

# **Operation Manual**

**Integral Dental Medical Equipment**

**TR-A6800 type**

# MENU

1. Product introduction .....	PAGE 2
2. Intended use.....	PAGE 2
3. Overall structure.....	PAGE 3
4. Classification.....	PAGE 4
5. The mode of operation.....	PAGE 4
6. Technical parameters.....	PAGE 4
7. Transport and storage condition.....	PAGE 4
8. Symbol.....	PAGE 5
9. EU Representative.....	PAGE 6
10. Cleaning, sterilization and disinfection.....	PAGE 6
11. Connection.....	PAGE 6
12. Operation.....	PAGE 8
13. Parameters setting.....	PAGE 10
14. The method for use.....	PAGE 11
15. Commissioning and operation.....	PAGE 13
16. Maintenance.....	PAGE 15
17. Common exception handling.....	PAGE 15
18. Replacement of wearing parts.....	PAGE 16
19. Air and water connection diagram.....	PAGE 18
20. Circuit diagram.....	PAGE 19

## ●Product introduction

Thank you for your purchase of our A6800 top mounted Complete Dental Unit. A6800 top mounted is a modified product developed by our researchers based on the comments and suggestions of dentist. It is the crystallization of joint efforts of dentists and us. The kinematical structural design is in conformity with ergonomics.

Dental chair is driven by imported low-voltage DC motor with imported air spring auxiliary balance to keep a safe and stable operation of equipment and low noise. The single-form seamless leather cushion provides comfort for the patient to sit and lie and for the doctor to clean and disinfect more easily. It is applicable for the dentist and dental clinic. The unit is composed of integral ceramic spittoon, air-controlled balanced instrument-arm, newly-designed cold light.

In a word, it will be the best choice for the dental clinic!

## ●Intended use

Desired Application for Products

Complete Dental Unit (named dental unit below) , the dental unit applies to dental hospitals as the dental chair for dental patients. It is for treating①pulpitis②periapical periodontitis③periodontal diseases④dental prosthetics⑤diseases of oral mucosa⑥Orthodontic treatment⑦dental extraction etc. and for making diagnoses and operation for the patients.

## ●Overall structure



### Figure 1 overall structure

- 1.Electric pedal switch
- 2.Pedal switch
- 3.Backrest
- 4.Headrest
- 5.Assistant arm
- 6.Cuspidor
- 7.Lamp pole

- 8.Lamp arm
- 9.Lamp turnable arm
- 10.Operation light
- 11.Instrument arm
- 12.Instrument tray
- 13.Main tray touch pad
- 14.Airlock
- 15.Holder
- 16.Cover for motor
- 17.General electric switch

## ●Classification

The type of protection against electric shock: Class I equipment

The degree of protection against electric shock: type B applied part

The degree of protection against ingress of water: IPX4

According to MDD93/42/EEC annex IX-rule 9, A6800 Integral Dental Medical Equipment belongs to class IIa.

## ●The mode of operation

Dental chair shall be used according to intermittent working system that is used for 1 minute with intermittent time of 15 minutes.

## ●Technical parameters

- (1) Power supply: AC230V, 50/60HZ
- (2) Input power: 1200VA

- (3) Fuse specification: F6AH 250V , 5\*20mm
- (4) Operation light: AC12V/15VA
- (5) X-film viewer: DC24V/4VA .
- (6) Water supply thermostat: AC24V/80VA, Maximum temperature :40±5℃.
- (7) Motor: DC24V/3.8A
- (8) The burden weight on the operating plate: 1.5KG
- (9) N/W: 260KG

## **Working environment**

A: An ambient temperature range of +5℃ to +40℃.

B: A relative humidity range of 30% to 75%.

C: An atmospheric pressure range of 860 hPa to 1060 hPa.

D: Barometric source: Atmospheric pressure > 0.58MPa

Flow:

55L/Min-60L/Min

E: Drainage pipeline: tube 1cm leaning to the drainage-way per meter tube

## **●Transport and storage condition**

A: An ambient temperature range of -10℃ to +40℃.

B: A relative humidity is not more than 80%.

C: An atmospheric pressure range of 860 hPa to 1060 hPa.

D: Non-corrosiveness gas inside.

## **●Symbol**



**Protective earth (ground)**



Type B applied part



General warning, caution, risk of danger



The units and persons who use this equipment should have a kind of (Amalgam separators Equip) system and (the equip of water processed)

system to ensure the normal usage of the equipment.

General warning



Authorized representative in the European community



Date of manufacture



Manufacturer



The Complete Dental Unit bears CE mark CE-0434 indicating its conformity with the provision of Council Directive 93/42/EEC concerning medical devices, and fulfills the essential requirement of Annex I of this directive.

The product complies with the requirement of standard EN60601-1-2 “Electromagnetic Compatibility – Medical Electrical Equipment”.



Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE Directive)

## ●EU Representative

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## ●Cleaning, sterilization and disinfection

**\* Note: Handpieces are not regarded as standard assemblies of this equipment and their sterilization shall be upon the method described in the handpieces.**

The handpieces shall be used as follows: 1)Its CE Certification. 2)Its working pressure shall be 180-300kPa with filtered air. 3)Its mouth shall comply with International standard

The ultrasonic scaler

- 1 Use the hair brush and the clear water to clean surface before sterilization.
2. Take the tip out from the scaler, and pack the tip and the scaler well.
3. Sterilize the tip and the scaler in the high temperature sterilizer. Deploy:  
①Sterilizing temperature 121℃    ②Sterilizing pressure 1.10    ③Vaccumizing time 8 min    ④Admission time 2min    ⑤Sterilizing time 30min    ⑥Drying time 10min.

Curing light

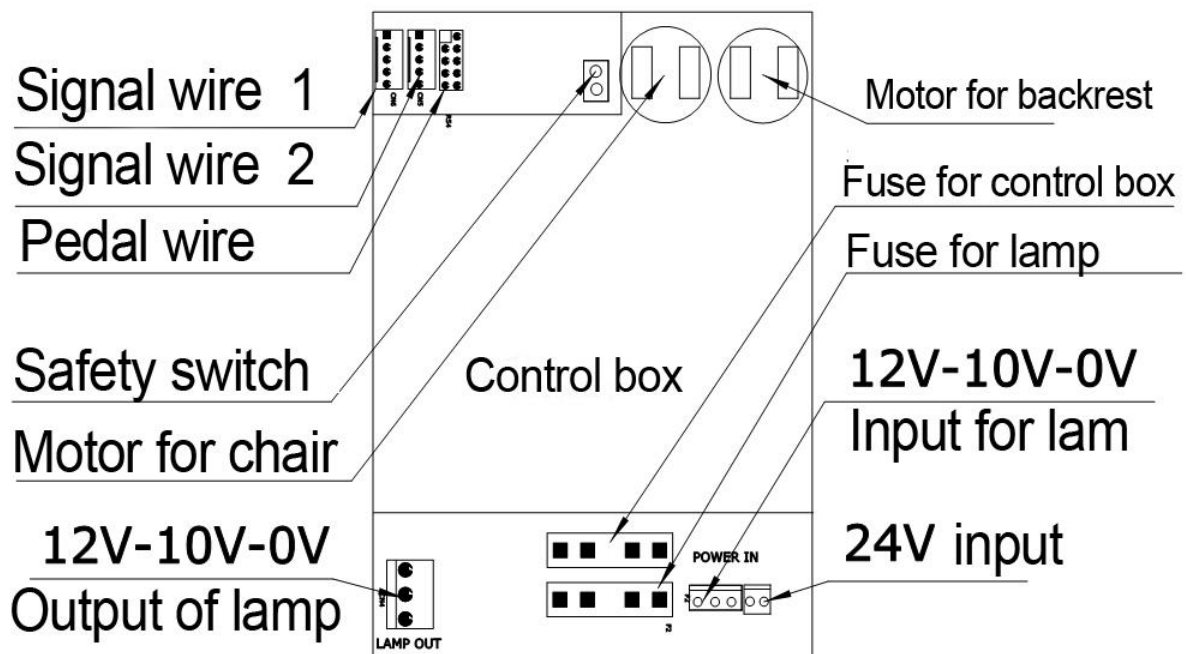
Take out the glass tip from the curing light, and then sterilized with the medical alcohol and the glutaric dialdehyde.

After sterilizing, packed it well.

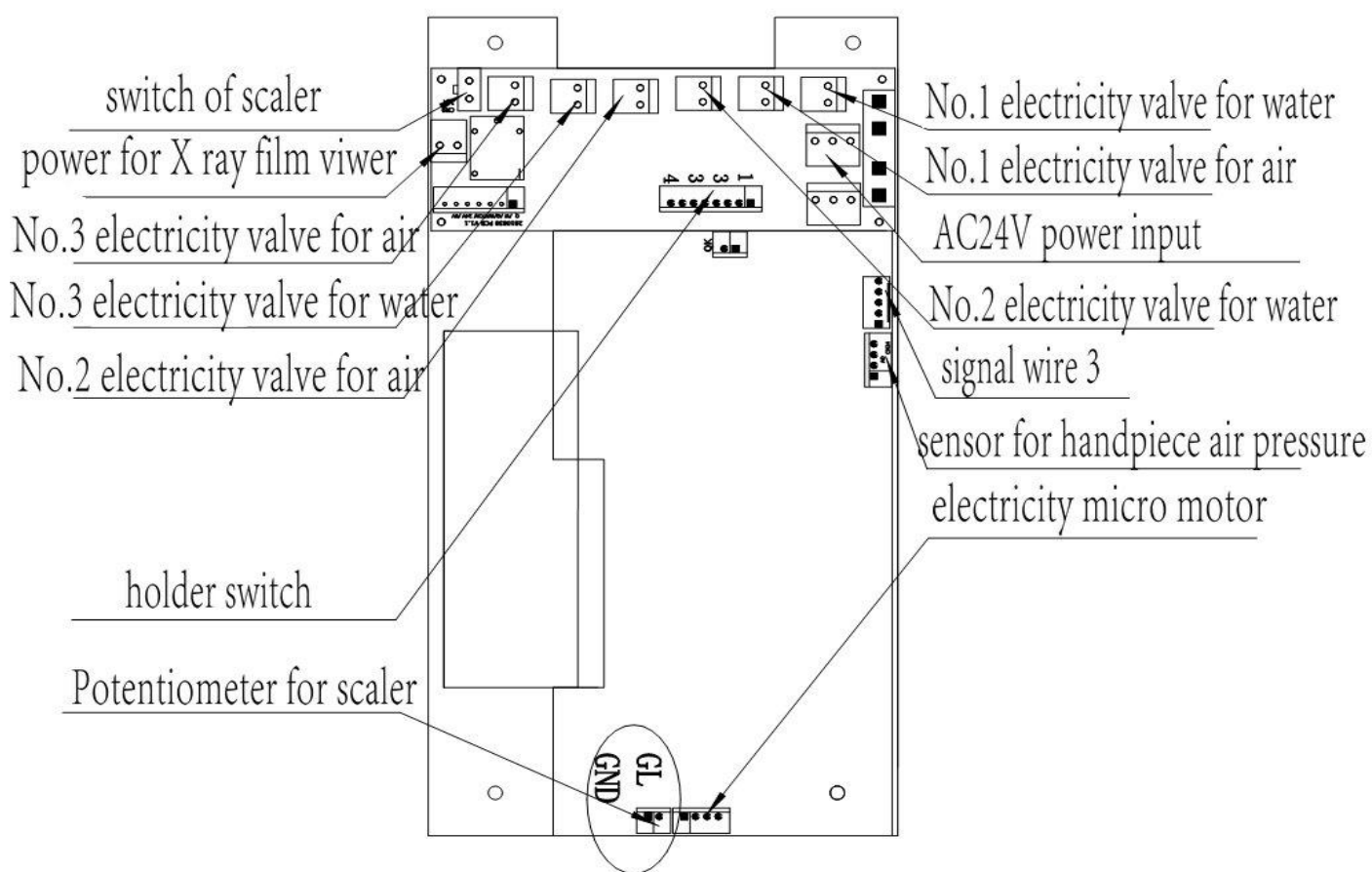
## ●Connection

1. Treatment board:





### 3. Instrument tray connection



## ●Operation

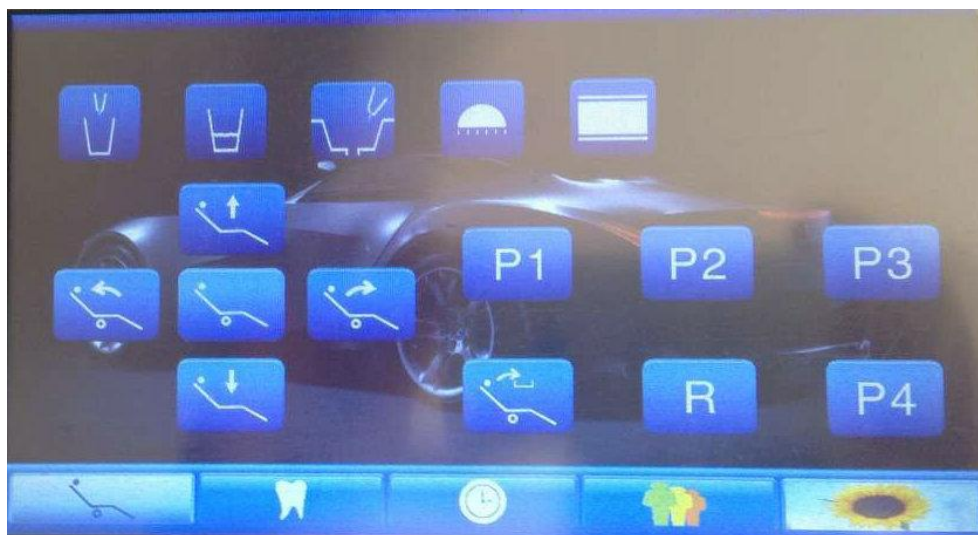


Figure 2

## I. Chair Move Control



main page

## 1. Manual Control

### A: 7.0 TFT LCD Control Panel



“ ” button, Chair move down.



“ ” button, Chair move up



“ ” button, Backrest move forward



“ ” button, Backrest move backward


### B: Foot switch control

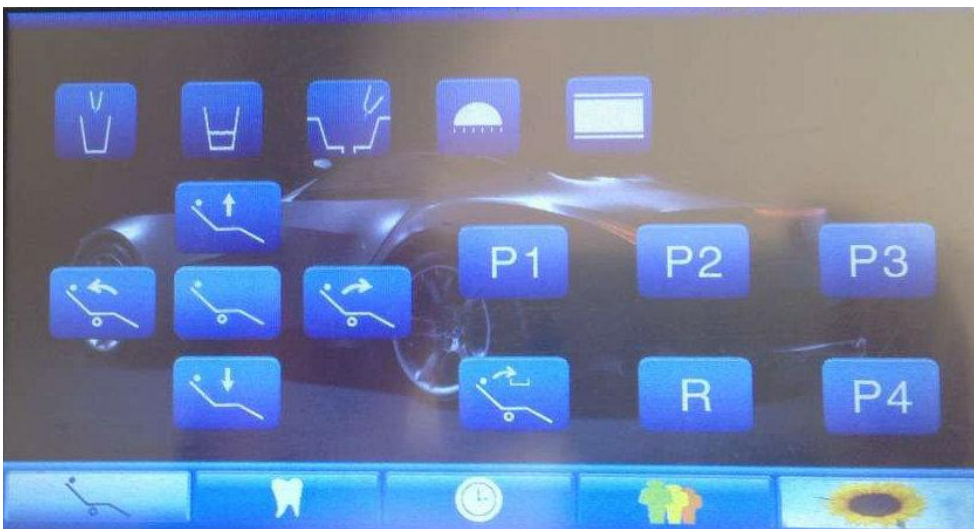
The function of the four buttons for foot switch is equal to the function of the four buttons for hand status.

## 2. Automatic control

### A: Preset key control

The chair will move to the preset position automatically if you press the preset key “P1”, “P2”, “P3”, “P4”,

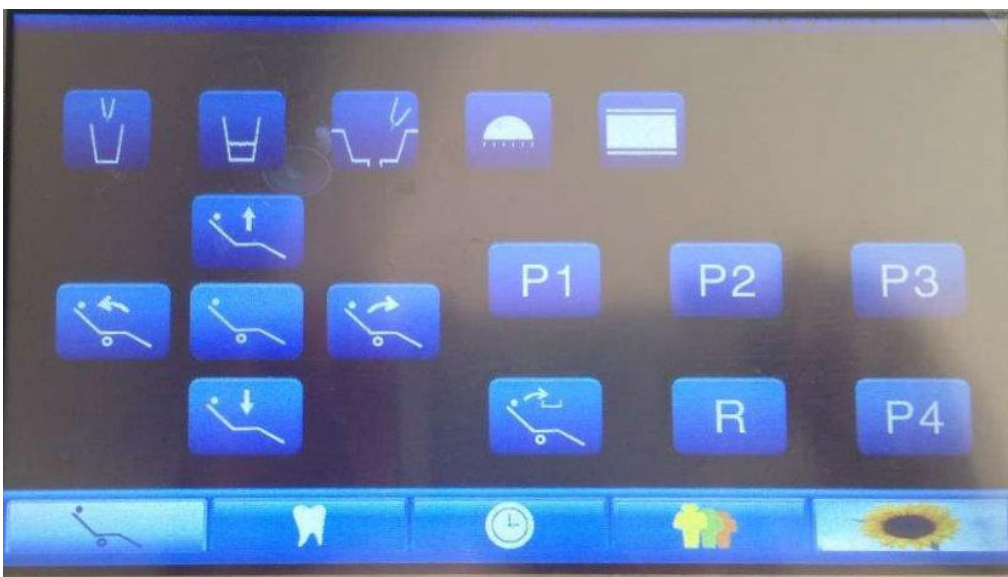
This also the 4 users memory position . One user have 4 memory position , can use for 3 users , total 12 memory position . press the “” can change the user’s page



user 1








user 2




user 3

## B: Setting for chair preset position

1. Long press the “” button, when it enters the settings menu, it will come a long time sound “DI”, you are entering the chair position setup;
2. Use your hands to adjust the chair to needed position;
3. Choose the position unit you intended to save in the storage cell P1, P2, P3, P4, and then press the “”, “”, “”, “” button, The preset position will be saved.



## C . Setting for software limiting position

Lift the chair and backrest to the highest position for adjustment, and then move down the



chair and backrest to the lowest position for setting (i.e. two highest positions and two lowest positions); Press “” button 10 seconds , when it enter the settings menu,

1. then press the “auto” button, you will enter the process setup , when the chair and sound “DI” stop , it finished .
2. choose the “Hand” button , long press “R” will have sound “ DI ,DI,DI....” , means the system come to setting , then press “UP” , “BU”, make the chair and the backrest to the highest , press R key to save the position , then long press “R” , soound “DI ,DI,DI ...” more fast , means sysytem come to setting again , then press “DN” , “BD” make the chair and backrest to lowest , press “R” save .
3. not setting press “exit” to come back main page .


### 3. Gargle water control

Press “” button, water outflow, and it will stop automatic when the time is up (the time is set before), and you can also press “” to stop it if you want.



### 4. Wash cuspidor

A : Press “” button, it starts to wash the cuspidor. and it will stop automatic when the time is up (the time is set before). And you can also press “” to stop it if you want.

### 5. Setting the wash cuspidor time

A: long press the “” button, you will enter the washing time setup; choose the washing time 12 seconds or 30 minutes or 60 minutes or long time .


## 6. Heat up control


Press “” button , it starts to heat up ,the indicator light will be glittery at the same time ,and it will stop automatic when the time is up(the time is set before ) , the indicator light is on only, if the temperature goes down , it will start to heat up automatic. Press “” button again, it will stop at once, the inductive light will be shut at the same time.

## 7. X-film viewer

Press “” button to control the X-film viewer.

## 8. Operation light

Press “” button, and then the operation light is on.

Press “” button again and then the light is off.

Note: After it enters the set state, if the system is still in the process of adding gargle water, washing cuspidor or heating up, the system will automatically exit the following status.

9.  best position of the chair for patient when use cuspidor .

10.  back to the first position , best position for patient get on and get off

11.  for time setting

12.  for background setting

13.  come into the langue , key press sound ,scaler and dental light setting .

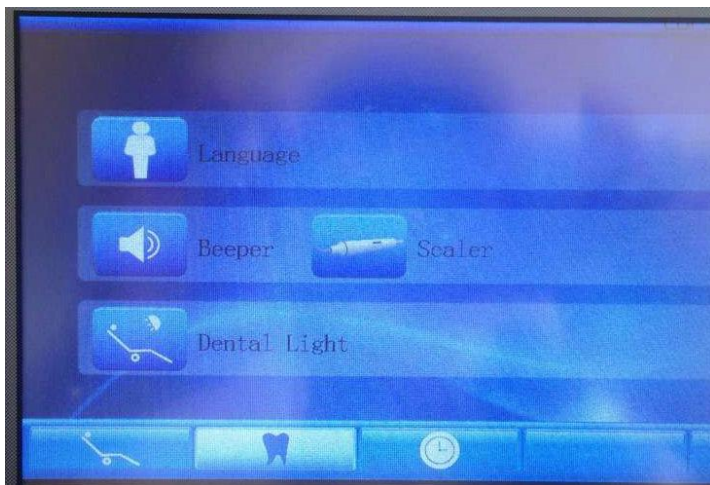
**When dental light setting . will come into page :**

1. R key put off the lamp .

2. LP and RESET key , LP for put off lamp, backrest up ,open the nozzle for cuspidor ,

press LP again , against .


### 3. Not use the dental light

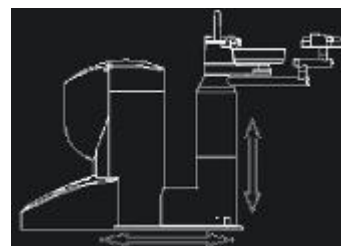


## II. Side box lift control



, main page , change to the side box operation

Press the “” button on the assistant tray, the side box cuspidor will move down until you stop pressing it;






Press the “” button on the assistant tray, the side box cuspidor will move up until you stop pressing it;



figure 3

Press the “” button on the assistant tray, the side box cuspidor will move forward until you stop pressing it;


Press the “” button on the assistant tray, the side box cuspidor will move backward until you stop pressing it.

Note: The side box cuspidor will stop moving automatically when it reaches certain

extent, because the internal limit for protection has been set. ( Figure 3 ) In addition when the spittoon turn toward the chair ,the protective switch will protect the side box and the chair can't move.

#### Attachment:

1. Limiting position has been set for the dental chair before leaving the factory.
2. During the dental chair's automatic operation, you may press any operating button of the chair, but the system will be in protection state, so the chair can't move.
3. All the setup parameters could be saved automatically when the electricity is off;
4. When the power is on after interruption, no safety problem will appear except that the on-going operation is interrupted temporarily. If you hope to continue your work, restart it.

 Note: The last setting value could be saved for a long time in the computer chip.

### ●The method for use

Determine the location of equipment according to the general layout and lighting of the clinic room and the convenience of operation. Put the equipment on a clean, dry, ventilated and cool place and maintain a good operation environment. Be sure that the floor contracting with the bottom of the dental chair should be smooth, horizontal and stable.

Under the floor where the ground box placed with 2 screw to make it firmly ( as shown in diagram 4-1 ) , the air input power and drain connector should be placed around 140\*120mm. water and air input tube is 15m (1/2"). The tube end should have the thread R1/2". The drain is around 40mm. Input wire composed by the three cores with 1.5mm<sup>2</sup> plastic cover is 30mm beneath the earth, the protection ground wire should be connected. Detail refers to the installation diagram. (as shown in diagram 4-2)



the dental chair fully contract with the floor. Pay attention to the level of equipment and maximum value during adjustment and ensure the stability of equipment.

### 3. Connection of pipes

Put the equipment in the desired installation position, turn two pipe connectors G1/2" of the accessories into the intake water pipe and intake air pipe respectively. Pay attention to sealing while making connection, to prevent air leakage and water leakage.

Before the connection of pipes, discharge the water and air inside the equipment first, then remove dirt and impurity inside the pipes to prolong the service life of this equipment.

Remove dirt and impurity inside the pipes and prolong the service life of this equipment first, then remove dirt and impurity inside the pipes to prolong the service life of this equipment.

Remove the cover of the floor box and install the floor box to the proper preservation location, where no bending of pipe between the treatment cabinet and the floor box will occurred during the upward and downward movement of dental chair, use 8\*5 1PU pipe of the accessories ( Blue one is Air-pipe, transparent one is water-pipe) to connect with water source and air source. Pay attention to airproof and put the white plastic drainage connector to drainage pipe and make proper connection. Be sure of firm and sealed connection.

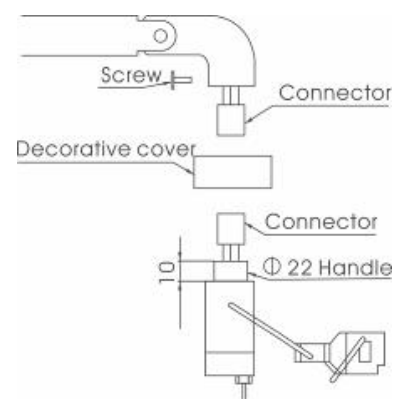


Figure 5

### 4. Installation of cold-light dental lamp

Connect the cable to the lamp arm through the lamppost and make proper connection. Then connect the cable connector on the lamp arm to the connector on the stand inside the treatment cabinet, put it into the stand, assemble the lamppost over the lamppost over the stand and put the lamp arm on specific position, Be sure not to damage the cable.

Pass the cable connector of lamp through the decorative cover and connect to the cable connector of lamp arm.

Caution: Follow the color indication for voltage. Wrong connection of cables is strictly forbidden. Put the lamp head into the lamp arm and use tools in the accessories to fix it with screw. Put decorative cover over the screw and connect it after completion( as shown in figure 5.)



Figure 6

## 5. Connection to power source

Make connection to power source as shown in the wiring figure.

Make proper grounding connection and protection. Use the power plug of accessories to connect to power source if there is no preset cable the ground.

# ● Commissioning and operation

## 1. High/ Low speed hand bur

Connect water, air and power supply. Open the general air switch on the side of the floor box and check the pressure gauge on the floor box. The value should be 0.5 ~ 0.55 MPa (factory setting). Adjust the filter relief valve if it is required to maintain the said value. Open the floor box, pull the handle on the top of the filter relief valve up for about 10mm as shown in figure 6, turn the handle clockwise to increase the pressure and anticlockwise to decrease the pressure.

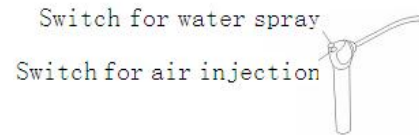
Take the hand bur from the holder, step the pedal switch and turn on the band bur for operation. Be noted that the pressure indicated on the pressure gauge of the instrument disc is the operating pressure of the hand bur, which should be no more than the rated maximum pressure of the hand bur to protect the hand bur against damage (High speed: 2.0-4.0bar, Low speed: 3.5-4.0bar), see upper left of the 7.0 TFT LCD. You can touch the LCD to

change the air pressure or water pressure.

### Figure 8 Controlled air-valve

## 2. Three-purpose spray gun

- a. The water pipe and air pipe for the three-purpose spray gun should be inserted into the instrument tray. The transparent pipe is used for water and the blue pipe is used for air;
- b. Steam will be sprayed from the gun if you press the switch for water spray or switch for air injection. Water, air and water mist will be sprayed from the gun if you press the switch for water spray and switch for air injection at the same time (see figure 9). For how much the water, air and water mist will be sprayed



### Figure 9

- from the gun, it depends on the strength you use when pressing;
- c. The spray pipe can be removed freely or replaced. It can also be rotated according to different angles.



## 3. Water suction and saliva ejector

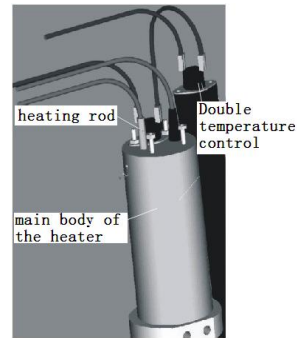
Saliva aspirator and powerful aspirator are provided with this equipment. Take the saliva aspirator from the holder to start operation immediately. Water connection is required for low aspiration to guarantee minimum operating pressure required.


## 4. Mouth rinsing water

Mouth rinsing water is provided with auto thermostatic and water flow setting functions. The built-in auto thermostatic heater supplies warm water. Press the heater switch on the control panel if warm water is required as shown in figure 7. Water flow is controlled by the built-in computer control board and is preset by user freely.

## 5. Water heater

Press “” key to turn on the heater and flash the indicator. The indicator will stop flashing and keep lighting on when warm water comes out. The indicator will start flashing again if heating is required due to the decrease of water temperature. Press “” key again if heating is not required to stop heating and light off the indicator. (As shown in figure 10)



 Before pressing the heating key to turn on the heater, you should first check the water supply system to see if it is in normal condition. The water heater should not be run without water!

## 6. Water bottle

Figure 10

For the equipment provided with water bottle, water required for hand bur and all other instruments on the instrument disc is directly supplied by the water bottle. It is necessary to fill distilled water for medical purpose to the water bottle timely. Way of filling: Turn off the air switch by the water bottle to exhaust the compressed air inside the bottle. Hold the distilled water bottle with both hands, rotate clockwise to take off the water bottle, fill in water and rotate anticlockwise to tighten the bottle (sealed). Turn on the air switch to complete filling of water. (As shown in figure 11)

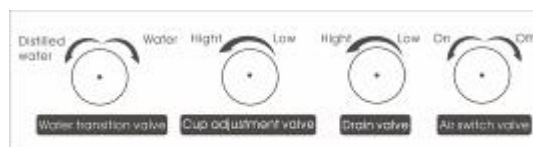


Figure 11

## 7. Headrest

The headrest may be adjusted to different positions by regulating the height and angle as shown in figure 12. The height of headrest can be adjusted by holding the pillow rack with both hands to slide it



Figure 12

upward to the desired height. The headrest can be adjusted forward or backward to the desired position. Release round screws on the headrest, move the headrest to the desired angle or/and position and then fix the screws.

**Note: Be sure to lock the headrest after regulation to prevent accident during**

.

## **8. Lift of dental chair**

The dental chair is provided with two control systems. The movement of dental chair may be controlled either by the control panel or by the pedal switch for the same functioning. Press the upward control key on the upper part of the dental chair symbol to lift up the seat of dental chair or turn the pedal switch upward to lift up the dental chair. The indicator on the control panel will light on at the same time. Release the control key to stop lifting and light off the indicator. For operation, continuously press the relevant control key and release until the required position is reached. If the dental chair lift up to the high limit, it will stop

lifting even the control key is pressed.

**Note:** As movable parts are provided with the dental chair and the treatment unit is connected to the movable parts of the dental chair, the treatment unit will move upward or downward with the dental chair. Therefore, it is necessary to ensure that no other articles will be contracted during the movement of the equipment to prevent against accident.

## 9. Dentistry chair and air compressor connect

Suggestion: The dentistry hospital or the polyclinic should first use: the maximum of atmospheric pressure 8MPa\ start barometric pressure 5.5 MPa of the air compressor connection with the dentistry chair. In the connection, Draws out the blue air flexible tube from the pressure relief valve of the dentistry chair, and connection with the air feed connector of the air compressor

(Note: This unit completely uses import seal packing collar, for guaranteed its service life, please must use the dental special-purpose non-oil air compressor)



**Figure 13**

## 10. baseboard switch

take-up combined set jam on baseboard、

combined set at a moment's notice employment (see figure 13).

## 11. Water source input:

The condition of fluid matter may be different in the headwaters of the different customers, the machine of the dentistry comprehensive treatment should input the edible

running water resources, the water pressure should be no smaller than 2 MPa, At the same time, to assure the usage time limit of the treatment machine's internal valve, it has to be add the water filter at outputting.

## 12. Filtering and cleaning cup

A filtering and cleaning cup is installed in the middle part of the tube for saliva aspirator in the dental unit. This cup will be washed by doctor or assistant everyday before going home.

## ●Maintenance

1. After adjust the pillow rack, ensure it is locked before it is used.
2. Regularly cleanse the water filter. Process refers to the wearable component change chapter.
3. Power supply is 230VAC
4. Put the handset in the 135 high temperature sanitized box for sterilization.
5. Cut the power supply before repair the wearable component and cleanse, maintain the treatment machine.
6. Should close the cold light, when it is not used.
7. Regularly check the pressure of the air storage tank of the air compressor and drain the water.
8. To ensure the neat and tidy of the treatment machine, cleanse the surface of the machine and chair with hospital use alcohol regularly is suggested.

## ●Common exception handling

Trouble	Method	Disposal
Work system not reaction	The power supply not open	Check up the power supply, open the switch
Water suction and saliva ejector not work	Electromagnetism valve was burnout, piping was built up	Instead the electromagnetism valve, cleanout the piping
Cold light not open	The bulb is broken	Change the lamp bulb
Water heater not heat up	No power supply output, heating stick broken	Change the heating stick

The H.P not work	Control valve not open, or the pressure is lower	Change the pressure to 0.6Mpa
X-film not open	Power not open, or the right was broken	Check the power, change the light
Ultrasonic not work	Adjust valve not open, electromagnetism valve not turn on	Open the adjust valve and the electromagnetism valve

## ● Replacement of wearing parts

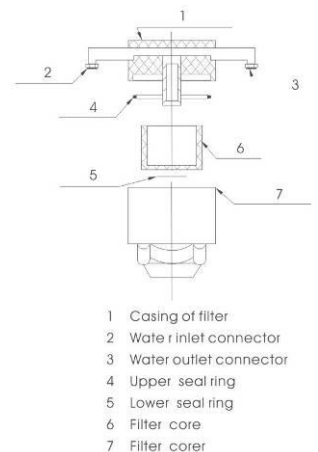
### 1. Fuse

The fuse is in the ground box, the exchange process is as follows: Cut the power supply at first, than screw the fuse seat counter clockwise, and take the fuse, replace a new one and screw down clockwise.

### 2. Water filter

figure14

To ensure the proper use of the treatment machine, a water filter is set in the water entry in the ground box to filter the impurity of the water (as shown in figure14) . After a long time use, the impurity may block the filter core and influence the current and pressure. To cleanse it or change the core is a must.



(1). Under the following situation, please cleanse it or change the core:

- ① Use if for and above half-year.
- ② Pressure losing in the filter core at 0.1 MPa.
- ③ Filter water is contaminative
- ④ Exceed water is turbidity.

(2). Cleanse or change filter core process:

- ① Cut the power and water supply.
- ② Open the ground box, counter-clockwise screw open the component under the filter.
- ③ Screw open the bolt in the middle of the filter, then put out the core and cleanse or

change.

④ After that, install it back.

**Attention: During installation, do not overexert in crash the core. When put up the filter cover, ensure to water tight.**

### 3. Air filter decompress valve

To ensure the input pressure is stable, clean and dry, an air filter decompress valve is installed in the air entry of the ground box. It can stable the air pressure, limit it under the setting value and filter the impurity and water in the air. The water be filtered will be collected and settled in the filter cup. After a certain time, the water should be let out in case to influence the filter.

(1). Under the following situation, please drain the air filter decompress valve:

- ① Use it for and above one week.
- ② The water is occupied of the cup.
- ③ The color of the water in the cup is change (not transparent).

(2). The drainage process of the air filter decompress valve is:

- ① Cut the power supply.
- ② Open the ground box, use the finger or some tools to up press the filter decompress bottom drainage valve, the water will be let out. Then release.
- ③ To keep the ambient clean and tidy, put something such as: cloth, tissue, spoon, in the water gap to absorb the water.

### 4. Rack switch

Rack switch is installed in the rack and fast by screw. The distant of the connect point can be adjusted. Under normal situation, handset, gentle spit sucker and strong spit sucker is plug in the rack then push the button. It will cut the electromagnetic valve power and valve

turn off then cut the water and air supply. If handset and spit suckers are plug in the air and water supply is not cut, and appear the water and air leakage, the button connect point of the rack should be pried outward to check whether it can block the valve and cut the water and air supply. If it doesn't work, the rack need to be taken apart and check whether the switch is damage.

#### 5. Holder valve

The holder is fixed nearby the handle of instrument disc and the treatment unit. Put the body of holder valve into the holder and fix by screws. Adjust the distance between the valve core and the probe. Under normal condition, place hand bur or saliva aspirator or powerful aspirator on the holder, press the probe to move the valve core leftward. Use 4×1.2 rubber O-ring to seal the outlet of airway. In case of failure of air block after putting the hand bur on the holder or air leakage after putting the saliva aspirator and hand bur on the holder, loose setscrew to move the holder valve rightward and check if the valve gate is locked and the air is blocked. If it does not work out, disassemble the holder valve and check if the O-ring is damaged.

## 10.CONNECTION

