



Comfortek[®] Dental Unit

Operation Manual



Beyes Dental Canada Inc.

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Model	Comfortek A8 Comfortek B8 Comfortek C8
Medical Device Establishment Licence No.	Health Canada #3509
Medical Device Licence No.	HealthCanada MDALL #87139

Product introduction

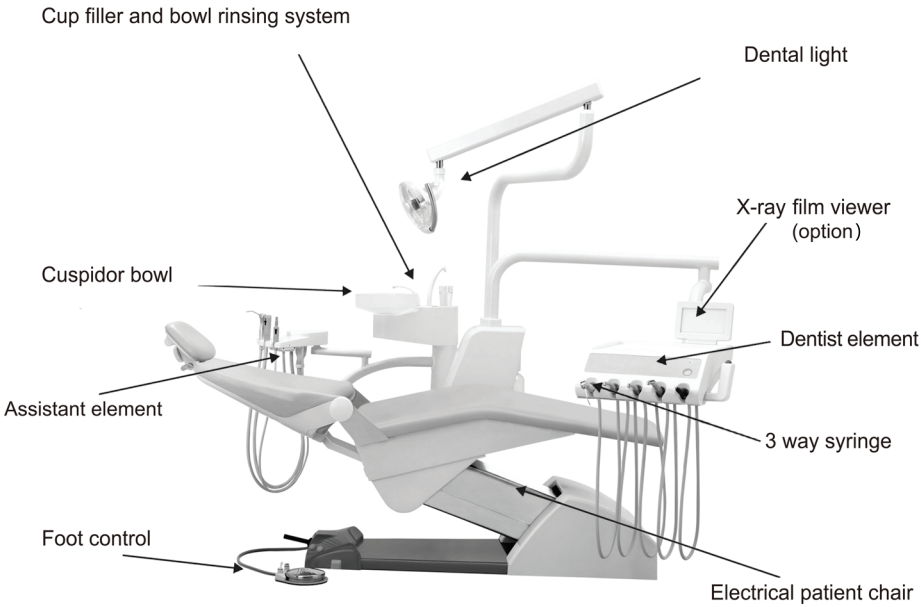
The Comfortek is specially designed to meet the needs of dental professionals. The concept of hygienic treatment is emphasized in the unit design. Dentists can enjoy hands-free operation as everything is controlled from the foot switch. Components are designed in the way which dentist can easily maintain and clean. Concept of the unit is to optimize the work flow for dental practice, as well as provide a very clean and healthy treatment environment for both dentists and patients.

Intended use

This dental unit is suitable for the diagnosis, treatment and operations in the dental department.

Product function & structure

The dental unit consists of water unit, dentist element, foot control, dental light, 3-way syringe, saliva ejector and patient chair.












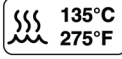







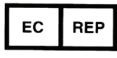





High-speed air turbine handpiece	Idling speed $\geq 35 \times 10^4$ r/min (Air pressure: 0.22Mpa)
Low-speed air motor handpiece	Idling speed $\geq 18 \times 10^3$ r/min (Air pressure: 0.30Mpa)
Dental light maximum illuminance	≥ 25000 lux
X-ray film viewer intensity	≥ 2000 cd/m ²
Electrical patient chair carrying capacity	≥ 1323 N (=135KG)
The highest position of the patient chair from the ground	≥ 780 mm
The lowest position of the patient chair from the ground	≤ 380 mm
Backrest movement range	110° ~ 180°
Head rack extension range	0 ~ 100 mm
Dimensions (length * width * height)	1950mm x (1200mm~1800mm) x 2000mm
Input power supply	AC110~115V, AC220~230V, 50Hz/60Hz
Maximum power dissipation	300VA
Air supply pressure	0.55 ~ 0.80Mpa/5.5 ~ 8.0bar
Water supply pressure	0.20 ~ 0.40Mpa/2.0 ~ 4.0bar
Power cable requirement	3x0.75mm ² , according to UL 60601-1, CAN/CSA C22.2, No. 601.1.
Electrical classification	Group 1
EMC classification	Group 1, Class B
Vacuum	12 cfm (339.84L/min)@ 8 inches of mercury

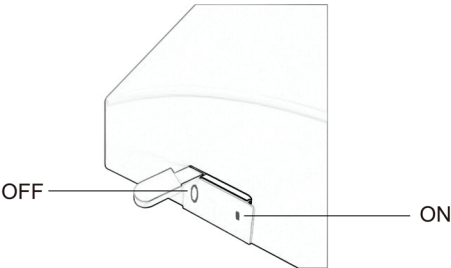
- ❗ Make sure the dental unit is well-grounded.

- ❗ This dental unit does not include any components that can be fixed by the user. Therefore, should any trouble arise, do not attempt to dismantle it yourself.
- ❗ Only fuse and accessories recognized by Beyes can be used.
- ❗ Do not use this dental unit in high temperature, high humidity, vibration flammability, unbalance, or dusty environment.
- ❗ This dental unit should not come into contact with any object in its operational range of movement.
- ❗ Clean accumulated water in air pressure relieve valve regularly. Clean or replace the valve core when necessary.
- ❗ After using this dental unit or if this dental unit is not to be used, the patient chair should be returned to the lowest position and water, air, and power supply should be cut off.
- ❗ The operation cycling factor of the patient chair is 20%, and the continuous operation time should not exceed one minute.
- ❗ The device has been tested and homologated in accordance with EN 60601-1-2 for EMC. This does not guarantee in any way that this device will not be effected by electromagnetic interference. Avoid using the device in high electromagnetic environment.
- ❗ Environment:
 Temperature: 5 ~ 40 °C
 Relative Humidity: ≤ 80 %

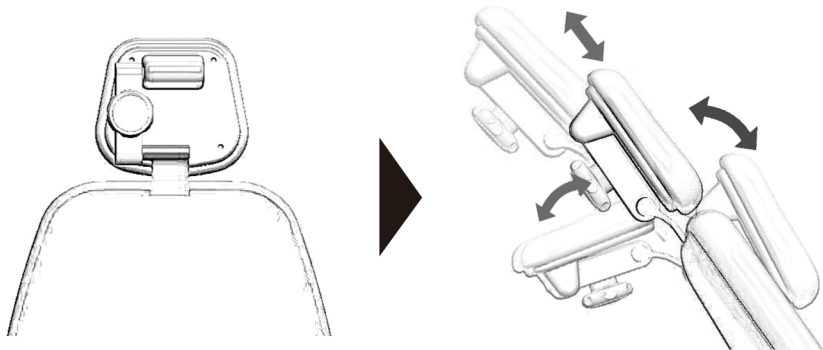
- ! Observe the following guidelines when connecting your equipment to a power source:
- ! Check the voltage rating before you connect the equipment to an electrical outlet to ensure that the required voltage and frequency match the available power source.
- ! This product is provided with a 3-prong power cable; connect the power cable to a grounded electrical plug and outlet.
- ! Do not plug the equipment power cables into an electrical outlet if the power cable is damaged.
- ! If you use an extension power cable, ensure that the total ampere rating of the products plugged in to the extension power cable does not exceed the ampere rating of the extension cable.
- ! If you must use an extension cable or power strip, ensure the extension cable or power strip is connected to a wall power outlet and not to another extension cable or power strip. The extension cable or power strip must be connected to ground wire.
- ! Do not permit contact between the yellow /green ground wire and the power wire, otherwise electrical shock, fire or damage can occur to your dental unit.

Symbols	Definition	Symbols	Definition
	ON		Fill cup
	OFF		Rinse bowl
	Attention		Dental light
	Patient chair up		Protective grounding
	Patient chair down		Clean with water
	Backrest leans forward		Can be sterilized in autoclave at 135°C/275°F
	Backrest leans backward		
	Rinsing position		Handpiece water pressure adjuster
	Reset/treatment position		Handpiece air pressure adjuster
SN	Serial number		Date of manufacture
	Manufacturer		Authorised representative in European Community
	Caution, refer to accompanying documents	IPX1	Protected against dripping water
	Type B applied part		Caution, hot surface

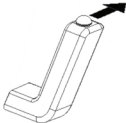

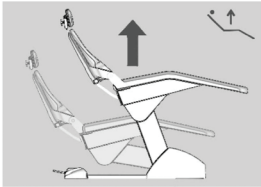


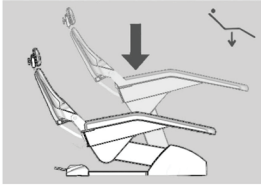


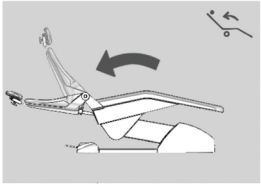


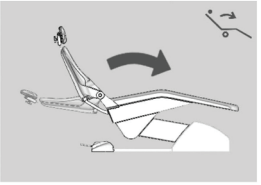
Equipment switch



Headrest

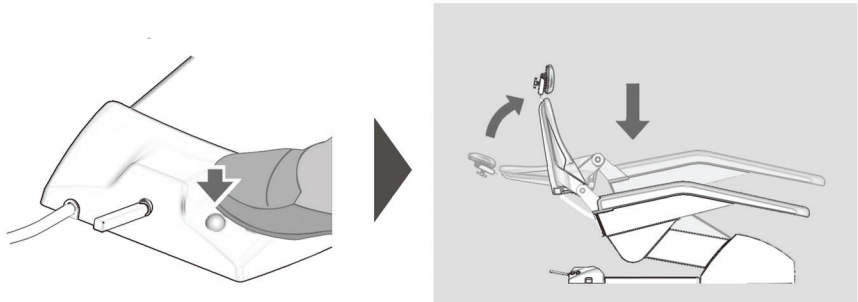


Patient Positioning

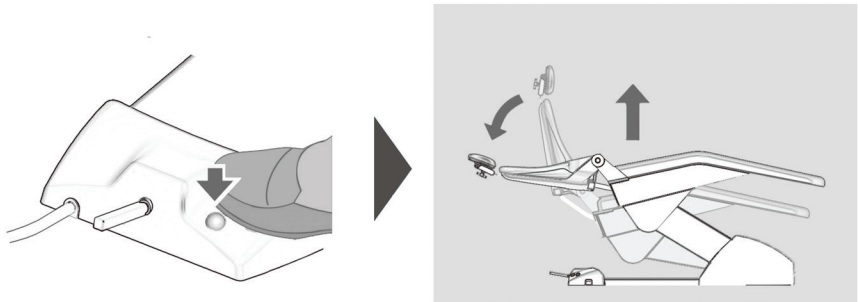
		
		
		
		

Control of Preset Positions

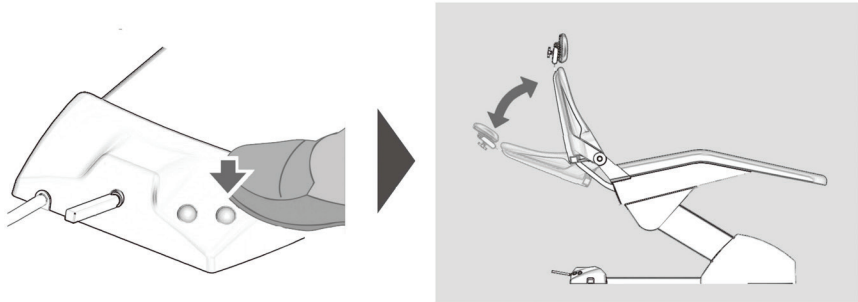
Reset Position



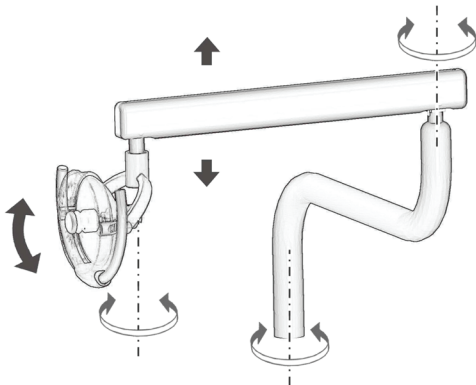
Treatment Position



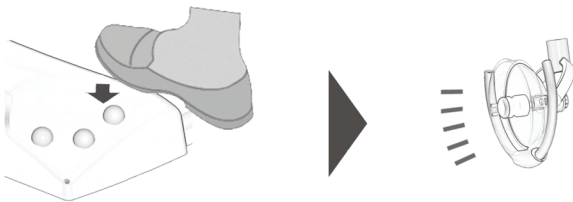
Rinsing Position



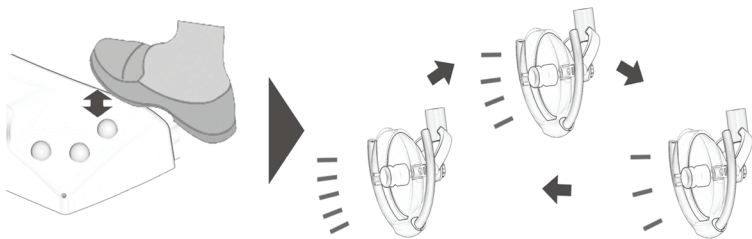
Movement



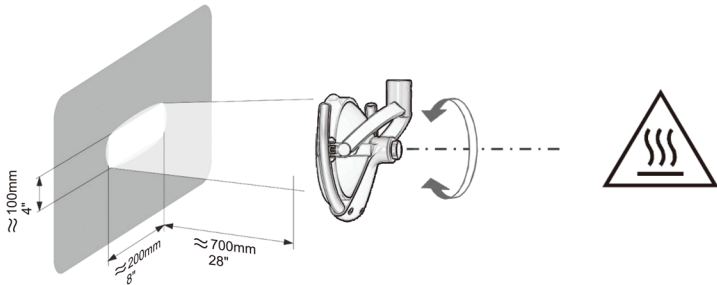
ON/OFF



Intensity Adjustment



Focus Adjustment



Manual Fill



Setting of Bowl Rinsing

Time setting of bowl rinsing:

① Into setting status

Press the button of bowl rinse when it is off, hold it for 5 seconds, then it starts to rinse for 2 seconds, which means you have entered the setting mode. Release the button to start the following setting:

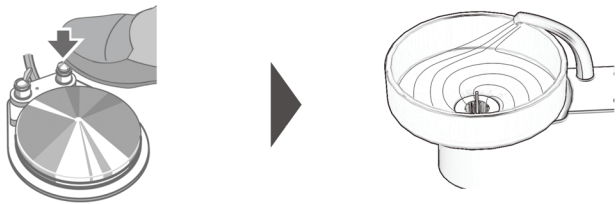
② Choose bowl rinsing mode

MODE 1	twelve seconds were set for each rinse	Press once, it rinses once
MODE 2	one minute was set for each rinse	Press the 2nd time, it rinses twice
MODE 3	thirty minutes were set for each rinse	Press the 3rd time, it rinses three times
MODE 4	sixty minutes were set for each rinse	Press the 4th time, it rinses four times

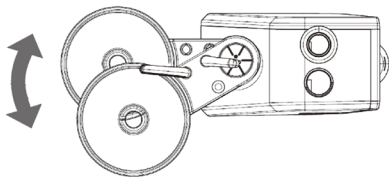
③ Confirm the setting mode

You may repeat the above setting. Once you choose the mode, press the button and hold it for 5 seconds, it will start to rinse for 2 seconds, which means the setting is done.

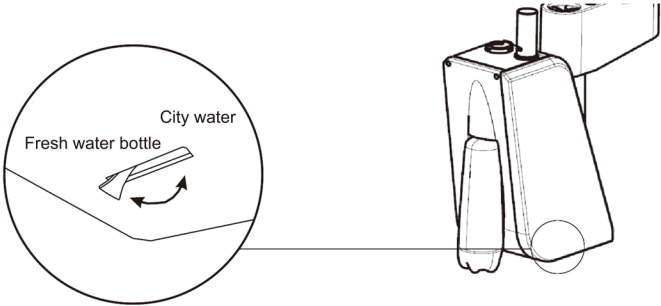
Bowl Rinsing



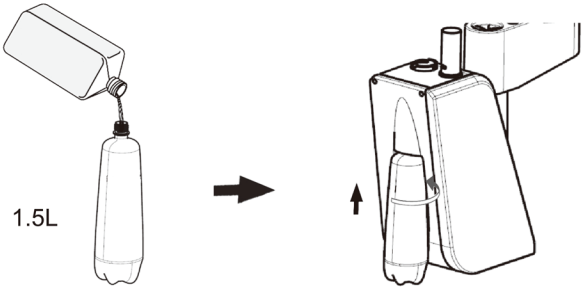
Swiveled Cuspidor Bowl



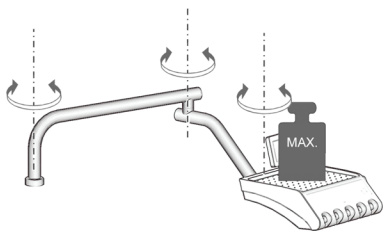
Switch of Water Supply



Add flash water

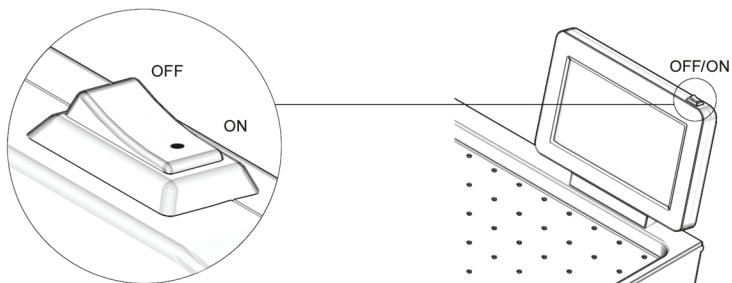


Arm Adjustment

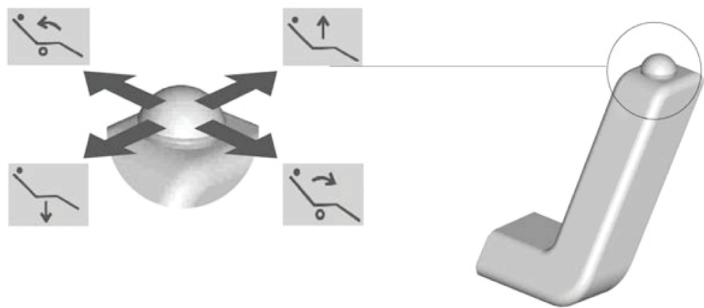


X-ray Film Viewer

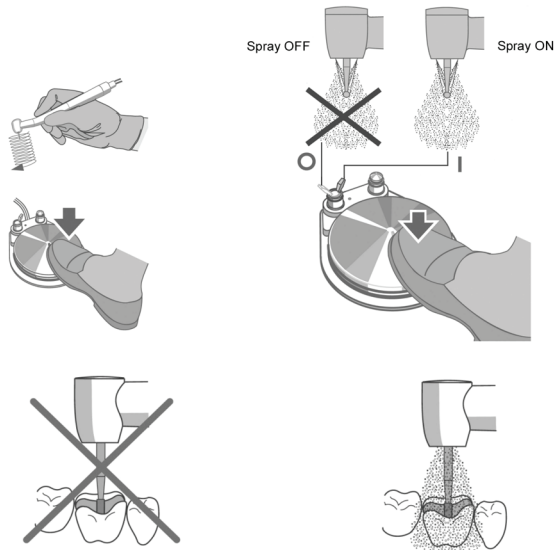
X-ray Film Viewer is as option for Comfortek



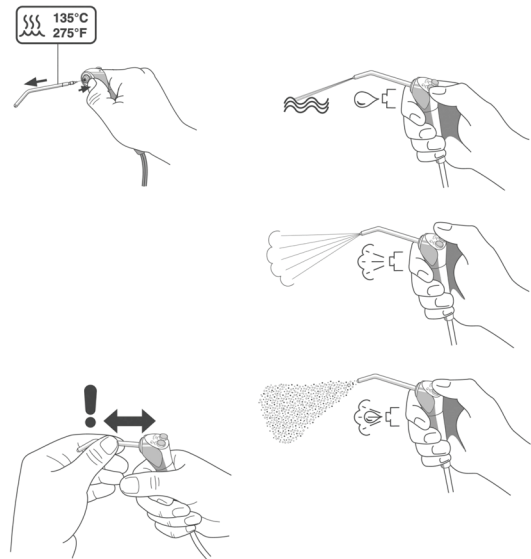
Jokstick



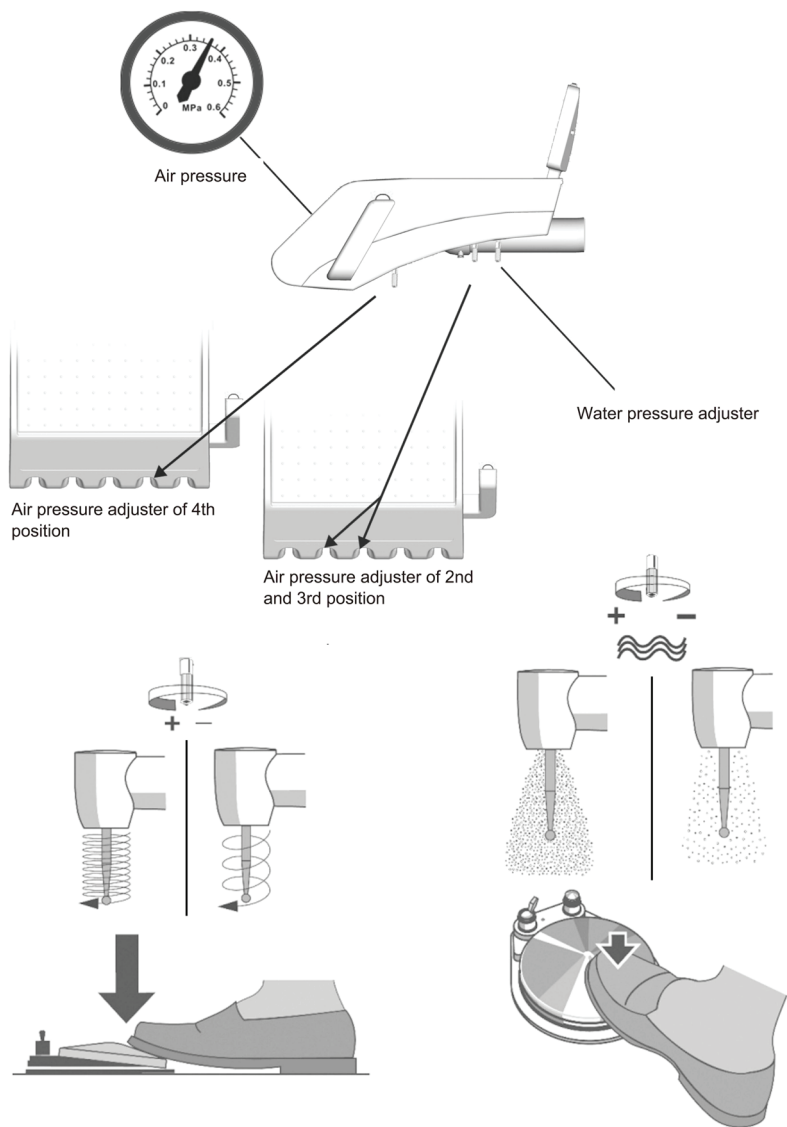
Control of Instrument

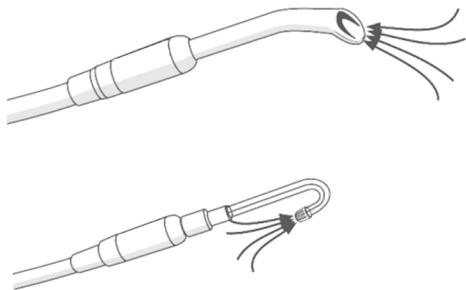


3 Way Syringe

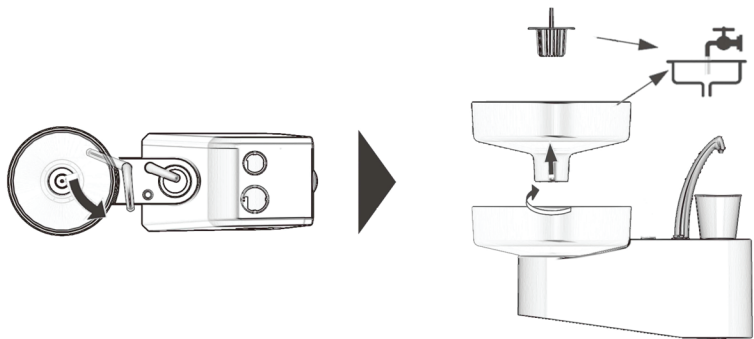


Air / Water Pressure Adjustment





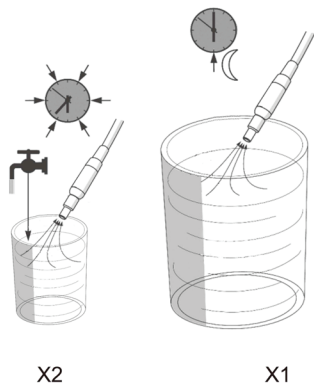
Cuspidor and Suction



Every 2 hours 0.2 liter

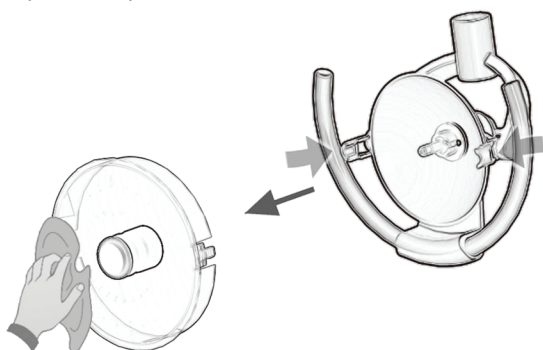
Daily after work 1 liter

Clean suction filter daily after work

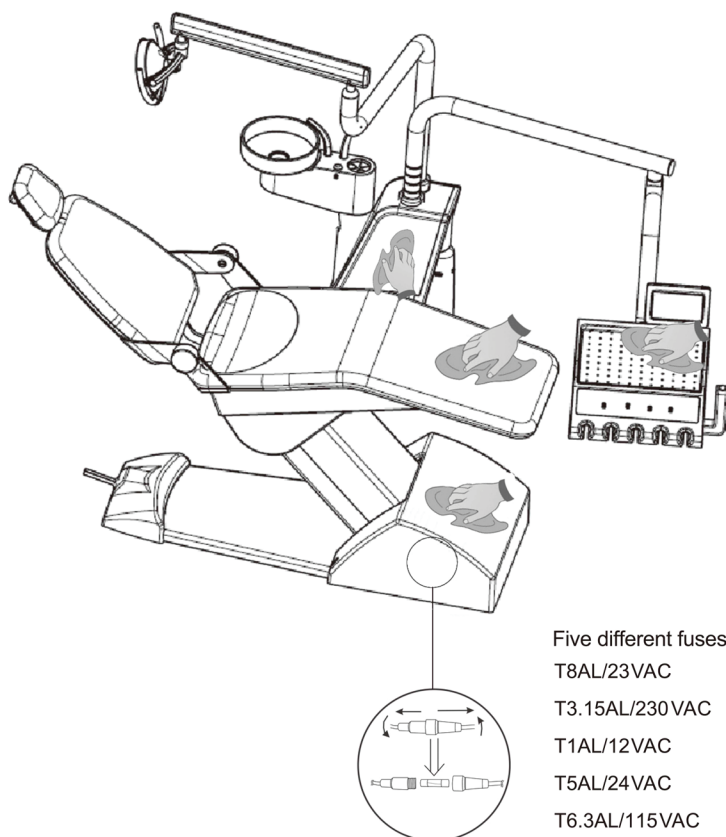


Cleaning of Dental Light

Take off the lamp cover, wipe it with clean towel.



Cleaning of Surface and Changing Fuse



The maintenance should be performed by the user or operator.

Use 70% ~ 75% medical alcohol to clean the surface of the equipment.

Components	Check period	Clean or replace conditions	Maintenance procedure
Water filter	Per month	Water unclean	Cut off the power and water supply.
		Filter polluted	Open the front cover, and take off the plastic container at water filter.
			Take off the filter element, and get it cleaned or replaced.
		Used more than one year	Then reinstall the filter and front cover.
Air pressure relieve valve	Per week		Cut off the power and water supply.
		Water volume above 3/4 of the container	
		Water unclean	Open the front cover, press the 3-way syringe to release the air inside and drive the water outwards.
		Used more than three months	
Dirt trap	Per day	Used more than one week	Open the dirt trap to clean inside according to the local laws / regulations.
Saliva ejector	Every 2 hours	Daily used	Suck in 0.2L water per day after work.
	Per day	Daily used	Suck in 1L water per day after work.
Suction filter	Per day	Daily used	Take out and clean the suction filter daily after work.

Malfunction	Cause Analysis	Solution
Dental light is out of work	<p>Bulb damaged</p> <p>Ineffective contact</p> <p>Ineffective connection in sockets</p> <p>Twisted cables in joints</p>	<p>Replace bulb</p> <p>Clean the oxide of bulb pins with alcohol</p> <p>Adjust terminal with tools</p>
No water from either cup filler or bowl rinsing	<p>Twisted or pressed hose</p> <p>Switch valve damaged</p>	<p>Adjust or replace hose</p> <p>Replace switch valve</p>
Suctions blockage	<p>Hose blockage</p> <p>Filter blockage</p>	<p>Clean hose with water</p> <p>Clean filter</p>


Table 201 - Declaration - electromagnetic emissions

Guidance and manufacturer's declaration - electromagnetic emissions		
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The product must emit electromagnetic energy in order to perform its intended function. Nearby electronic equipment may be affected.
RF emissions CISPR 11	Class B	The product is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
IEC 61000-3-2 Harmonics missions IEC 61000-3-2	Not applicable	
IEC 61000-3-3 Voltage fluctuations / flicker emissions IEC 61000-3-3	Not applicable	

Table 202 - Declaration - electromagnetic immunity

Guidance and manufacturer's declaration — electromagnetic immunity			
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.			
Immunity test	IEC 60601test 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 tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.

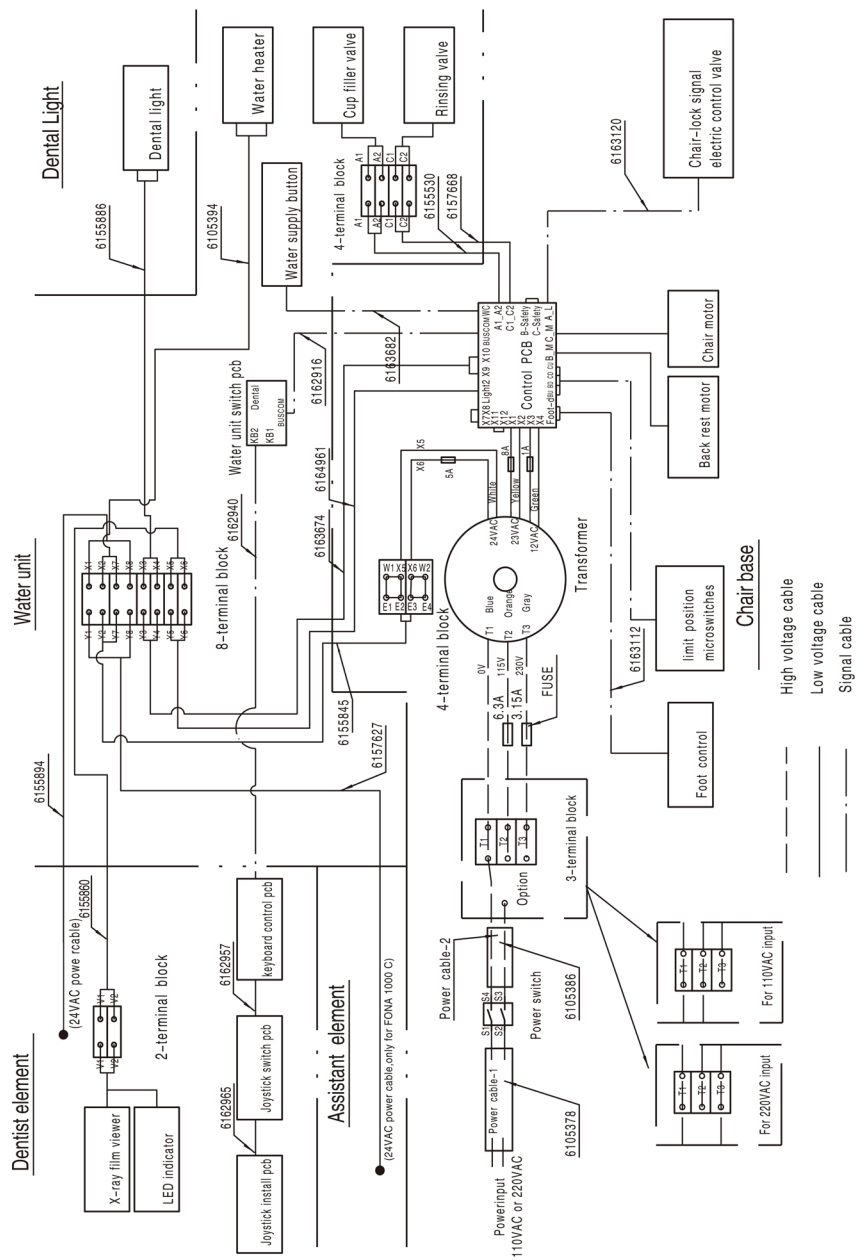
Table 204 - Declaration - electromagnetic immunity

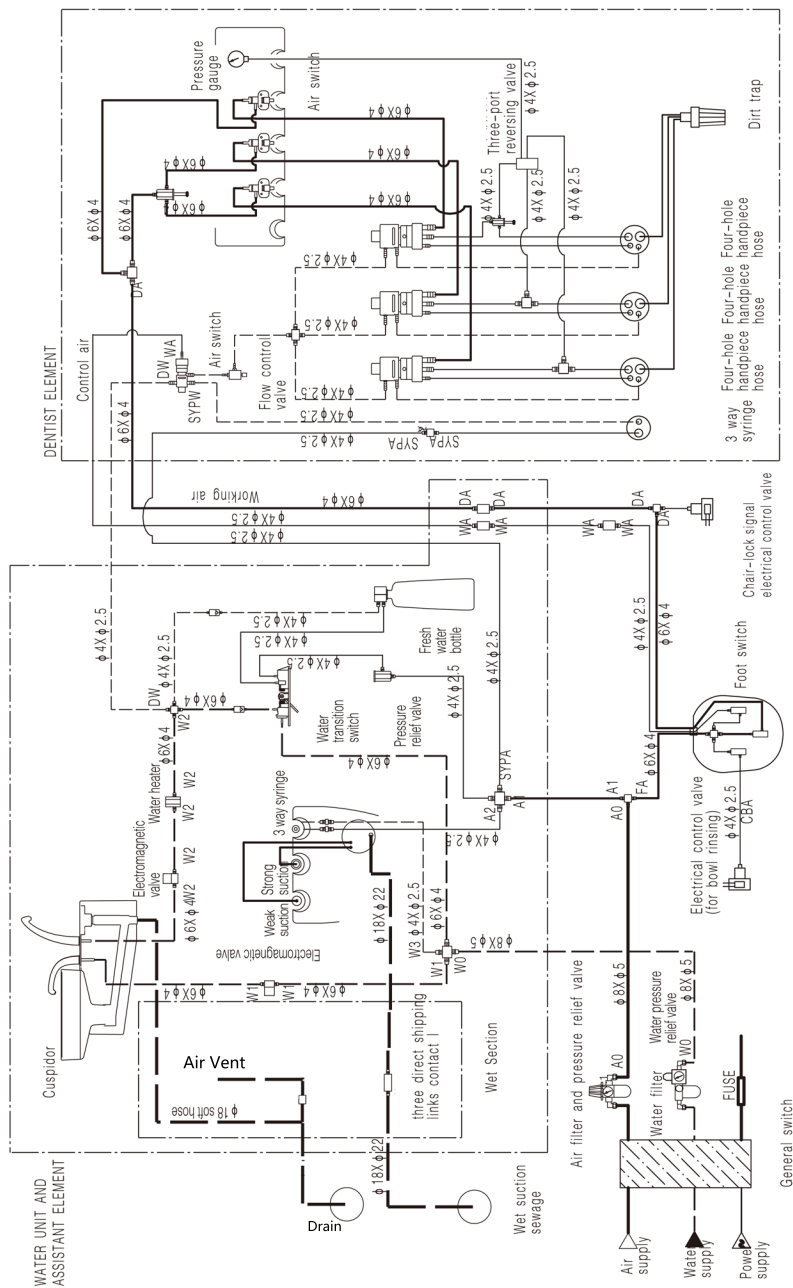
Guidance and manufacturer's declaration - electromagnetic emissions			
The product is intended for use in the electromagnetic environment specified below. The customer or the user of the product should assure that it is used in such an environment.			
Immunity test	IEC 60501 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	<p>Portable and mobile RF communications equipment should be used no closer to any part of the product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1,2\sqrt{P}$ $d = 1,2\sqrt{P}$ <p>, 80MHz to 800MHz</p> $d = 2,3\sqrt{P}$ <p>, 80MHz to 2.5GHz</p> <p>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 meters (m).</p> <p>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.^a</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1 At 80 MHz end 800 MHz, the higher frequency range applies.</p> <p>NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			

- ^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 product is used exceeds the applicable RF compliance level above, the product should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Model Number or Type Number - by manufacturer.
- ^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V/i] V/m.

Table 206 - Recommended separation distances between portable and mobile RF communications equipment and the product

Recommended separation distances between portable and mobile RF communications equipment and the product			
The product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the product can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the product 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 $d = 12\sqrt{P}$	80 MHz to 800 MHz $d = 12\sqrt{P}$	800 MHz to 2.5 GHz $d = 23\sqrt{P}$
0,01	0.12	0.12	0.23
0,1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (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) accordable to the transmitter manufacturer. NOTE 1 At 80 MHz and 800 MHz. the separation distance for the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			





We reserve the right to make any alterations
which may be due to technical improvements.



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