and the seat.

⑤ **Take care not to be trapped by the armrest.**
Do not operate the chair with the right armrest swung out 180 degrees.

⑥ **Take care not to be trapped by the lower part of the legrest.**
Do not allow feet under the legrest.

⑦ **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.

⑧ **Take care not to be trapped by the lower part of the seat.**
Do not allow hands or feet to be put into the gap in the lower part of the seat.

⑨ **Check the locking mechanism of the primary arm.**
Check that, when moving the doctor table behind the backrest, the chair lock indicator on the control panel blinks red, ensure operation of the chair is not possible.

⑩ **Be aware of potential collision between the chair and doctors table.**
Do not move any part of the equipment without ensuring that it can proceed without obstruction from the doctor table, parts of the equipment or other items in the area (such as separate stool/chair).

2. PRECAUTION FOR WATER QUALITY SAFETY

Precausions for water quality safety

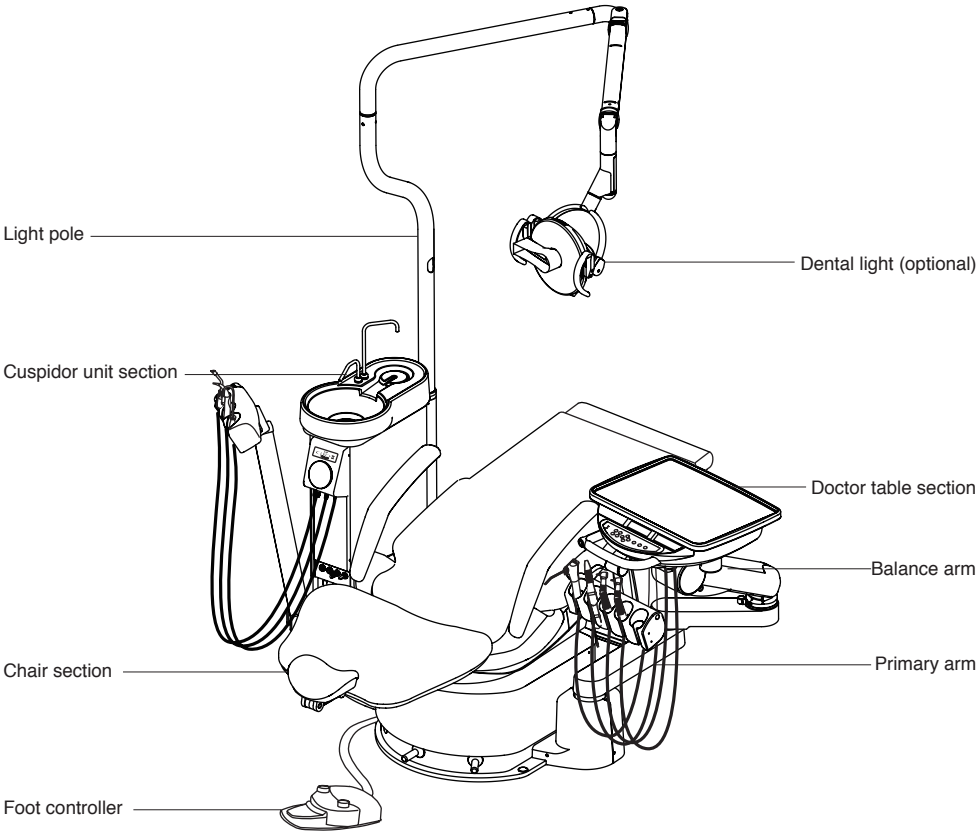
⚠ CAUTION
In order to maintain the quality and supply of water to the handpieces and to ensure that germs are not allowed to multiply, ensure any remaining water is completely flushed out :- before starting each treatment. at the end of the day. and it is highly recommended to do so before breaks

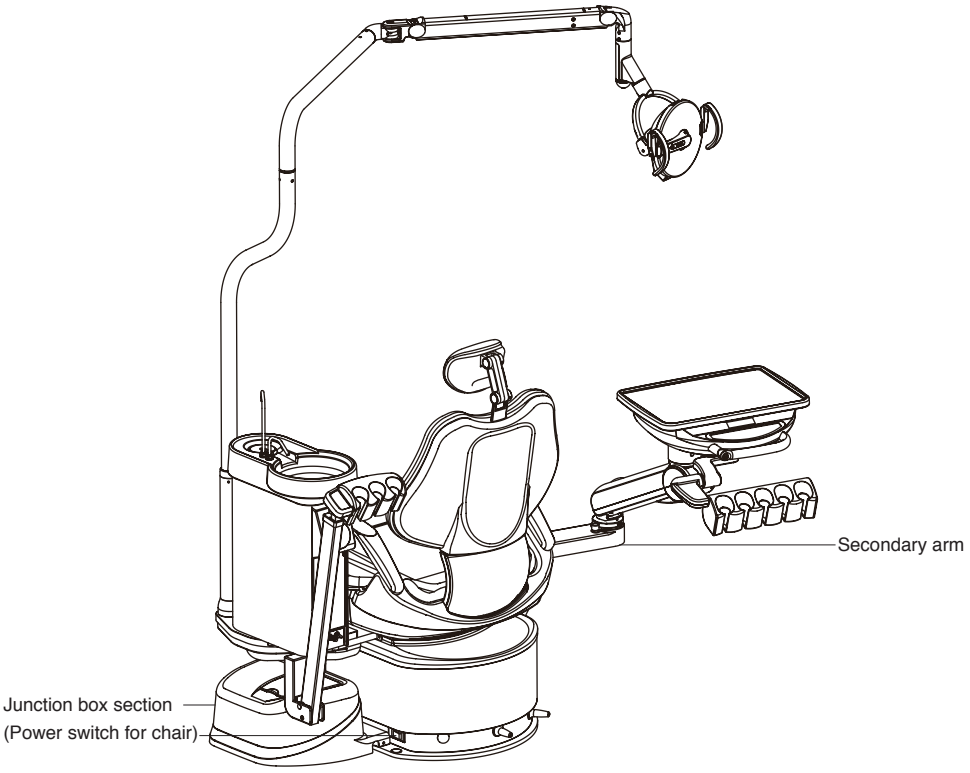
Standard length of time required for flushout of water lines in the equipment	
Handpiece line e.g. Turbine Air motor Micro motor Scaler Syringe (Doctor's / Assistant's)	Approximately 40 seconds for each handpiece line ⚠ **CAUTION** Do not remove any Scaler parts, if applicable. This could cause damage or malfunction to the scaler.
Cuspidor line e.g. Cupfiller Bowl flush	Approximately 5 minutes

Note: Refer to P. 15 for A Version and P. 34 for E Version.

3. OVERALL VIEW AND MAJOR COMPONENTS

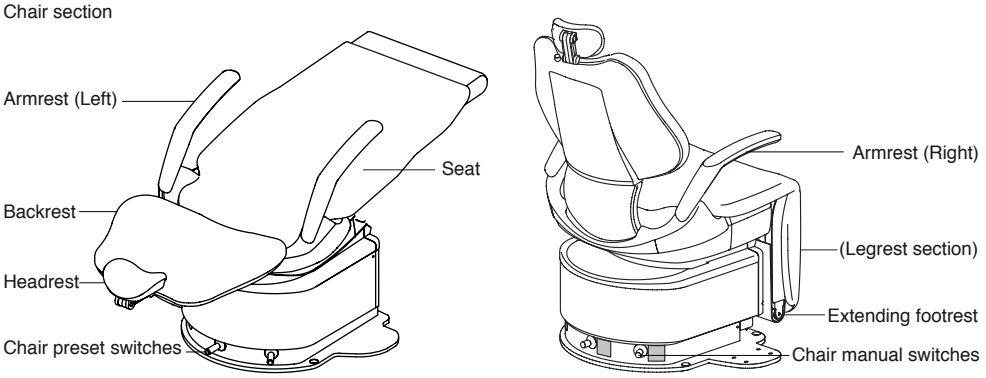
Base mount type



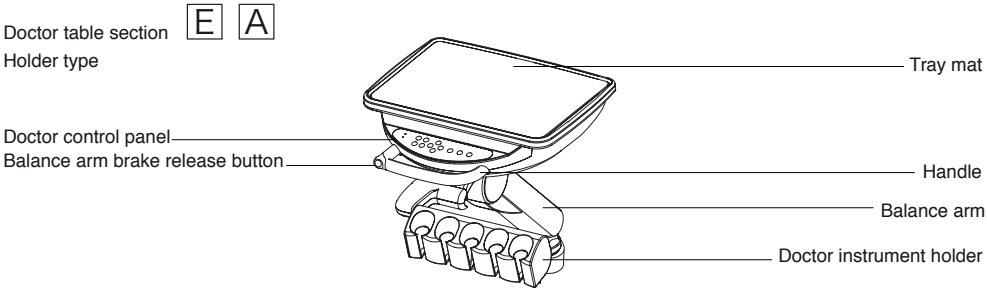


3. OVERALL VIEW AND MAJOR COMPONENTS

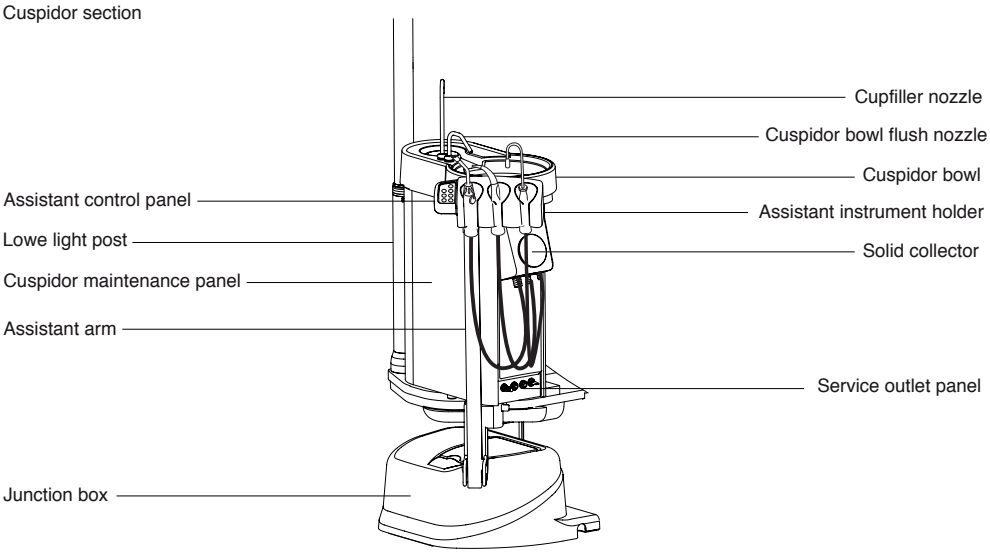
Chair section



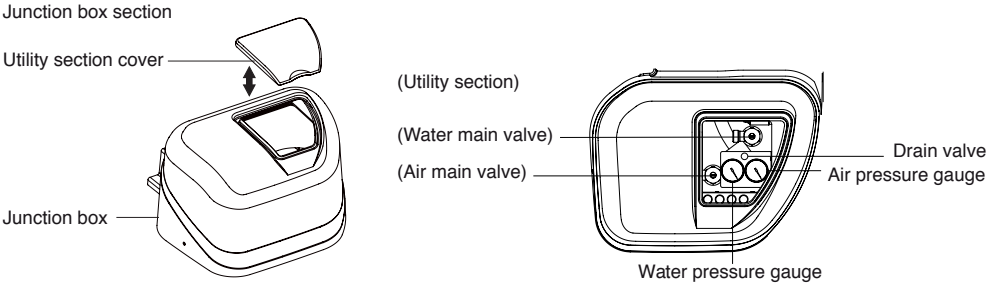
Doctor table section E A
Holder type



Cuspidor section



Junction box section

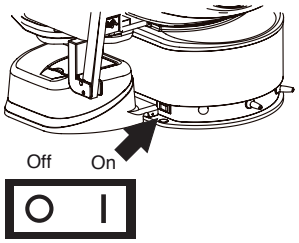


4. DESCRIPTION OF AND FUNCTIONS OF COMPONENTS

1. Chair section

1-1. Power switch for chair

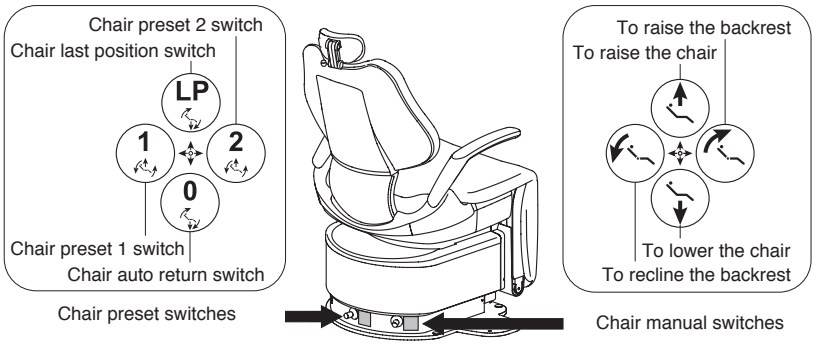
Fig. 1-1



Power switch for chair

1-2. Foot stick switches

Fig. 1-2



1-3. Armrest (right)

Hold the armrest on the right-hand side, and release the lock by pulling up the armrest diagonally backward (in a direction that is parallel to the armrest axis) by about 1 cm. (Fig. 1-3-1)
The armrest will then swing outwards and finish pointing down as shown in Fig. 1-3-2.

Note: ensure that the armrest is locked when it swings back to the initial position.

Fig. 1-3-1

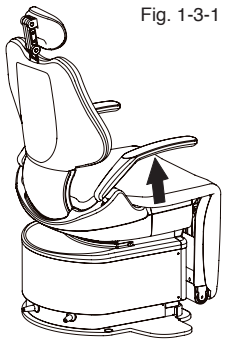
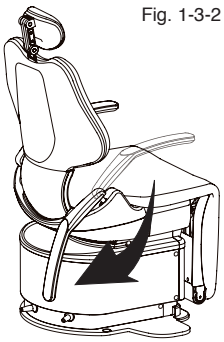


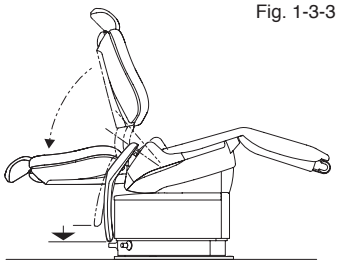
Fig. 1-3-2



⚠CAUTION

The armrest approaches the floor when the backrest is tilted. Do not operate the chair while the armrest is unlocked, this may cause injury and/or damage to the equipment. (Fig. 1-3-3)

Fig. 1-3-3



1-4. Headrest

Height adjustment
Hold the headrest bar with both hands and adjust headrest height by pulling out or pressing down on the headrest bar. (Fig. 1-4-1)

Angle adjustment
Press the headrest release button to unlock the twin axis mechanism and adjust headrest angle. The headrest angle is locked when the headrest release button is released. (Fig. 1-4-2)

Fig. 1-4-1

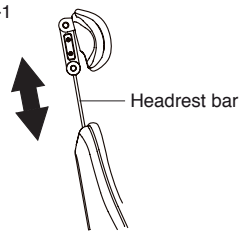
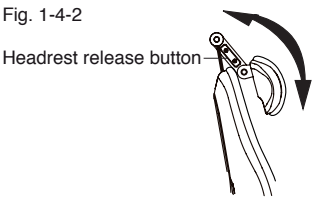


Fig. 1-4-2



⚠CAUTION

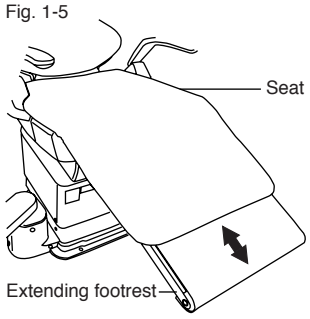
Adjust the headrest for each patient to prevent forcing the patient and the dentist into an uncomfortable treatment position. Ensure that the headrest is locked and holds the patient's head firmly.

1-5. Extending footrest

The extending footrest is automatically extended when either of the preset position switches are pressed. (Fig. 1-5)

Note: There is a safety device on the extending footrest and the footrest's extending motion will automatically be cancelled if the device touches any object in front of the chair where footrest should be.

Fig. 1-5



1-6. Upholstery

The seamless upholstery is made from synthetic leather, i.e. Vinyl, which is durable and easy to clean.

Note: Do not place any object, which may cause any damage such as stamp mark, tear, stain etc. on the upholstery.

2. Doctor table section

2-1. Main switch [E] [A]

When the main switch is turned on, the LED (main) lights up and remains lit while the main switch is on. The unit, chair and dental light, if applicable, are now operable. (Fig. 2-1-1, Fig. 2-1-2)

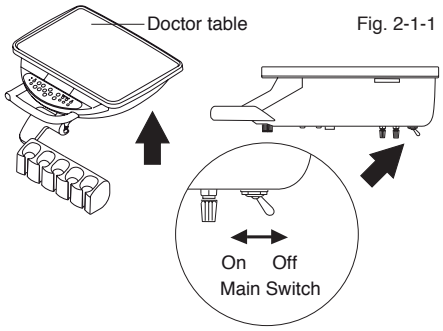
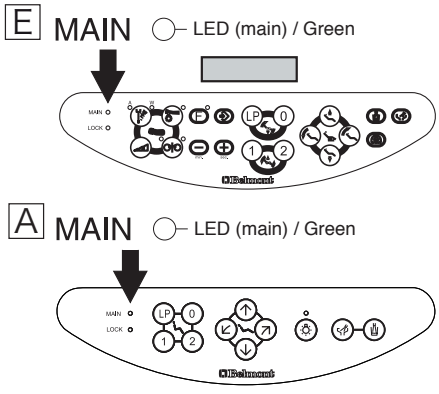


Fig. 2-1-1

Fig. 2-1-2



2-2. Function indicator E

When the main switch is turned on, all the LED's on the doctor control panel are lit. A few seconds later, "BELMONT" is displayed and the unit, chair and dental light, if applicable, are now operable.
(Fig. 2-2-1, Fig. 2-2-2)

Note: The LED (main) stays lit while the main switch is on.

Fig. 2-2-1

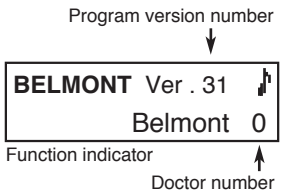
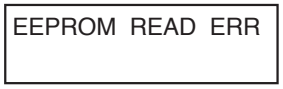


Fig. 2-2-2

Function indicator

If an error occurs in the microprocessor, the buzzer sounds and "EEPROM READ ERR" is displayed on the function indicator. In order to correct this error, turn the main switch off and turn it on again. If the same error code is displayed, contact your dealer/installer or the nearest official representative of Takara Belmont Corporation.
(Fig. 2-2-3)

Fig. 2-2-3



Function indicator

The function indicator sleeping function

The function indicator turns off to prevent fluorescent tube seizure and for power saving purposes if the unit is unused for:

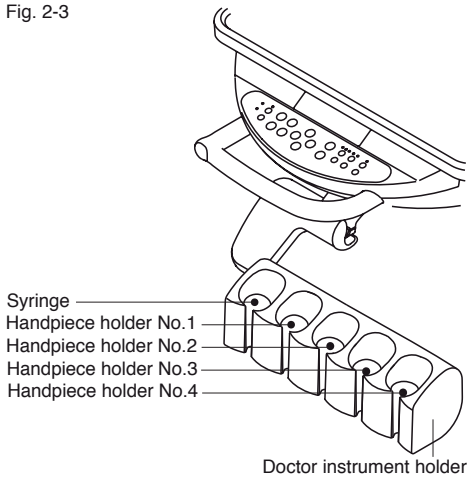
120 seconds after the main switch is turned on.
30 seconds after any function was last activated.
The function indicator is revitalised when any function is activated.

Note: The function indicator may malfunction when the unit is exposed to electrical interference. In such events, turn the main switch off and turn it on again approximately 5 seconds later.
If electrical interference is generated continuously and the function indicator will not reset.
Identify the source of the electrical interference and eliminate it before the unit is restarted.
Contact your dealer/installer or the nearest official representative of Takara Belmont Corporation if the source of the electrical interference cannot be identified.

2-3. Doctor instrument holder (Fig.2-3)

Each time the main switch is turned on, the unit automatically checks whether the handpieces are placed in the doctor instrument holder properly.
If the unit finds any handpiece(s) are not fitted in the doctor instrument holder properly, the holder number is displayed on the function indicator and the buzzer sounds for a few seconds.
Refit the handpiece(s) in the displayed handpiece holder while the buzzer is activated. Or turn the main switch off, replace the handpiece(s) in the displayed handpiece holder and turn the main switch on after 5 seconds.

Fig. 2-3



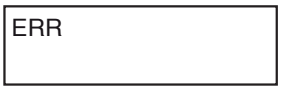
Handpiece priority function

Only one handpiece is operable at any time, the number of the handpiece selected will be displayed in the function indicator. (Fig. 2-3-1)
This handpiece must be returned to its holder before another can be selected.
If a second handpiece is selected prior to the return of the first, "ERR" will be displayed in the function indicator (Fig. 2-3-2) until all handpieces have been returned to their holders.

Fig. 2-3-1
Handpiece holder number

Function indicator

Fig. 2-3-2

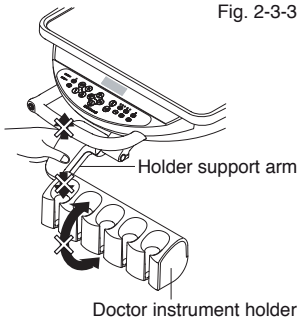


Function indicator

⚠CAUTION

Holder support arm / doctor instrument holder (Fig. 2-3-3)
Do not attempt to adjust the angle of the holder support arm / doctor instrument holder.
The angle of the holder is fixed at the time of installation, the holder support arm could be damaged if too much force is used.

Fig. 2-3-3



2-4. Handpiece

Refer to the compatibility of handpieces on P.48 for the handpieces available.

Note: Refer to the manufacturer's manual for operation and maintenance.

⚠CAUTION

Do not drop the syringes as damage may be caused to the syringe body and/or the syringe tip.

4. DESCRIPTION OF AND FUNCTIONS OF COMPONENTS

2-5. Handpiece water flow rate control

The handpiece water flow rates are adjustable individually by turning the water flow control knobs located underneath the doctor table. (Fig. 2-5-1)
The flow rate decreases when the knob is turned clockwise and increases when it is turned anticlockwise. (Fig. 2-5-2)

Fig. 2-5-1

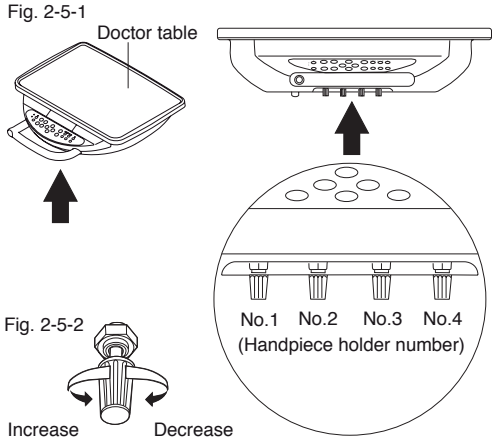


Fig. 2-5-2

2-6. Doctor syringe air and water flow rates control

The doctor syringe air and water flow rates are adjustable by turning the air and water flow control knobs located underneath the doctor table. (Fig. 2-6-1)
The flow rate decreases when the knob is turned clockwise and increases when it is turned anticlockwise. (Fig. 2-6-2)

Fig. 2-6-1

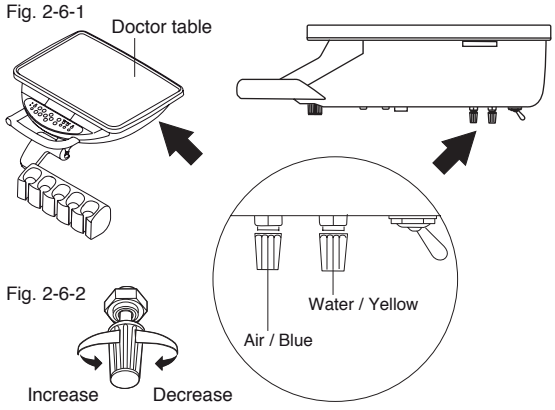


Fig. 2-6-2

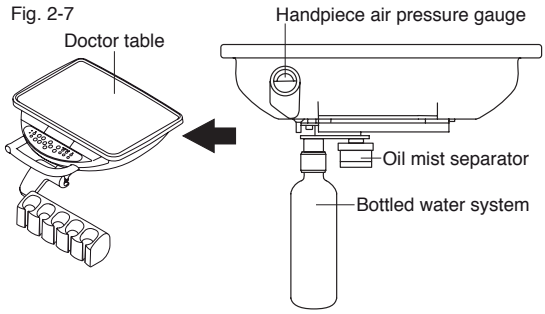
2-7. Handpiece drive air pressure gauge

The handpiece air pressure gauge displays the current air pressure on the handpiece air supply lines.
(Fig. 2-7)

2-8. Oil mist separator

The oil mist separator collects the oil contained in the exhaust air from the air driven handpieces. (Fig. 2-7)

Fig. 2-7



2-9. Bottled water system

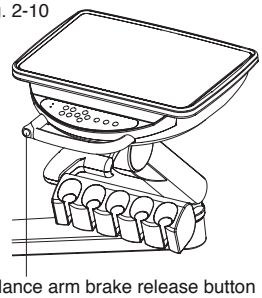
The bottled water system isolates the water supply system for the hand pieces including syringes to minimize the risk of water supply line contamination. (Fig. 2-7)

2-10. Balance arm brake

Press and hold the balance arm brake release button to adjust the height of the doctor table and release it when the doctor table is at the required height. (Fig. 2-10)

Note: Only adjust the doctor table height while the balance arm brake release button is pressed. A scraping noise may occur in the balance arm if the height adjustment of the doctor table is attempted without pressing the balance arm brake release button.

Fig. 2-10



Balance arm brake release button

2-11. Chair motion lock device

When the doctor table is located behind the backrest, the chair motion lock device is activated and the orange lock indicator LED blinks on the doctor control panel. (Fig. 2-11-1, Fig. 2-11-2)

Note: all chair auto movements, i.e. prisets, auto return & last position, are prohibited or immediately cancelled if already in progress.

Fig. 2-11-1

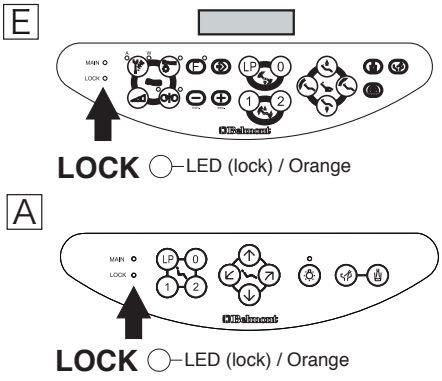
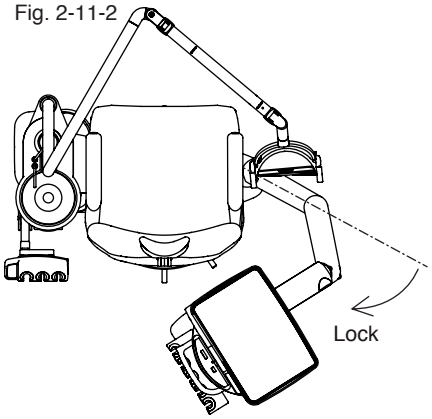


Fig. 2-11-2



2-12. Dental size film viewer (optional)

The screen back light is lit when the film viewer switch is pressed. (Fig. 2-12)

Note: Turn the screen back light off to prevent fluorescent tube seizure and for power saving purpose when the film viewer is not in use.

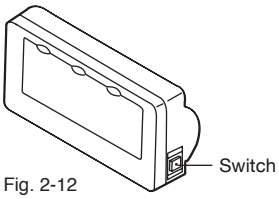


Fig. 2-12

2-13. Panoramic size film viewer (optional)

The screen back light is lit when the film viewer switch is turned on. (Fig. 2-13)
The intensity of the screen back light is adjustable by using the intensity control dial.

Note: Turn the screen back light off to prevent fluorescent tube seizure and for power saving purpose when the film viewer is not in use.

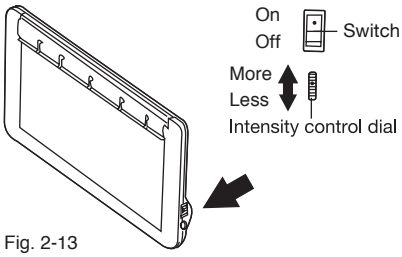


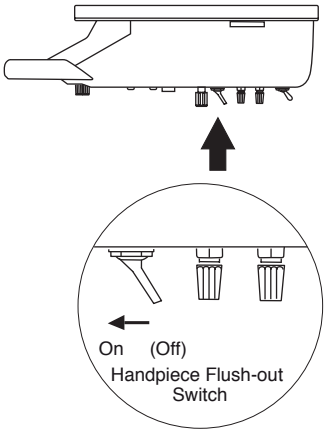
Fig. 2-13

2-14. Handpiece flush out switch (Fig. 2-14) A

The handpiece(s) are flushed while the handpiece flush out switch is held in the on position.

Note: pick up the handpiece(s) to be flushed and place them in a bowl, prior to activating the flush out switch.

Fig. 2-14



2-14. Foot controller

2-14-1. Type A2 [A]

Drive air pedal

Pick up a handpiece from the doctor instrument holder, the handpiece or the electric scaler (optional) will operate while the drive air pedal is depressed. (Fig. 2-15-1)

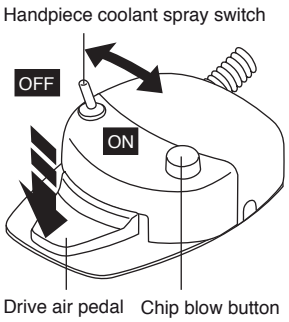
Handpiece coolant spray switch

Handpiece coolant spray is generated while the handpiece is in action if the handpiece coolant spray switch is on. (Fig. 2-15-1)

Chip blow button

Chip air blows out of the air driven handpiece, i.e. turbine and air motor, when the chip blow button is depressed. (Fig. 2-15-1)

Fig. 2-15-1



2-14-2. Type SE [E]

Drive air pedal

Pick up a handpiece from the doctor instrument holder, the handpiece or the electric scaler (optional) will operate while the drive air pedal is depressed. (Fig. 2-15-2)

Micro motor rotation speed control

The micro motor rotates while the drive air pedal is depressed. The rotation speed increases when the drive air pedal is moved to the right and decreases when it is turned to the left. (Fig. 2-15-2)

Handpiece coolant spray switch

Handpiece coolant spray setting, i.e. spray on, water only, air only and spray off, is switched sequentially each time the handpeiece coolant spray switch is depressed. (Fig. 2-15-3, Fig. 2-15-4)
2 handpiece coolant spray modes are available and can be selected by depressing the handpiece coolant spray switch on the doctor control panel.

Fig. 2-15-2

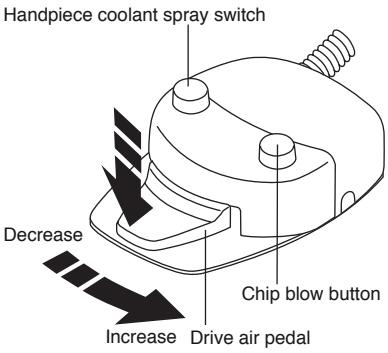


Fig. 2-15-3

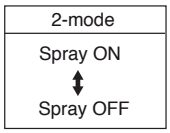
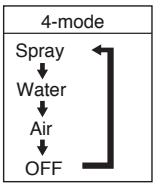
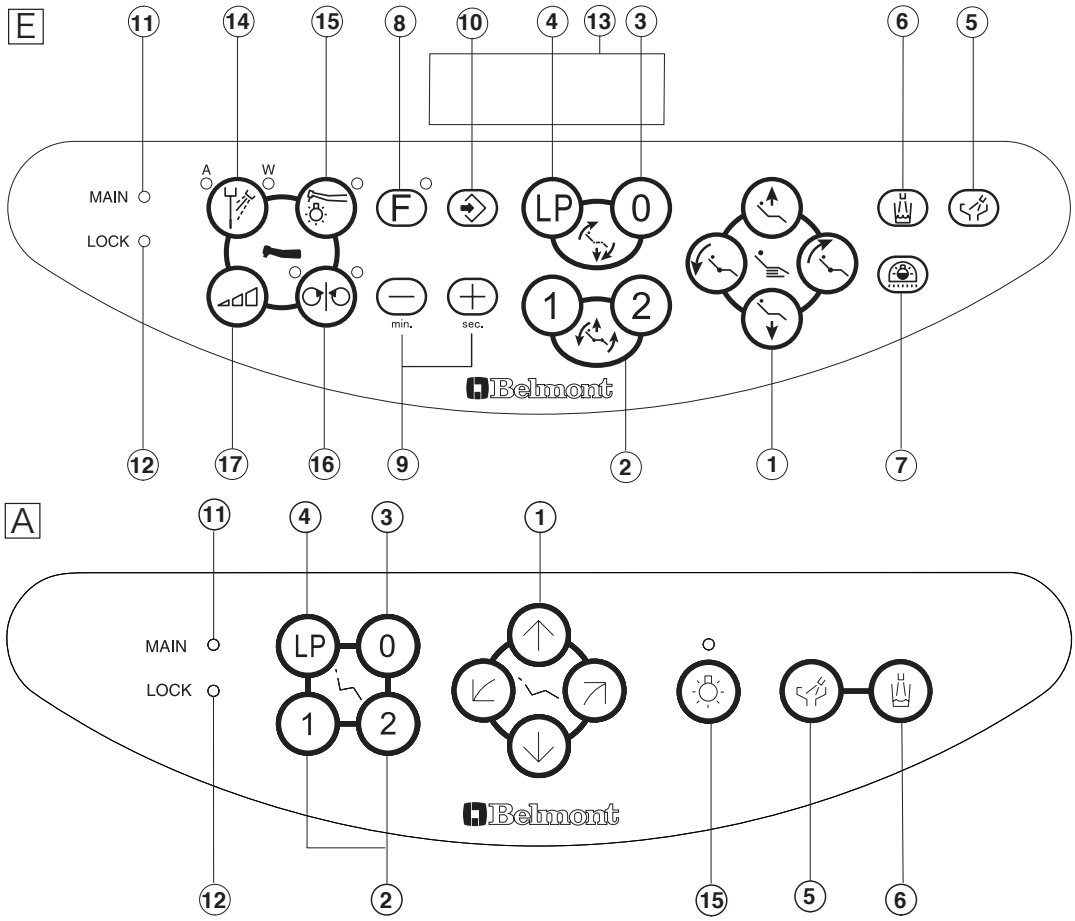


Fig. 2-15-4



4. DESCRIPTION OF AND FUNCTIONS OF COMPONENTS



2-16. Doctor control panel

① Chair manual switches
Controls the chairs manual movements.

② Chair preset switches
Controls the chairs preset movement.

③ Chair auto return switch
When pressed the chair to automatically returns to the patient's entry/exit position.

④ Chair last position switch
When pressed the backrest moves to the rinsing position and returns to the treatment position when pressed again.

⑤ Cuspidor bowl flush
Activates cuspidor bowl flushing.

⑥ Cupfiller switch
Activates cupfilling.

⑦ Dental light on/off switch
Turns the dental light on and off.

⑧ Function switch
Selects function.

⑨ (-) & (+) switch
Assists mode setting, timer setting, rotation speed setting etc.

⑩ Store switch
Stores settings.

⑪ Main switch indicator
Indicates if the main switch is on.

⑫ Chair motion lock indicator
Indicates the status of the chair motion lock device.

⑬ Function indicator
Displays information on the functions.

⑭ Handpiece coolant spray on/off switch
Turns the handpiece coolant spray on and off.

⑮ Fibre optic handpiece light on/off switch
Turns the fibre optic handpiece light on and off.

⑯ Micro motor forward/reverse select switch
Selects micro motor rotation direction.

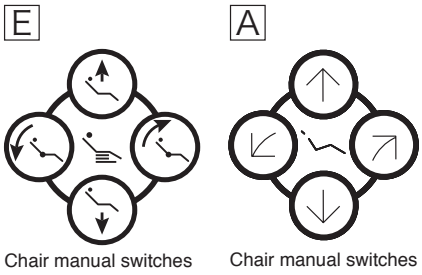
⑰ Micro motor rotation mode select switch
Selects micro motor rotation mode.

Note: as each switch on the doctor control panel has multi functions, please refer to the following instructions for details.

2-16-1. Chair manual switches (fig. 2-15-1)

Press to raise the chair
Press to lower the chair
Press to recline the backrest
Press to raise the backrest

Fig. 2-16-1



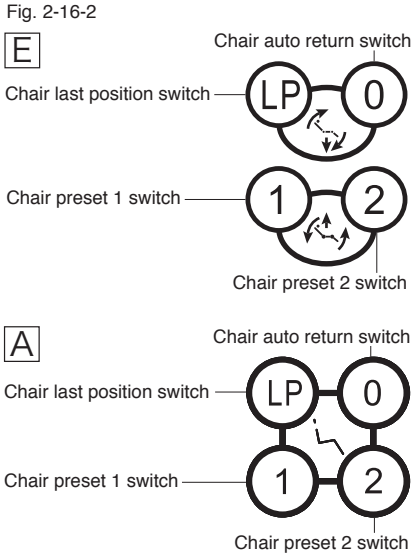
2-16-2. Chair preset switches

The chair moves automatically to the preset position when one of the switches, i.e. preset 1 or preset 2, is momentarily pressed. (Fig. 2-15-2)

Programming the preset positions

1. Move the chair to the required treatment position by using the chair manual switches.
2. Press and hold one of the preset switch, i.e. preset 1 or preset 2, for more than 5 seconds until the buzzer sounds in the chair base.
3. Repeat the same procedure for the other preset switch.

Fig. 2-16-2



2-16-3. Chair auto return switch

The chair moves to the patient's entry/exit position when the chair auto return switch is momentarily pressed. (Fig. 2-15-2)

Programming the patient's entry/exit position

1. Move the chair to the required patient's entry/exit position by using the chair manual switches.
2. Press and hold the chair auto return switch for more than 5 seconds until the buzzer sounds in the chair base.

2-16-4. Chair last position switch

The backrest moves to the rinsing position and returns to the previous position alternately each time the chair last position switch is pressed. (Fig. 2-15-2)

Programming the rinsing position

1. Move the backrest to the required rinsing position by using the chair manual switches.
2. Press and hold the chair last position switch for more than 5 seconds until the buzzer sounds in the chair base.

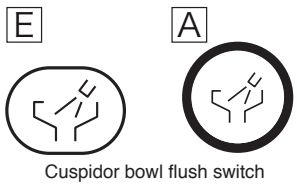
⚠CAUTION

Check the area is clear and the patient is in the correct position before initiating automatic operation of the chair to prevent damage or injury. Continually monitor during automatic operation. The chair must be operated and/or handled by trained personnel or by staff under their supervision. Continually monitor the patient to ensure there is no misuse of the chair (Children in particular).

2-16-5. Cuspidor bowl flush

Momentarily press the cuspidor bowl flush switch, water flows from the cuspidor bowl flush nozzle to flush the cuspidor bowl for 6.0 seconds and stops automatically. (Timer mode)
Alternatively press and hold the cuspidor bowl flush switch for more than 2.0 seconds until the buzzer sounds from the doctor table, water flows from the cuspidor bowl flush nozzle continuously until the cuspidor bowl flush switch is pressed again. (Continuous mode) (Fig. 2-16-5)

Fig. 2-16-5



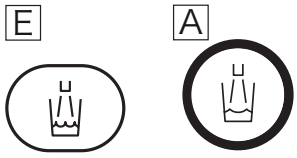
Cuspidor bowl flush switch

Note: Cuspidor bowl flushing is terminated immediately when the cuspidor bowl flush switch is pressed in either mode.
The time for cuspidor bowl flushing is adjustable, contact your dealer/installer or the nearest official representative of Takara Belmont Corporation for details.

2-16-6. Cuspidor cupfiller

Momentarily press the cupfiller switch, water flows from the cupfiller nozzle to fill the cup for 3.5 seconds and stops automatically. Simultaneously water flows from the cuspidor bowl nozzle to flush the cuspidor bowl for 6.0 seconds and stops automatically. (Linked mode)
Alternatively cupfilling only can be activated with the cupfiller switch if the mode is switched to individual mode. (Fig. 2-16-6)

Fig. 2-16-6



Cupfiller switch

Note: Cupfilling as well as cuspidor bowl flushing are cancelled when the cupfiller switch is pressed while the functions are activated.
As cupfilling is controlled by a timer, water may overflow if any water remains in the cup.
Do not press the cupfiller switch if the cup is not in place.
The cupfilling time is adjustable, contact your dealer/installer or the nearest official representative of Takara Belmont Corporation for details.

2-16-7. Dental light on/off switch

The dental light can be turned on, or off, by pressing the dental light on/off switch. (Fig. 2-16-6)
The dental light turns itself on when the chair reaches the treatment position when using the chairs preset movements,
i.e. preset 1, preset 2 and last position, and turns itself off when the chair is discharged from the treatment position when using either the auto return or last position.

Fig. 2-15-7

Dental light on/off switch

With AL-820S:
The AL-820S light will change to the composite mode if the dental light on/off switch is pressed and held while the dental light is on. It will turn back on the normal intensity if the dental light on/off switch is pressed and held again.

With AL-720S:
The AL-720S light will change to the composite mode if the dental light on/off switch is pressed and held while the dental light is on.

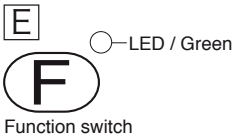
Note: The AL-720S will not turn back to the normal intensity even if the dental light on/off switch is pressed and held again. To return to the normal intensity, turn the light off and then on again using dental light on/off switch or place a hand in front of the sensor for approximately 2 seconds.

Note: There are cases where the dental light switch is not operable depending on the unit specification and/or the type of the dental light. The dental light on/off switch is disabled if the dental light is turned on by the dental light on/off mode switch on the cuspidor unit.

2-16-8. Function switch (Fig. 2-16-8)

The function switch is used to select the required supplementary function.
The functions are switched sequentially each time the function switch is momentarily pressed.

Fig. 2-16-8



Note: Do not press and hold the function switch

The functions are:

1. Dental timer
2. Doctor selection
3. Flush out
4. Control panel switching tone
5. Fibre optic handpiece light switching mode
6. Dental timer alarm tone
7. Micro motor rotation speed limit step selection
8. Micro motor coolant spray mode
9. Cupfiller and bowl flush mode

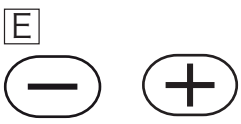
(Refer to P. 31 - 37 in details.)

2-16-9. (-) & (+) Switches (Fig. 2-16-9)

These switches are used:

To adjust the micro motor rotation speed
To adjust the dental timer
To adjust the flush out operating time
To change the control panel switching tone
To change fibre optic handpiece light switching mode
To select the number of steps to limit micro motor rotation speed
To select micro motor spray mode
To select cupfiller and bowl flush mode
To select micro motor rotation speed in the micro motor preset mode

Fig. 2-16-9



2-16-10. Store switch (Fig. 2-16-10)

The store switch is used:

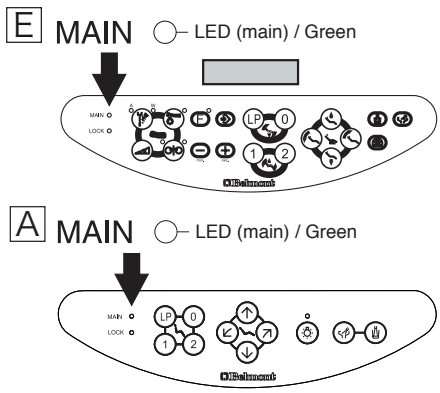
To store the micro motor preset settings
To store preset times for the dental timer
To store defaults for the micro motor rotation mode

Fig. 2-16-10

2-16-11. Main switch indicator (Fig. 2-16-11)

The green LED (main) is illuminated when the main switch is on.

Fig. 2-16-11

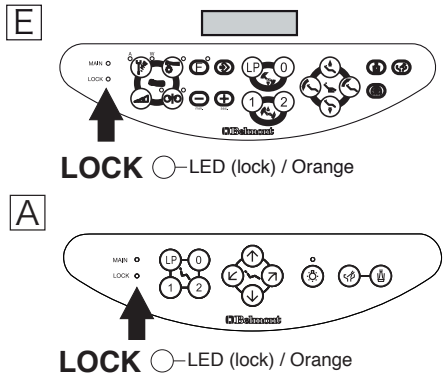


2-16-12. Chair motion lock indicator (Fig. 2-16-12)

The orange LED (lock) illuminates to indicate that the chair motion lock device is activated. This prohibits and/or cancels the chairs preset and manual movements while: the drive air pedal on the foot controller is depressed, or any set up procedure is in progress via the doctor control panel.

Also the orange LED (lock) blinks when the chair motion lock device is activated. This prohibits and/or cancels the chairs preset movement while: the chair motion lock device on the doctor table is activated.

Fig. 2-16-12

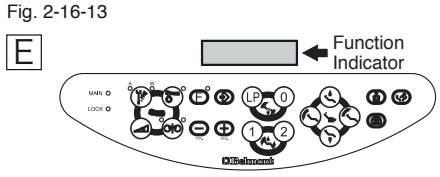


2-16-13. Function Indicator (Fig. 2-16-13)

The function indicator displays information about the handpiece that has been selected, such as the handpiece holder number and micro motor speed. (Refer to P. 27 - 30 for details.)

The function indicator will also display information about any supplementary function selected when using the function switch.
(Refer to P. 31 - 37 for details.)

Fig. 2-16-13

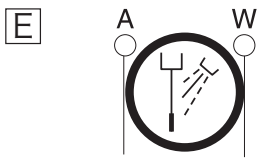


2-16-14. Handpiece coolant spray on/off switch (Fig. 2-16-14)

When a handpiece is picked up from the doctor instrument holder, the orange LED A (air) and the green LED W (water) indicate the current status of handpiece coolant spray setting on the handpiece.

(Air on: LED A lights, Air off: LED A off)
(Water on: LED W lights, Water off: LED W off)

Fig. 2-16-14



LED A (air) / Orange LED W (water) / Green
Handpiece coolant spray on/off switch

For micro motors, the mode can be selected from 2 different modes, i.e. 2-mode (Fig. 2-16-14-1) and 4-mode (Fig. 2-16-14-2), and handpiece coolant spray setting is sequentially switched to 4 different settings, i.e. spray on, water only, air only and spray off, each time the handpiece coolant spray on/off switch is pressed if 4-mode is selected.

For air driven handpieces, i.e. air turbines and air motors, handpiece coolant spray setting is switched on or off each time the handpiece coolant spray on/off switch is pressed. (2-mode)

For electric scalers, handpiece coolant water setting only is switched on or off each time the handpiece coolant spray on/off switch is pressed.

Fig. 2-16-14-1

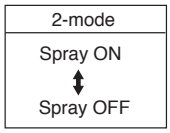
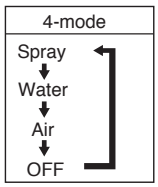


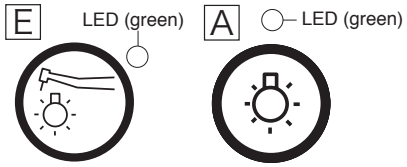
Fig. 2-16-14-2



2-16-15. Fibre optic handpiece light on/off switch (Fig. 2-16-15)

When a handpiece is picked up from the doctor instrument holder, the green LED indicates whether fibre optic handpiece light is turned on. (On: LED lights, Off: LED off)

Fig. 2-16-15



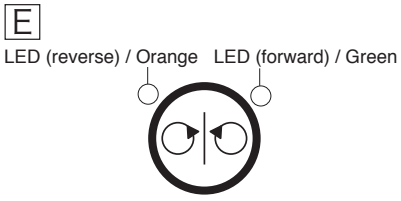
Fibre optic handpiece light on/off switch

2-16-16-1. Handpiece control switches and indication (Fig. 2-16-16-1)

Handpiece rotation lockout function

If any handpiece is picked up from the doctor instrument holder while the drive air pedal on the foot controller is depressed, the orange LED (m/motor reverse) blinks to indicate that the handpiece rotation lockout function is activated. Thus no handpiece can be operated.

Fig. 2-16-16-1



Micro motor forward/reverse select switch

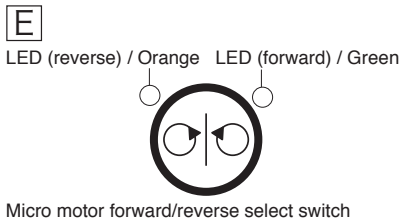
Micro motor(s) operation & indication

2-16-16-2. Micro motor forward/reverse select switch (Fig. 2-16-16-2)

When a micro motor has been selected from the handpiece holder, the direction of rotation will be indicated by either the green LED (forward) or the orange LED (reverse). This can be changed by momentarily pressing the micro motor forward/reverse select switch.

Note: when the micro motor is returned to the holder the direction of rotation that had been selected will be stored until re-selected or until the unit is switched off. If the micro motor is returned to the holder in the reverse rotation setting an electronic sound will be heard momentarily when re-selected indicating that the motor is in reverse.

Fig. 2-16-16-2



Micro motor forward/reverse select switch

2-16-17. Micro motor rotation mode select switch (Fig. 2-16-17-1)

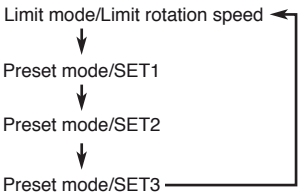
There are two modes available, maximum rotation speed limit (limit mode) and fixed rotation speed (preset mode, SET 1 to SET 3).
Either mode can be selected by pressing the micro motor rotation mode select switch momentarily, the speed rotation mode changes as shown in Fig 2-16-17-2 each time the switch is pressed.
The function indicator will indicate the selected mode.
(Fig. 2-16-17-3)

Note: When the micro motor is returned to it's holder the selected speed settings will be stored until re-selected or until the unit is switched off.

Fig. 2-16-17-1

Micro motor rotation mode select switch

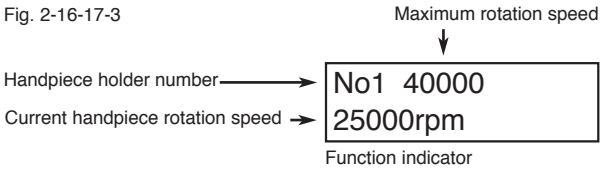
Fig. 2-16-17-2



Limit mode/Limit rotation speed (Fig. 2-16-17-3)

This setting allows the micro motor rotation speed to be varied up to a selected maximum speed, the speed is varied by depressing the foot controller drive air pedal fully and sliding it to the right to increase the speed and to the left to decrease.

Fig. 2-16-17-3



Note: the maximum rotation speed and the actual speed of the micro motor will be displayed in the function indicator. (Fig. 2-16-17-3)

The micro motor maximum speeds can be selected from either a 3-step mode (Fig. 2-16-17-4) or a 5-step mode (Fig. 2-16-17-5).

Note: The minimum rotation speed varies depending upon the maximum rotation speed selected.

Note: Refer to P. 36 to select 3 or 5-step mode.

Fig. 2-16-17-4

3-step mode:

100 - 5,000 rpm
1,000 - 20,000 rpm
1,000 - 40,000 rpm

Fig. 2-16-17-5

5-step mode:

100 - 1,000 rpm
100 - 5,000 rpm
1,000 - 20,000 rpm
1,000 - 30,000 rpm
1,000 - 40,000 rpm

Setting a maximum rotation speed limit.

1. Select a micro motor from the handpiece holder
2. Select the rotation speed limit setting by pressing the micro motor rotation mode select switch. (Fig. 2-16-17-6)
3. Select the required maximum rotation speed limit by momentarily pressing either the (+) switch to increase the maximum speed or the (-) switch to decrease the maximum speed. (Fig. 2-16-17-7)

Fig. 2-16-17-6

Micro motor rotation mode select switch

Fig. 2-16-17-7

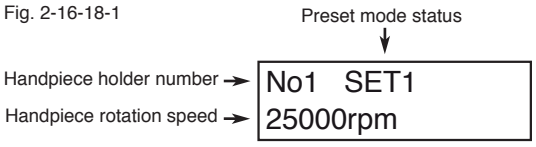
min. (-) switch

sec. (+) switch

2-16-18. Preset mode/SET1, 2 and 3 (Fig. 2-16-18-1)

The preset mode (SET 1,2 & 3) will provide 3 fixed rotation speeds with endodontic settings (if required), the foot controller will act as an on/off switch for the micro motor in the preset mode.

Fig. 2-16-18-1



Note: When the micro motor is returned to it's holder the selected speed setting will be stored until re-selected or until the unit is switched off. Alternatively the selected micro motor preset speed can be stored as a default setting.

Setting the fixed rotation speed in the preset mode (SET1, 2 and 3).

1. Select a micro motor from the handpiece holder.
2. Press the micro motor rotation mode select switch until either SET1, 2 or 3 is displayed in function indicator. (Fig. 2-16-18-2)
3. Set the required speed by momentarily pressing the (+) switch to increase the speed or the (-) switch to decrease the speed. (Fig. 2-16-18-3)
4. Store the selected fixed speed by momentarily pressing the store switch. This fixed rotation speed is now stored in the memory and will not change until the above procedure is repeated. (Fig. 2-16-18-4)

Fig. 2-16-18-2

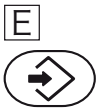
Micro motor rotation mode select switch

Fig. 2-16-18-3

min. (-) switch

sec. (+) switch

Fig. 2-16-18-4



Store switch

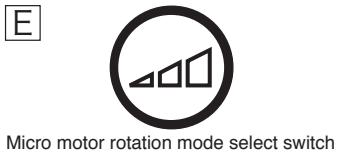
2-16-19. Micro motor Default mode

The micro motor default mode allows the doctor/dentist to select the most frequently used setting on the micro motor as the default setting. This will be the setting selected when the unit is initially switched on at the beginning of the day.

Selecting and storing the micro motor default setting

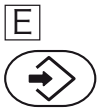
1. Restart the unit by turning the unit off from the main switch, waiting 15 seconds and turning it back on again.
2. Select a micro motor from the handpiece holder.
3. Select the required micro motor rotation mode/setting. (Fig. 2-16-19-1)
4. Press and hold the store switch for approximately 2 seconds or until the buzzer sounds for a second time. (Fig. 2-16-19-2)

Fig. 2-16-19-1



Micro motor rotation mode select switch

Fig. 2-16-19



Store switch

Bien Air MX Micro motor

2-16-20. Endodontic Settings

Using the endodontic settings will allow the doctor/dentist to control the torque of the micro motor, auto reverse, auto forward, the delay time before auto forward and the brightness of the fibre optic micro motor.
(Fig. 2-16-20-a, Fig. 2-19-20-b)

Note: These settings can only be used in conjunction with the preset mode/SET1, 2 and 3 at speeds less than 5000rpm.

Fig. 2-16-20-a

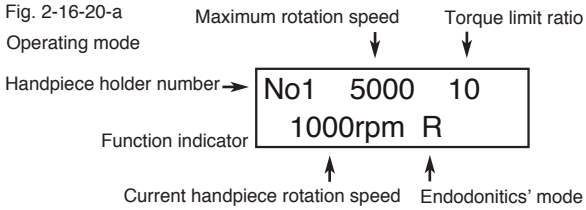
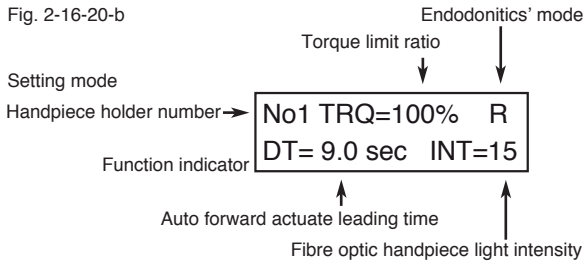


Fig. 2-16-20-b



2-16-20-1. Torque control

The torque limit value can be set when the micro motor rotates in a clockwise direction at 5000rpm or less.
The percentage torque values can be selected from 14 increments, as follows 10, 12, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 90, 100%.
Note: these settings are displayed as a percentage of the of the maximum torque value of the MX motor

Setting the torque limit value

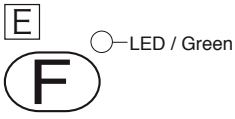
1. Select a micro motor from the handpiece holder
2. Momentarily press the micro motor rotation mode select switch (Fig. 2-16-20-1-1) until either SET1, 2 or 3 is displayed in function indicator.
3. Press and hold the function (F) switch (Fig. 2-16-20-1-2) until the endodontics setting mode is displayed in the function indicator. (Fig. 2-16-20-1-3)
4. Set the required torque percentage value by momentarily pressing the (+) switch to increase the percentage or the (-) switch to decrease the percentage. (Fig. 2-16-20-1-4)
5. To store the setting and return to the micro motor operating mode momentarily press the store switch. (Fig. 2-16-20-1-5)

Note: press either the function switch or the store switch to return to the micro motor operating mode if no settings are changed. If neither switch is pressed the MX motor setting mode remains in the function indicator even if the motor is returned to the handpiece holder.

Fig. 2-16-20-1-1

Micro motor rotation mode select switch

Fig. 2-16-20-1-2



Function switch

Fig. 2-19-20-1-3 Torque limit ratio

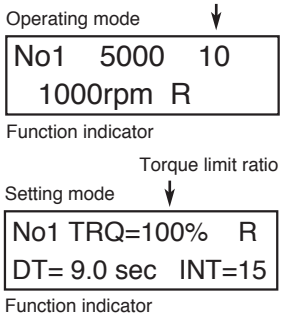
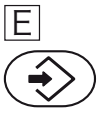


Fig. 2-16-20-1- 4

(-) switch (+) switch

Fig. 2-16-20-5



Store switch

2-16-20-2. Endodonitics' mode

Auto reverse mode: R
The MX micro motor rotation reverses automatically as soon as the torque limit is reached (when "R" is displayed in the function indicator), when a forward rotation speed of 5000rpm or less is being used. The f/optics will also blink while the motor is in auto reverse.

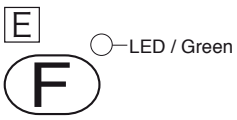
Auto forward mode: F
The MX micro motor rotation reverses automatically as soon as the torque limit is reached (when "F" is displayed in the function indicator), when a forward rotation speed of 5000rpm or less is being used. The f/optics will also blink while the motor is in auto reverse. In addition the MX motor will automatically return to forward rotation after a period of time (delay time (DT)), which can be varied, between 0.5 and 9 seconds in 0.5 increments.

Normal mode: blank
The MX micro motor will stop rotating as soon as the torque limit is reached when the MX motor is used in forward rotation at a speed of 5000rpm or less.

Setting the auto forward/reverse

1. Press and hold the function switch (Fig. 2-16-20-2-1) until the endodontic setting mode (Fig 2-16-20-2-2) is displayed in the function indicator.
2. Press the micro motor forward/reverse switch (Fig 2-16-20-2-3) to select the required Auto Rotation Control – R: auto reverse, F: auto forward, blank: motor will stop rotating.
3. To store the auto forward/reverse setting momentarily press the store switch. (Fig. 2-16-20-2-4)

Fig. 2-16-20-2-1



Function switch

Fig. 2-16-20-2-2

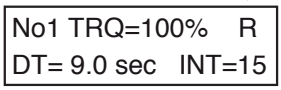
Operating mode

Function indicator

Endodonitics' mode

Endodonitics' mode

Setting mode



Function indicator

Fig. 2-16-20-2-3

Micro motor forward/reverse select switch

Fig. 2-16-20-2-4

Store switch

Setting the auto forward delay time (DT)

1. Press and hold the function switch (Fig. 2-16-20-5) until the endodontic setting mode (Fig 2-16-20-2-6) is displayed in the function indicator.
2. Press the auto return switch (0) to increase the time and the program 2 switch (2) to decrease the time. (Fig. 2-16-20-2-7)
3. Momentarily press the store switch to store the selected time. (Fig. 2-16-20-2-8)

Fig. 2-16-20-2-5

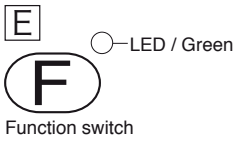


Fig. 2-16-20-2-6

Setting mode

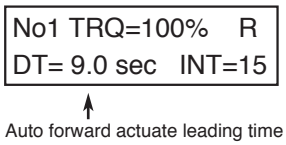


Fig. 2-16-20-2-7

Chair auto return switch

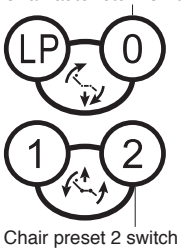
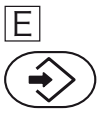


Fig. 2-16-20-2-8



2-16-20-3. Fibre optic handpiece light intensity

The intensity of the MX micro motor(s) fibre optic light is adjustable in 16 increments from 00 to 15.

Setting the fibre optic light intensity.

1. Press and hold the function switch (Fig. 2-16-20-3-1) until the endodontic setting mode (Fig. 2-16-20-3-2) is displayed in the function indicator.
2. Press the chair manual base up and down switches to adjust the intensity, base up switch to increase and base down to decrease. (Fig. 2-16-20-3-3)
3. Momentarily press the store switch to store the selected light intensity. (Fig. 2-16-20-3-4)

Fig. 2-16-20-3-1

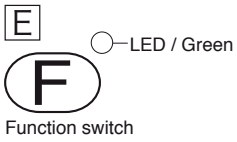


Fig. 2-16-20-3-2

Setting mode

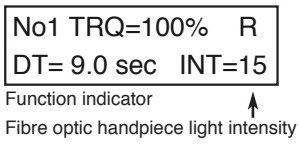


Fig. 2-16-20-3-3

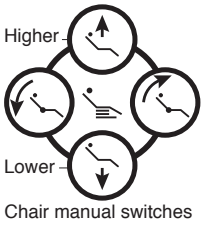


Fig. 2-16-20-3-4

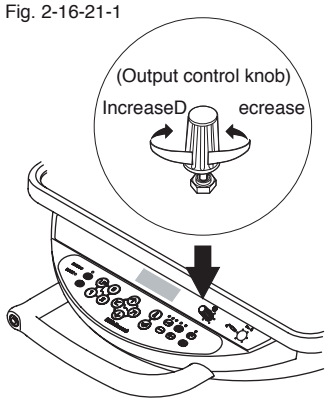
Note; it is not necessary to adjust and store the endodontic settings individually. When programming the endodontic settings the dentist/ Doctor can make the required adjustments to all or just some of the settings and press the store switch to save all the changes.

2-16-21. Ultrasonic scalers (Optional):

Satelec Neutron

When the scaler is selected from the instrument holder, it is activated when the drive air pedal on the foot controller is depressed. The output can be adjusted by the control knob on the front of the doctor table. (Fig. 2-16-21-1)

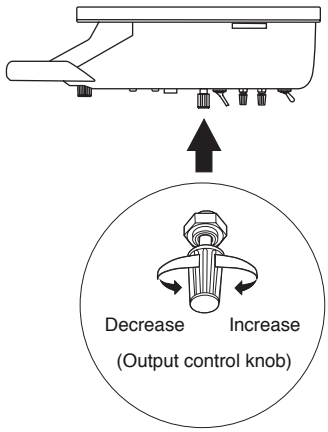
Fig. 2-16-21-1



Dentsply cavitron

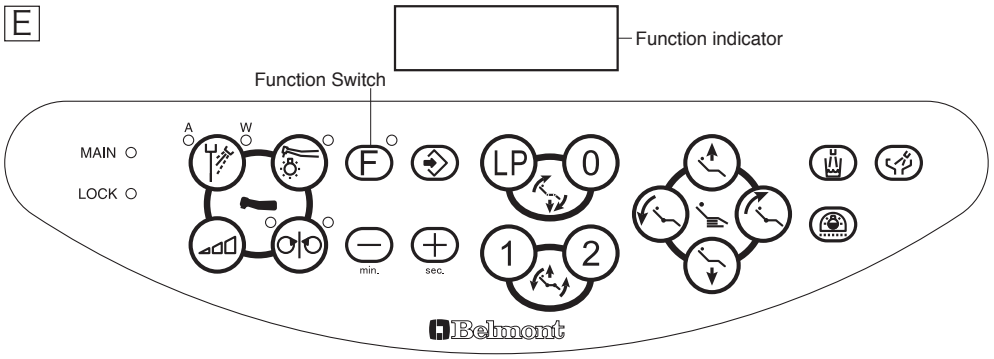
When the scaler is selected from the instrument holder, it is activated when the drive air pedal on the foot controller is depressed and the hand piece coolant water is switched on. The output can be adjusted by the control knob on the underside of the doctor table. (Fig. 2-16-21-2)

Fig. 2-16-21-2



2-16-22. Supplementary Functions

The various supplementary functions are available. These functions are switched in turn each time the function switch is pressed. The function indicator will display information on the current settings of the selected function and the relevant switch(es) to be used to make changes.



①	TIMER SET ⊿=START	2-16-22-1. The countdown timer
②	Dr. NUMBER = 0 ↓	2-16-22-2. Group selection mode
③	FLUSH OUT F=↓ (-)=HP (+)=HP+	2-16-22-3. Flush out system
④	Beep=ON F=↓ (-) =OFF (+) = ON	2-16-22-4. Control panel switching sound
⑤	LP. MODE=HOLD F=↓ (-) =FOOT (+)=HOLD	2-16-22-5. Fibre optic handpiece switching mode
⑥	ALARM TYPE=0 F= ↓ PUSH 0 1 2 LP (3)	2-16-22-6. Selection of alarm sound for dental timer
⑦	M. LMT= 3 STEP F= ↓ (-)= 3 (+)= 5 STEP	2-16-22-7. Micro motor maximum speed limiting
⑧	SPRAY= 4MODE F=↓ (-)= 2 (+)= 4 MODE	2-16-22-8. Selection of micro motor coolant spray mode
⑨	* = LINK F=E (-)= IND (+)= LINK	2-16-22-9. Cupfiller and bowl flush
⑩	BELMONT	2-16-22-10. Standby mode

2-16-22-1. The countdown timer

A countdown timer is built in to the unit and can be set to a maximum time of 90 minutes and 50 seconds in 10 second increments. The timer has 4 programmable settings, which can be recalled when used in conjunction with the chair preset switches (0,1,2 ,LP) on doctor table touch pad.

Operation of the timer

1. Press the function switch once. (Fig. 2-16-22-1-1) “TIMER SET” will then be displayed in the function indicator. (Fig. 2-16-22-1-2) Set the desired time by using the (-) switch to increase in 1 minute increments and the (+) switch to increase in 10 second increments. (Fig. 2-16-22-1-3)
2. Press the micro motor rotation mode select switch to start the timer. (Fig. 2-16-22-1-4)
3. An alarm sounds when the time has expired.

Note: time increases continuously when the (+) switch or the (-) switch is pressed and held.

Fig. 2-16-22-1-1

Function switch

Fig. 2-16-22-1-2

Function indicator

MM : SS

Fig. 2-16-22-1-3

min. (-) switch

sec. (+) switch

Fig. 2-16-22-1-4

Micro motor rotation mode select switch

Fig. 2-16-22-1-5

Function switch

Fig. 2-16-22-1-6

min. (-) switch

sec. (+) switch

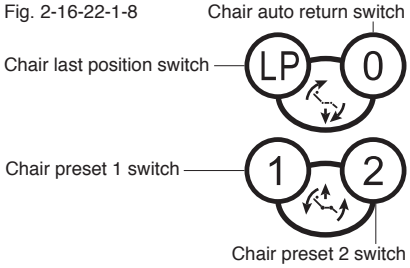
Setting the preset times

1. Press the function switch once. (Fig. 2-16-22-1-5) “TIMER SET” will then be displayed in the function indicator.
2. Set the desired time by using the (-) switch to increase in 1 minute increments and the (+) switch to increase in 10 second increments. (Fig. 2-16-22-1-6)
3. Momentarily press the store switch (Fig. 2-16-22-1-7), then press one of the chair preset position switches (0,1,2,LP) to store the set time to a particular preset number. (Fig. 2-16-22-1-8)

Fig. 2-16-22-1-7

Store switch

Fig. 2-16-22-1-8



Using the preset timer

1. Press the function switch once. (Fig. 2-16-22-1-9) “TIMER SET” will then be displayed in the function indicator.
2. Press one of the chair preset switches (0,1,2,LP) to select the desired preset time. (Fig. 2-16-22-1-10)
3. Press the micro motor rotation mode select switch to start the timer. (Fig. 2-16-22-1-11)

Cancelling the timer

1. Press the function switch once. (Fig. 2-16-22-1-9)
2. Press the micro motor rotation mode select switch to cancel the timer. (Fig. 2-16-22-1-11)

Fig. 2-16-22-1-9

Function switch

Fig. 2-16-22-1-10

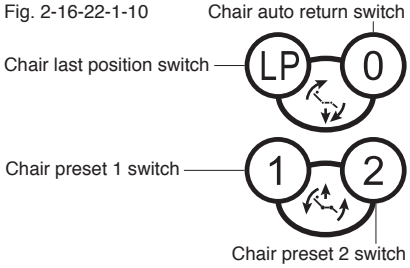


Fig. 2-16-22-1-11

Micro motor rotation mode select switch

2-16-22-2. Group selection mode

The group selection mode is a convenient function where a multiple of (up to four) dentists can work with one unit.

The following functions can be set for each dentist.

Chair auto return, last position and 2 preset working positions
Micro motor rotation speed default mode/setting.
Three preset rotation speeds with or with out endodontic settings.
Handpiece coolant spray mode.
Dental timer preset.

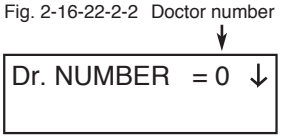
Selecting a dentist

1. Press the function switch twice (Fig. 2-16-22-2-1), “Dr. NUMBER” will be displayed in the function indicator. (Fig. 2-16-22-2-2)
2. Momentarily press either the 0,1,2 or LP to select a particular dentist. The display will then return to normal and the unit will be ready to use. (Fig. 2-16-22-2-3)

Fig. 2-16-22-2-1

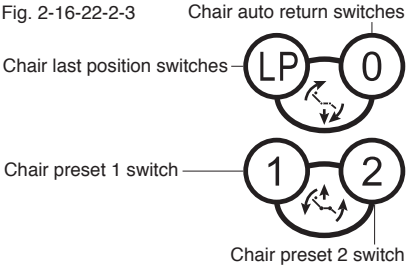
Function switch

Fig. 2-16-22-2-2 Doctor number



Function indicator

Fig. 2-16-22-2-3



2-16-22-3. Flush out system

There are two flush modes available.

Handpiece water lines
Handpiece water lines, cup filler and bowl flush water lines.

Flushing out the handpiece water lines

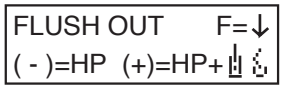
1. Press the function switch three times. (Fig. 2-16-22-3-1) "FLUSH OUT" will be displayed in the function indicator. (Fig. 2-16-22-3-2)
2. Press the (-) switch to select HP mode. (Fig. 2-16-22-3-3). "PUSH FOOT PEDAL" will be displayed. (Fig. 2-16-22-3-4)
3. Pick up the handpieces to be flushed and place them in a bowl.
4. Momentarily press the drive air pedal to start flushing. (Fig. 2-16-22-3-5)
5. Water will flow from the handpieces and will stop automatically after 40 seconds.

Note: The function indicator displays the handpiece holder number(s) that have been selected.
The dental timer on the function indicator displays the remaining time of the procedure.

Fig. 2-16-22-3-1

Function switch

Fig. 2-16-22-3-2



Function indicator

Fig. 2-16-22-3-3

(-) switch

Fig. 2-16-22-3-4

Function indicator

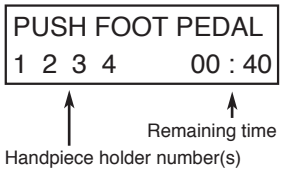
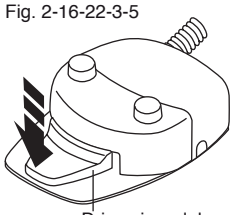


Fig. 2-16-22-3-5



Flushing out of the handpieces, cup filler and bowl flush water lines.

1. Press the function switch three times. (Fig. 2-16-22-3-6) "FLUSH OUT" will be displayed in the function indicator. (Fig. 2-16-22-3-7)
2. Press the increase switch (+) to select HP + cupfiller and bowl flush mode. (Fig. 2-16-22-3-8). "PUSH FOOT PEDAL" will be displayed. (Fig. 2-16-22-3-9)
3. Pick up the handpieces to be flushed and place them in a bowl.
4. Momentarily press the drive air pedal to start flushing. (Fig. 2-16-22-3-10)
5. The handpieces will flush for 5 minutes then stop, at that time the cupfiller and bowl flush will start to flush for a further 5 minutes then stop automatically.

Note: To cancel the flush function momentarily press any switch on the doctor control panel or the drive pedal.

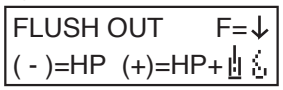
Note: If neither the (-) or (+) switch is depressed with-in 10 seconds, the function indicator will return to the standby mode.

Note: Refer to P. 15 for the handpiece flush out function on the air version.

Fig.2-16-22-3-6

Function switch

Fig. 2-16-22-3-7



Function indicator

Fig. 2-16-22-3-8

(+) switch

Fig. 2-16-22-3-9

Function indicator

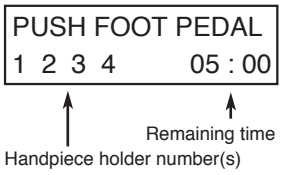
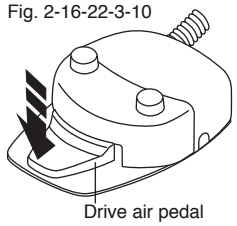


Fig. 2-16-22-3-10



2-16-22-4. Control panel switching sound

Pressing a switch on the control panel makes an electronic sound. This sound can be switched ON or OFF. The frequency of the tone can also be changed.

1. Press the function switch four times (Fig. 2-16-22-4-1), "BEEP = ON" will be displayed in the function indicator. (Fig. 2-16-22-4-2)
2. Press the decrease switch (-) to turn off or the increase switch (+) to turn on. (Fig. 2-16-22-4-3)
3. Press either the chair base up manual switch to raise the tone or chair base down manual switch to lower the tone. (Fig. 2-16-22-4-4)
4. Press the (+) switch to store the selected tone. (Fig. 2-16-22-4-5)

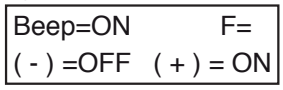
Note: To return to the default tone, press the auto return switch (0) while the switching tone function is selected.

Note: Although no information on the frequency of the switching tone is displayed on the function indicator, a different switching tone will sound each time the chair base up and down switches are pressed, while in the setting mode.

Fig. 2-16-22-4-1

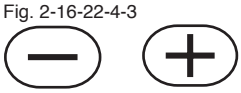
Function switch

Fig. 2-16-22-4-2



Function indicator

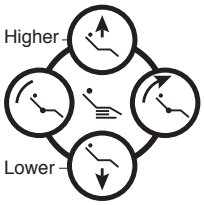
Fig. 2-16-22-4-3



min. (-) switch

sec. (+) switch

Fig. 2-16-22-4-4



Chair manual switches

Fig. 2-16-22-4-5

sec. (+) switch

2-16-22-5. Fibre optic handpiece switching mode

The handpiece light source can be switched on/off from one of two modes.

Foot control mode/FOOT

The fibre optic handpiece light turns on when a handpiece is selected from the holder and the drive air pedal on the foot controller is pressed. The handpiece light fades out within 4 seconds after the drive air pedal is released.

Holder mode/HOLD

The handpiece light turns on as soon as a handpiece is selected from holder and will turn off when returned to the holder.

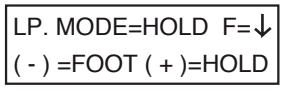
1. Press the function switch five times (Fig. 2-16-22-5-1). "LP MODE" will be displayed in the function indicator. (Fig. 2-16-22-5-2)
2. Press the required set up switch. (Fig. 2-16-22-5-3)

   (-) switch = Foot control mode
   (+) switch = Holder mode.

Fig. 2-16-22-5-1

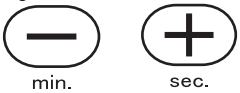
Function switch

Fig. 2-16-22-5-2



Function indicator

Fig. 2-16-22-5-3



min. (-) switch

sec. (+) switch

2-16-22-6. Selection of alarm sound for dental timer

The dental timer has four different programmed alarm tones.

Set up procedure

1. Press the function switch six times (Fig. 2-16-22-6-1).
   "ALARM TYPE" will be displayed in the function indicator.
   (Fig. 2-16-22-6-2)
2. Press a chair program (0,1,2,LP) to select an alarm sound.
   (Fig. 2-16-22--6-3)

Note: The chair preset switches are indicated on the function indicator as 0, 1, 2, LP (3).

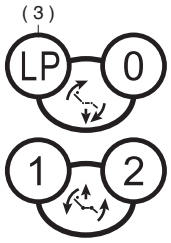
Fig. 2-16-22-6-1

Function switch

Fig. 2-16-22-6-2

Function indicator

Fig. 2-16-22-6-3



Chair preset switches

2-16-22-7. Micro motor maximum speed limiting

The micro motor maximum speed can be selected in either 3 steps (5000, 20000 and 40000rpm) or 5 steps (1000, 5000, 20000, 30000, and 40000rpm).

Set up procedure

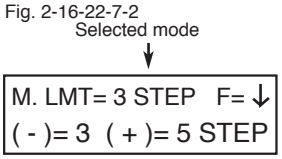
1. Press the function switch seven times. (Fig. 2-16-22-7-1)
   "M. LMT = " will be displayed in the function indicator.
   (Fig. 2-16-22-7-2)
2. Press the required set up switch. (Fig 2-16-22-7-3)

   (-) switch = 3 steps
   (+) switch = 5 steps

Fig. 2-16-22-7-1

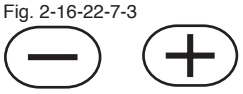
Function switch

Fig. 2-16-22-7-2



Function indicator

Fig. 2-16-22-7-3



(-) switch (+) switch

2-16-22-8. Selection of micro motor coolant spray mode

The micro motor coolant spray mode can be selected from either a 2-mode or 4-mode setting.
The 2-mode setting will switch the coolant spray on or off.
The 4-mode setting will switch the coolant spray sequentially from air & water > water only > air only > off.

Set up procedure

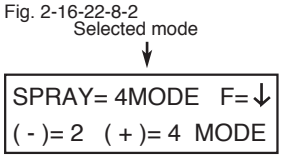
1. Press the function switch eight times. (Fig. 2-16-22-8-1)
   "SPRAY = " will be displayed in the function indicator.
   (Fig. 2-16-22-8-2)
2. Press the required set up switch. (Fig. 2-16-22-8-3)

   2-modes = (-) switch
   4-modes = (+) switch

Fig. 2-16-22-8-1

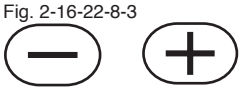
Function switch

Fig. 2-16-22-8-2



Function indicator

Fig. 2-16-22-8-3



(-) switch (+) switch

2-16-22-9. Cupfiller and bowl flush

The cupfiller and bowl flush are set to operate together (when the cupfiller switch is pressed the bowl flush will also start) or they can be made to operate independently.

Fig. 2-16-22-9-1

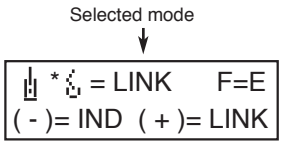
Function switch

Set up procedure

1. Press the function switch nine times. (Fig. 2-16-22-9-1) and " = LINK" will be displayed in the function indicator. (Fig. 2-16-22-9-2)
2. Press the required set up switch. (Fig. 2-16-22-9-3)

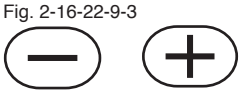
   Independent operation = (-) switch
   Linked operation = (+) switch

Fig. 2-16-22-9-2



Function indicator

Fig. 2-16-22-9-3



(-) switch (+) switch

2-16-22-10. Standby mode

When the main switch is turned on, all the LED's on the doctor control panel are lit and "BELMONT" is displayed to confirm that the unit is ready for operation. (Fig. 2-16-22-10)
The function indicator automatically returns to the standby mode if no programming or functions are in process for approximately 10 seconds.

Fig. 2-16-22-10

Function indicator

3. CUSPIDOR SECTION

3-1. Service outlet panel & flow control panel (Fig. 3-1-1)

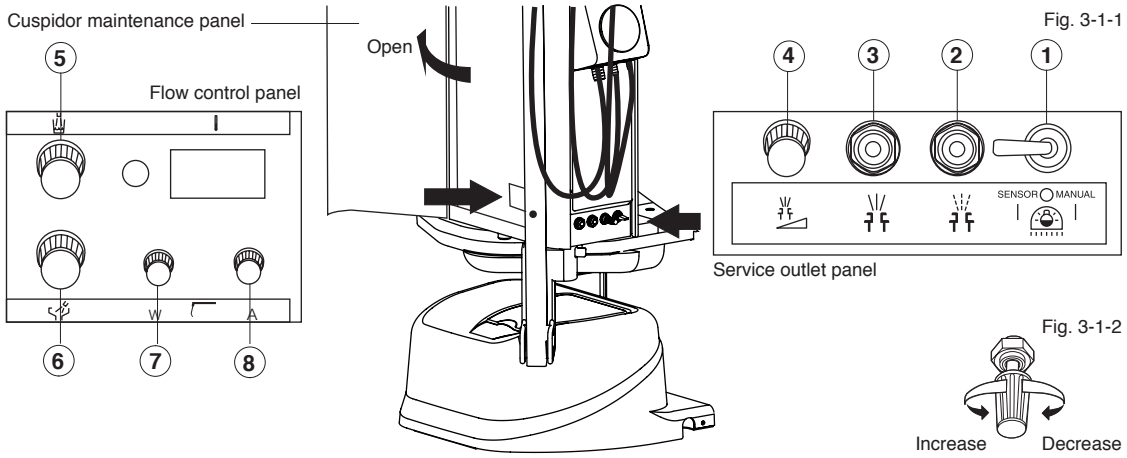


Fig. 3-1-1

Fig. 3-1-2

① Dental light on/off and sensor mode switch
Switches the dental light on and off manually. Alternatively when it is switched to sensor the light is switched on and off by either the touchless sensor on the light head or the dental light switches (E Version only) on either the doctor or assistant control panels.

Note: when this switch is switched to manual the dental light is on permanently, the touchless switch on the AL-820S and the dental light on/off switches on the doctors and the assistant control panels are disabled.

② Service outlet (optional)
Supplies air to external equipment.

③ Service outlet (water)
Supplies water to external equipment

④ Service outlet water flow control knob
Regulates flow rate from the water service outlet.

⑤ Cupfiller water flow control Knob
Regulates water flow from the cupfiller nozzle.

⑥ Bowl flush water flow control knob
Regulates water flow from the bowl flush nozzle.

⑦ Assistant syringe water flow control Knob
Regulates water flow to the assistant syringe

⑧ Assistant syringe air flow control Knob
Regulates air flow to the assistant syringe

Note: Flow rates decrease when the knob is turned clockwise and increases when the knob is turned anti-clockwise. (Fig 3-1-2)
The flow control knobs do not function as stop valves, the flow will not be completely stop even if the flow control knobs are tightened to their maximum.
Do not use excessive force when turning the flow control knobs as this may damage them.

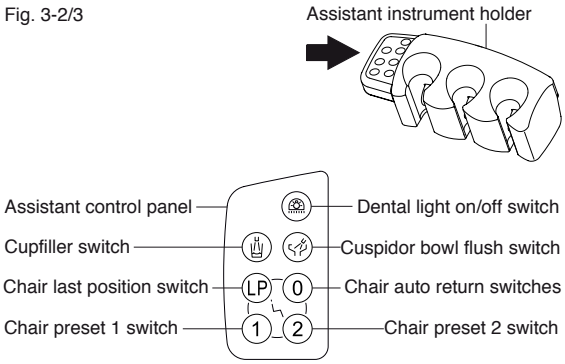
3-2. Assistant instrument holder (Fig. 3-2/3)

3-3. Assistant control panel (Fig. 3-2/3)

Chair preset switches
Chair auto return switch
Chair last position switch
Cuspidor bowl flush switch
Cupfiller switch
Dental light on/off switch

Note: The operation and functions of the switches on the assistant control panel are identical as those on the doctor table control panel.

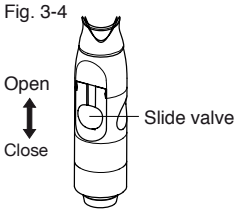
Fig. 3-2/3



3-4. Vacuum handpiece

Suction is activated when the vacuum handpiece is picked up from the assistant instrument holder. The suction flow rate is adjustable by opening or closing the slide valve. (Fig. 3-4)

Fig. 3-4

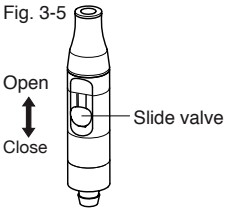


3-5. Saliva ejector handpiece

Suction is activated when the saliva ejector handpiece is picked up from the assistant instrument holder. The suction flow rate is adjustable by opening or closing the slide valve. (Fig. 3-5)

Note: The suction will not terminate immediately when the vacuum handpiece or saliva ejector is returned to the assistant instrument holder, the suction will continue for approximately 3 seconds to allow the vacuum line tubes to be cleared.

Fig. 3-5



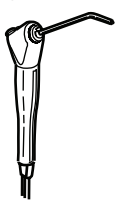
3-6. DCI 3-way syringe

Refer to the DCI manuals supplied.

⚠CAUTION

Do not drop the syringes as damage may be caused to the syringe body and/or the syringe tip.

Fig. 3-6



3-7 Cuspidor unit rotation (Fig. 3-7)

The assistant's instrument holder can swing out by 45°, the cuspidor unit itself can also swing out by 90° to allow increased access for both dentist and assistant when working closely over the patient from the 3 o'clock position.

⚠CAUTION

Ensure that the patient does not lean on the on the cuspidor unit, leaning or pushing on the cuspidor unit will cause it to swing out.

4. Junction section

4-1. Air main valve (Fig. 4-1)

4-2. Air pressure gauge (Fig. 4-1)

Displays the pressure of the main air supply line

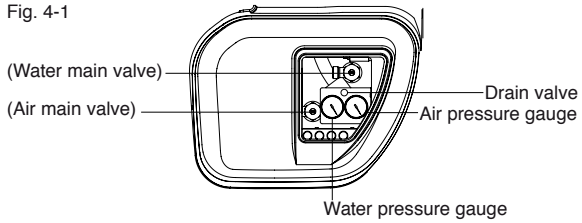
4-3. Water main valve (Fig. 4-1)

Water pressure gauge Displays the pressure of the main water supply line.

4-4. Drain valve (Fig. 4-1)

Drains the water collected in the air filter bowl from the main air supply.

Fig. 4-1



5. CLEANING AND MAINTENACE

General

To minimise the damage that could be caused by excessive cleaning, the use of protective disposable barriers is to be encouraged. Surfaces such as the unit membrane switch panels and handles on the dental light should be covered by protective barriers. The headrest should be covered by a protective barrier this will also protect the upholstery from the many hair products patients are now using.
These protective barriers should be replaced after every patient to minimise the risk of cross infection. Caution should be exercised when removing contaminated barriers.

⚠CAUTION

DO NOT use any abrasive cleaning pads or detergents containing abrasive compounds to clean any surfaces especially plastic covers.
DO NOT use acidic or alkaline cleaning agents as they will corrode metals.
Note: Any chemical or water spillage on to the chair should be cleaned and dried immediately with a soft paper towel or soft cloth. Failure to do so could cause electric shock, damage, staining or rusting.
DO NOT attempt to operate the chair until it has completely dried.
DO NOT apply/spray water or cleaning fluid directly on to the surfaces this could allow fluids to seep into any gaps and could cause electric shock, damage, staining or rusting.
DO NOT use a soaked paper towel and/or cloth on the surfaces this could allow fluids to seep into any gaps and could cause electric shock, damage, staining or rusting.
DO NOT use sandpaper, wire wool, or anything abrasive including detergents containing abrasive compounds to clean the cuspidor bowl. Do not use overly acidic or alkaline pipe cleaning agents as they may corrode metal and/or damage the tube.

⚠CAUTION

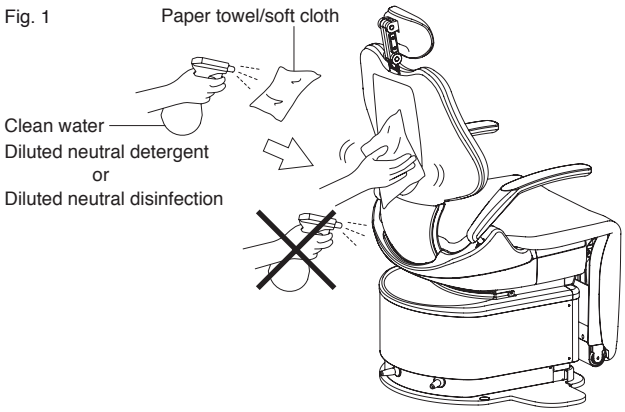
Upholstery can be cleaned with a neutral detergent.
All surfaces can be cleaned with DURR FD333 cleaner (or equivalent).
Do not drench the chair and unit.
Wipe all surfaces dry after cleaning.

1. Chair section (Fig.1)

Cleaning

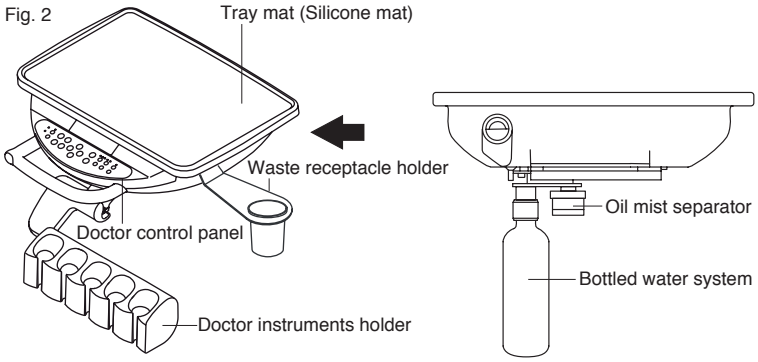
Wipe the chair surfaces with a soft paper towel or cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage staining or rusting caused by the ingress of moisture and/or remaining chemicals.
If the upholstery becomes marked, wipe it off immediately with a soft paper towel or soft cloth moistened with a diluted neutral detergent and wipe dry.

Fig. 1



2. Doctor table section (Fig.2)

Fig. 2

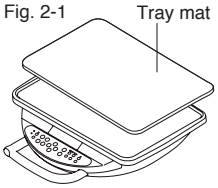


2-1. Tray mat (Fig. 2-1)

The silicone tray mat is detachable and can be sterilized in an autoclave.

Note: The recommended disinfectant is Durr FD333 or a similar diluted neutral disinfectant to disinfect the tray mat.

Fig. 2-1

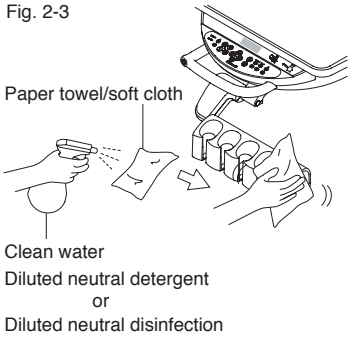


2-2. Doctor table control panel and instrument holder (Fig.2-3)

Cleaning

Wipe the surfaces with a soft paper towel or cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage or staining caused by the ingress of moisture and/or remaining chemicals.

Fig. 2-3



2-3. Handpiece hoses

Cleaning

Wipe the tubing's with a soft paper towel or cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage or staining caused by the ingress of moisture and/or remaining chemicals.

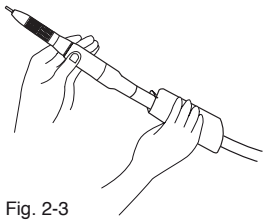


Fig. 2-3

Note: Where micro motor, fibre optic or scaler hoses are fitted refer to the individual manufacturers instructions supplied.

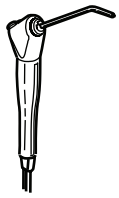
2-4. Handpieces

Refer to manufacturers manuals.

2-5. DCI 3-way syringe

Refer to DCI syringe manual provided.

Fig. 2-5



⚠CAUTION

DO NOT drop the syringes as damage may be caused to the syringe body and/or the syringe tip.

2-6. Oil mist separator (optional)

The oil mist separator collects the oil from the air driven handpieces via the exhaust tubes and needs to be emptied regularly to keep the oil level below the red line. (Fig2-6-1)

Note: The oil mist separator bottle is removed by unscrewing it. (Fig2-6-2)

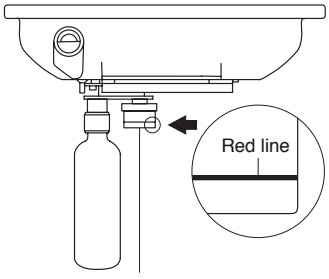


Fig. 2-6-1

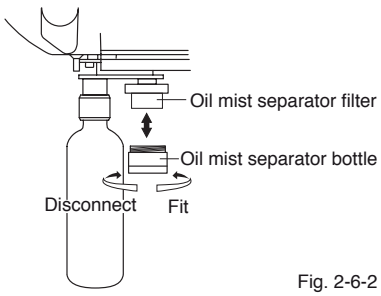
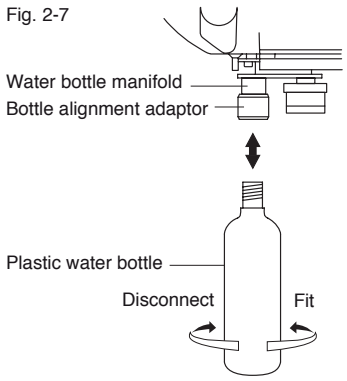


Fig. 2-6-2

2-7. Bottled water system

The bottled water system supplies coolant water to the handpieces and 3-way syringes.
To remove the water bottle, switch off the unit and twist clockwise to unscrew and twist anti- clockwise to refit. (Fig. 2-7)



Handpiece water line disinfection and Biofilm control

The recommended biofilm control and disinfectant is Alpron.
This should be used in line with the manufacturers guidelines.

2-8. Waste receptacle (optional)

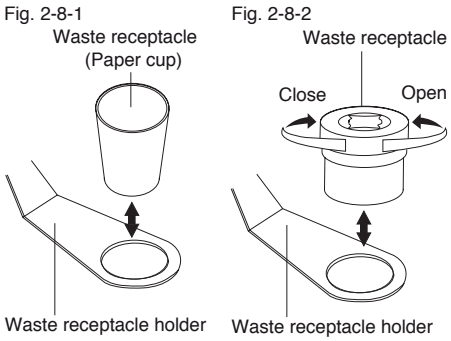
Paper cup type (Fig.2-8-1)

The waste receptacle can be replaced by simply picking up from the waste receptacle holder and replace it with a new one.

Note: **DO NOT** reuse the waste receptacle for infection control purpose.

Stainless type (Fig. 2-8-2)

The waste receptacle can be opened by twisting the lid anticlockwise and closed by twisting it clockwise.



Note: Handle the lid of the waste receptacle with care, as there are sharp edges in the middle to drop in the waste materials easily.

Note: **DO NOT** put any items with total weight of more than 0.5 kgs on the waste receptacle holder. Exceeding the maximum load may cause breakage.

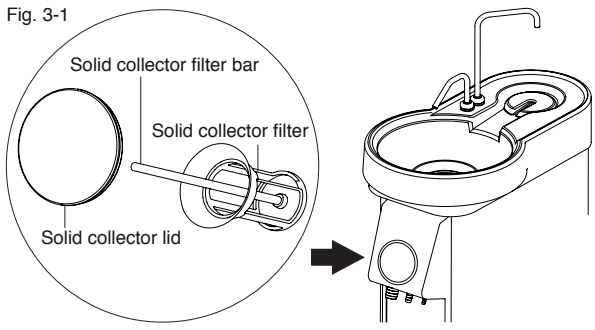
3. Cuspidor unit section

3-1. Solids collector

The solids collector filter is to be emptied and cleaned at the end of the day's surgery.

Cleaning

Remove the solids collector lid and pull out the solids collector filter using the filter bar. Unscrew the solids collector filter to remove it from the bar.
Empty the debris from the solid collector filter and clean it. (Fig. 3-1)
After cleaning, attach the bar back on to the solids collector filter, fit it back to the solid collector and refit the lid.



Note: Failure to clean or excessive debris in the solids collector will restrict suction and affect the performances of the vacuum and saliva ejector handpieces.

3-2 Cuspidor bowl

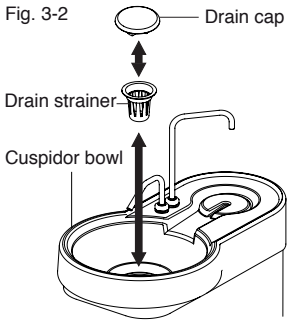
Drain strainer (Fig. 3-2)

The drain strainer is to be emptied and cleaned at the end of the day's surgery.

Cleaning

Remove the drain cap and pull out the drain strainer. (Fig. 3-2)
Wash the drain strainer with clean water or a diluted neutral detergent to remove the debris from it. After cleaning place the drain strainer and drain cap back in to the spittoon bowl.

Fig. 3-2

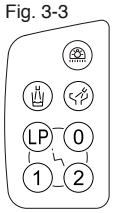


3-3. Assistant instrument holder and control panel (Fig. 3-3, 3-4)

Cleaning

Wipe the surfaces with a paper towel or cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage or staining caused by the ingress of moisture and/or remaining chemicals.

Fig. 3-3



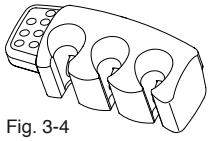


Fig. 3-4

3-4. Vacuum handpiece

Dis-assembling and cleaning

Disconnect the vacuum handpiece body from the hose connector. (Fig. 3-4-1)
Pull apart the vacuum handpiece as shown in Fig. 3-4-2.
Use a diluted neutral detergent to clean the handpiece parts.
Rinse with clean water and dry with a soft paper towel. (Fig. 3-4-3)

Fig. 3-4-1

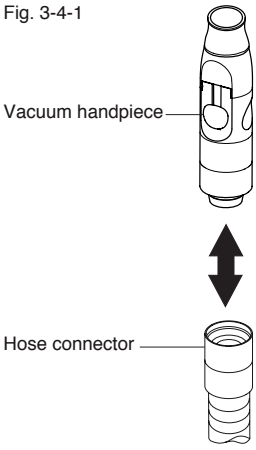


Fig. 3-4-2

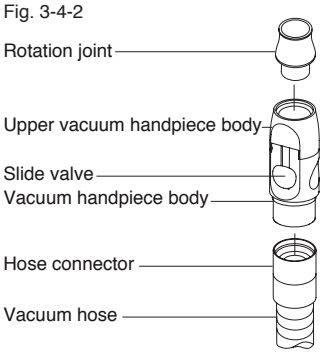
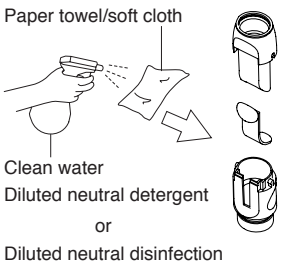


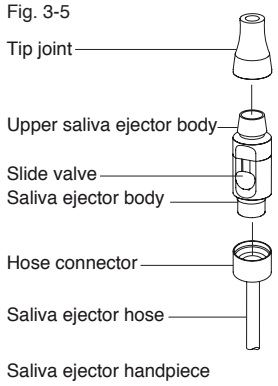
Fig. 3-4-3



3-5. Saliva ejector handpiece

Dis-assembling and cleaning

Fig. 3-5



Disconnect the saliva ejector handpiece body from the hose connector. (Fig. 3-5)
Pull apart the saliva ejector handpiece as shown in Fig. 3-5.
Use a diluted neutral detergent to clean the handpiece parts.
Rinse with clean water and dry with a soft paper towel.

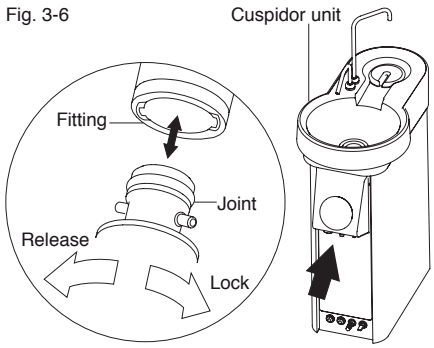
Note: Clean and maintain the saliva ejector & vacuum handpieces daily as the debris remaining inside the vacuum handpiece body will restrict suction and affect the performance of the vacuum handpieces.

Note: The tip joint, rotation joint, upper and lower bodies of the s/ejector and vacuum handpiece can be sterilized in an autoclave approximately 250 times. (Fig. 3-4-2, Fig. 3-5)
The slide valve can be sterilized by autoclave approximately 100 times, but each process will affect the elasticity of the slide valve.
The saliva ejector & vacuum handpieces can also be cold sterilized over night in a 1% Milton solution

3-6. Vacuum & saliva ejector hoses

Cleaning

Fig. 3-6



Wipe the surfaces of the tubings with a soft paper towel or soft cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage, staining caused by the remaining cleaning chemicals.
The vacuum & saliva ejector hose can be disconnected from the cuspidor unit. Hold the vacuum hose, or the saliva ejector hose, very close to the joint and twist it anti-clockwise. Then pull the vacuum hose, or the saliva ejector hose, from the fitting on solids collector. (Fig. 3-6)
After cleaning, refit the hose(s) back into the solids collector fitting lining up the grooves on the joint, push it into the fitting and twist it clockwise to lock.

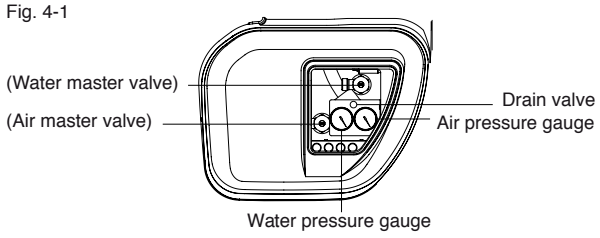
Note: Clean the joint if it is difficult to connect the vacuum hose, or the saliva ejector hose, back to the cuspidor unit.

4. Junction box section (Fig. 4-1)

Cleaning

Wipe the surfaces with a soft paper towel or cloth lightly moistened with a diluted neutral detergent. After cleaning wipe all surfaces dry to minimise the risk of surface damage or staining caused by the ingress of moisture and/or remaining chemicals.

Fig. 4-1



4-1. Air pressure gauge (Fig. 4-1)

The recommend air pressure of the main air supply line is between 0.45 and 0.50 MPa. (Fig. 4-1)

Note: Contact your dealer/installer or the nearest official representative of Takara Belmont Corporation if the air supply line pressure is exceptionally high.

4-2. Water pressure gauge (Fig. 4-1)

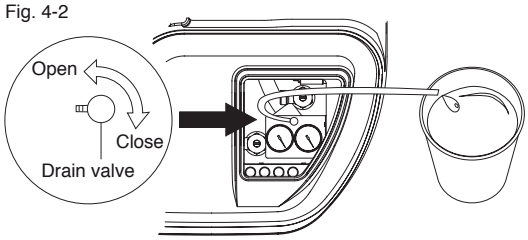
The recommend water pressure of the main water supply line is between 0.10 and 0.20 MPa. (Fig. 4-1)

Note: Contact your dealer/installer or the nearest official representative of Takara Belmont Corporation if the water supply line pressure is exceptionally high.

4-3. Drain valve (Fig. 4-2)

The air filter bowl located inside the junction box collects water/condensation extracted from the main air supply, the water must be drained from the air filter via the drain valve periodically. Pull out the end of the tubing connected to the drain valve out of the junction box and locate it into a cup, or container. Turn the drain valve anticlockwise to open and then the water flows from the tubing. Once the water runs out, turn the drain valve clockwise to close. (Fig. 4-2)

Fig. 4-2



Note: Failure to drain off the water from the air filter bowl could affect the performance the handpieces.

6. COMPATIBILTY OF HANDPIECES

DESCRIPTION	
Syringe	FARO (3-way) SYRINGE
	LUZZANI (3-way) Minilight with Light
	LUZZANI (6-way) Minilight with Light
	DCI (3-way) SYRINGE
Turbine	BIEN AIR BORA S36L / UNIFIX with LIGHT
	NSK Ti-Max X
	NSK MACH-LITE XT
	NSK PANA-MAX
Air motor	BIEN AIR Aquilon 830 / UNIFIX with LIGHT /PM1132
	NSK EX-203 / EX-6
Micromotor	BIEN AIR MC3LK / PLMP021PCB. / PM1132
	BIEN AIR MX / DMX PCB. / PM1132
	NSK NL-400 / NL-400SB.PCB / EX-6
	NSK TIM-40J / DA-290N PCB. / EX-6
Scaler	SATELEC SP4055 with Light
	NSK VARIOS VA 150 LUX (with light)
	EMS SCALER
	DENTSPLY CAVITRON

End of the day procedure

At the end of each day, or when it is anticipated that equipment will not be used for a long period of time, ensure the following are carried out.

1. Main switch
   Turn off the main switch. (This will stop the supply of compressed air, water, electricity and so forth.) This will help to prevent water leaks and electrical problems.
2. Water main valve
   Turn the water main valve to the closed position by turning it clockwise.
   This will help to prevent water leaks.
3. Air main valve
   Turn the air main valve to the closed position by turning it clockwise if it is anticipated that the unit will not be used for a long period of time.
4. Discharge air from the air compressor after turning off the air compressor circuit breaker.
   (Check the power is switched off.)
5. Turn off the vacuum pump circuit breaker. (Check the power is switched off.)
6. Turn off the surgery isolator/circuit breaker. (Check the power is switched off.)

Lifetime

The life expectancy of the equipment is approximately 10 years. (this could significantly increase or decrease depending on usage, service care and maintenance).

Disposal of the equipment

When disposal of the equipment or any component is necessary, ensure full infection control measures are taken before disposal and in accordance with all applicable waste regulations.

8. TROUBLE SHOOTING

Check the following before calling an engineer.

Problem	Solution
Equipment failure	Check all main switches on the equipment are switched on.
	Check the air compressor is switched on.
	Check the surgery isolator/circuit breaker is switched on.
Chair failure	Ensure the safety lock indicator on the doctor table is not illuminated.
No water supply	Check the main water valve is open.
	Check the water flow control valves for the handpieces are open.
No vacuum suction	Check the power to the vacuum pump is switched on.
	Check the suction pump filter (if applicable), the solid collector filter and the HVE handpiece filter are clean.

If the problem still exists after checking the above, please turn off the main switch and contact your service engineer or dealer.

9. DIMENSIONS AND SPECIFICATION

Specification

Rated power supply	AC230V/50HZ 3.4A
Fuse	220 - 240V F5A 250V
Air main pressure	0.45 to 0.5MPa
Water main pressure	0.1 to 0.2MPa
Mass	Cuspidor unit section: 74kg Doctor unit section (Base mount type): 40kg Chair section: 150kg
Dental light	AL-720S/ AL-820S
Working environment	Temperature: 10 to 40 deg C Humidity: 30 to 75% Atmospheric pressure: 700 to 1060hPa
Maximum Load	135kg

Classification

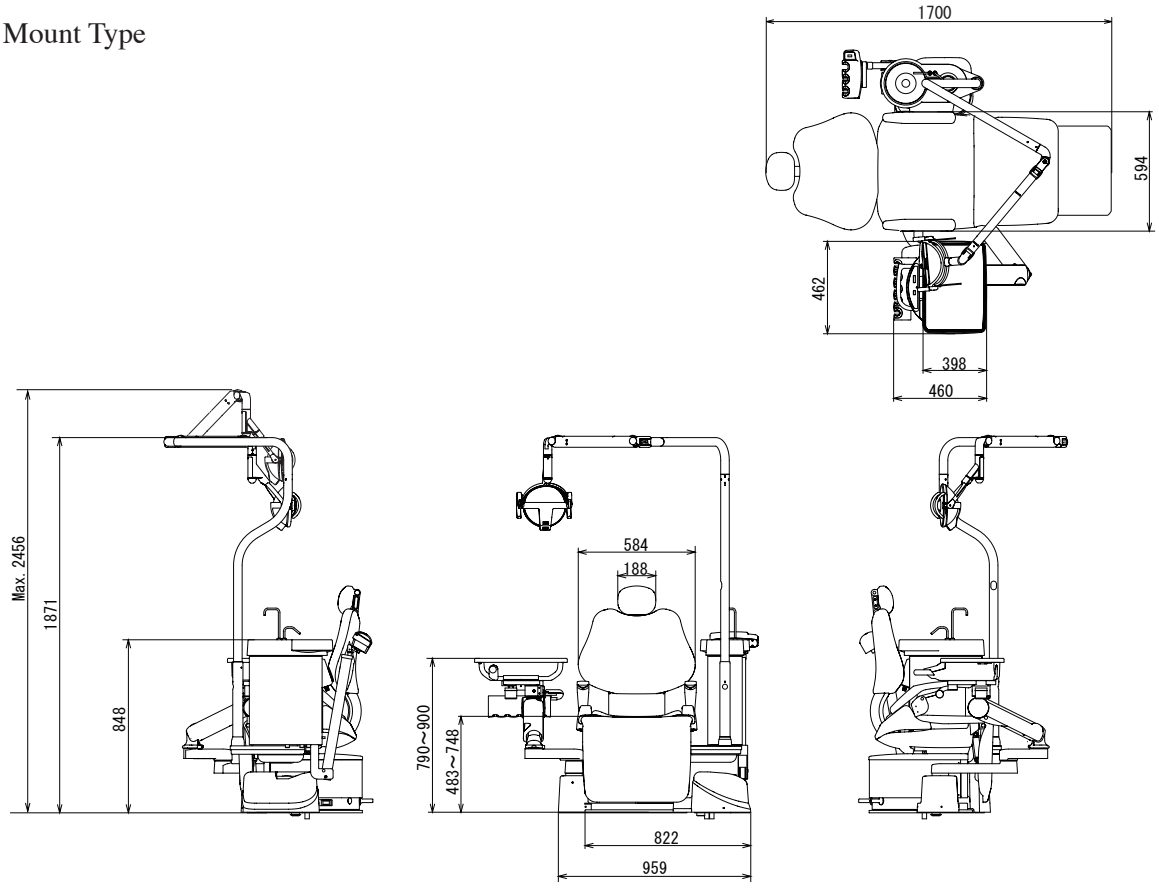
Operation mode	Short-time operating equipment (chair)
Classification of foot controller	IPX1 (applicable standard IEC60529)
Classification of protection against electric shock	Class I equipment, B type mounting section (Upholstery and Handpieces)

9. DIMENSIONS AND SPECIFICATION

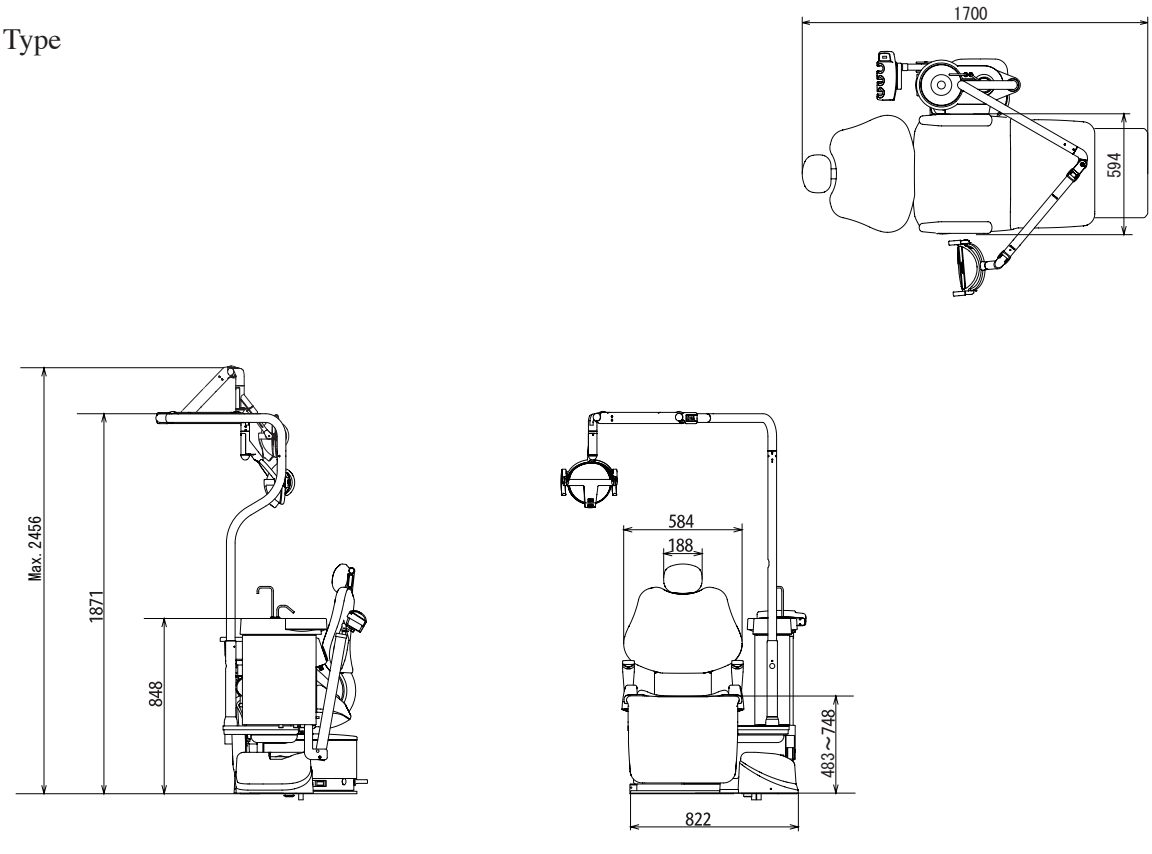
Dimension (Numerical values shown here represent standard values.)

Unit: mm
Dimensional tolerance: ±10%

Basev Mount Type



Split Type



10. MAINTENANCE AND INSPECTION

User guide for daily maintenance and inspection

For safe use of this equipment, inspections should be conducted as indicated below.

No.	Item	Frequency	Inspection method and diagnosis	Result of inspection if not conducted	Maintenance required in case of failure
1.	All safety functions	Before use	1. Ensure the chair control switches cannot be activated when the unit foot controller drive air pedal is depressed. 2. When moving the doctor table behind the backrest, the chair lock indicator on the control panel (membrane switch) blinks red, ensure operation of the chair is not possible.	Unexpected movement during treatment may cause injury and/or accident.	Contact your service engineer or dealer.
2.	Leakage of air and water	Before use	Check the equipment visually and acoustically to ensure that there is no water and/or air leakage.	Malfunction of the equipment and/or accident	Contact your service engineer or dealer.
3.	Handpieces	Before use	Check handpieces, i.e. air turbine, micro motor and scaler, are working correctly including volume of water and air	Injury to patient and/or equipment failure	Adjust water flow and/or refer to the instruction manual for individual handpiece adjustment. Contact your service engineer or dealer if the fault continues.
4.	The air turbine bur(s)	Before each patient	Check that the air turbine bur(s) is/are properly secured.	Injury to patient and/or equipment failure	Refer to the instruction manual for individual handpieces and/or exchange the air turbine burs if necessary.
5.	The scaler tip	Before each patient	Check that the correct tip is properly attached.	Injury to patient and/or equipment failure	Refer to the instruction manual for the handpiece and/or exchange the scaler tips if necessary.
6.	The syringe tip(s).	Before each patient	Check that the syringe tip is securely attached.	Injury to patient	Refer to the instruction manual and reattach the syringe tip(s) if necessary.
7.	The Micro motor	End of the day	Wipe off the debris and/or excessive lubricant on the micro motor(s).	Equipment failure	Refer to the instruction manual for maintaining the micro motor(s).
8.	The vacuum and saliva ejector handpiece(s)	End of the day	Flush through the suction line and clean the filter.	Suction failure	Refer to this instruction manual and/or maintain the vacuum and/or saliva ejector handpiece(s).
9.	The cuspidor bowl	End of the day	Clean the cuspidor bowl and the drain strainer.	Drain failure	Refer to this instruction manual and/or maintain the cuspidor bowl and the drain strainer.
10.	The solid collector filter	End of the day	Clean the solid collector filter.	Suction failure	Refer to this instruction manual and/or clean the solid collector filter.

No.	Item	Frequency	Inspection method and diagnosis	Result of inspection if not conducted	Maintenance required in case of failure
11.	All surfaces	End of the day	Clean the surfaces and ensure any spilled chemical or water are removed and the surfaces are dry.	Damage, stains or rust on the surfaces	Refer to this instruction manual and/or clean the surfaces.
12.	The main switch on the equipment and the main water valve	End of the day	Ensure that the main switch on the equipment and the main water valve is switched off	Leakage may occur over night.	Contact your service engineer or dealer if they cannot be turned off.
13.	Check the moving parts	Weekly	Operate all moving parts and ensure that they do not generate any unusual noise.	Equipment failure	Contact your service engineer or dealer if there is any.
14.	Drain off water from the air line	Weekly	Open the air filter drain valve and drain off water	Equipment failure	Refer to this instruction manual and/or drain off water from the air line.
15.	The air and water main pressure	Monthly	Check the air and water main pressure at the pressure gauges inside the junction box.	Accident and/or equipment failure	Contact your service engineer or dealer if air and/or water main pressure is/are exceptional.
16.	Check the movement of the doctor table	Monthly	Ensure that the doctor table is level and does not drift.	Injury and/or accident.	Contact your service engineer or dealer.
17.	The oil mist separator	Monthly	The exhausted oil level is below the limit line.	Unit failure	Refer to this instruction manual and empty out the oil mist separator bottle.

Annual Maintenance and Inspections

For safe use of this equipment, annual maintenance/inspections and replacement of consumable parts should be conducted by your service engineer or dealer.

11. ELECTROMAGNETIC COMPATIBILITY (EMC)

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 to be used.

Guidance and manufacture's declaration – electromagnetic emissions		
The SP-CLEO II is intended for use in the electromagnetic environment specified below. The customer or the user of the SP-CLEO II should assure that it is used in such an environment.		
Emissions test	**ComplianceE**	**lectromagnetic environment — guidance**
RF emissions CISPR 11	Group 1	The SP-CLEO II 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 SP-CLEO II 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 SP-CLEO II is intended for use in the electromagnetic environment specified below. The customer or the user of the SP-CLEO II 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 SP-CLEO II requires continued operation during power mains interruptions, it is recommended that the SP-CLEO II should be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m3	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.			

11. ELECTROMAGNETIC COMPATIBILITY (EMC)

Guidance and manufacture's declaration – electromagnetic immunity			
The SP-CLEO II is intended for use in the electromagnetic environment specified below. The customer or the user of the SP-CLEO IIshould 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 SP-CLEO II, 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 SP-CLEO II is used exceeds the applicable RF compliance level above, the SP-CLEO II should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the SP-CLEO II.

[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 SP-CLEO II does not make any movements, except for sounding a buzzer and switching on/off the indicator.

11. ELECTROMAGNETIC COMPATIBILITY (EMC)

Recommended separation distances between
Portable and mobile RF communications equipment and the SP-CLEO II

The SP-CLEO II is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the SP-CLEO II can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the SP-CLEO II 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
0.10	.38	0.38	0.73
11	.21	.22	.3
10	3.83	.87	.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.

NOTE

TAKARA BELMONT(UK)LTD
Belmont House, One St. Andrews Way, Bow, London E3 3PA U.K.
Tel: +44 (0)20 7515 0333 Fax: +44 (0)20 7987 3596

Book No. TBUK06102011