

**BZ638 COMPUTER CONTROLLED  
INTEGRAL DENTAL UNIT  
MANUAL**

Please read the manual carefully before operation

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ATTENTION:READ THIS MANUAL CAREFULLY BEFORE OPERATION

## **1. PREFACE**

Thank you for purchasing our Integral Dental Units, a latest advanced Integral Dental Units with full-computerized auto-control; it has such advantages as solid structure, handsome shape, easy operation and high reliability as an ideal upgraded product for the modern dental clinics.

## **2. PRODUCT PROFILE**

### **2.1 UNIT STRACTIONS**

#### **2.1.1**

The rotatable glass cuspidor cooperates with the movable side box to facilitate the use and maintenance.

#### **2.1.2**

The unique injection molding instrument tray makes the overall shape beautiful and generous, and is convenient for doctors to operate while ensuring beautiful appearance. The intelligent LED screen can display and store the dentist's setting status and content, and display the instrument using status like speed, power, air pressure, etc.

#### **2.1.3**

The speed of the handpiece can be adjusted arbitrarily within the range of maximum speed. The operation light can be adjusted from strong to weak; the suction system has an automatic delay function, and can filter solid matter without affecting the suction force. It makes dentist operate more convenient, safety and hygienic.

#### **2.1.4**

Cup filling and flushing time can be setting, easy to operate. And there are the water heating function, X-ray film viewer, and chair interlock system function. It makes dentist safety.

#### **2.1.5**

The chair adopts high-power imported 24V DC motor with low noise, smooth movement and comfortable sitting; the chair can be rotated by 30° and the synchronized chair. The dental chair armrest can be turned down to make patient feels more comfortable when they sit and get off.

#### **2.1.6**

The whole machine adopts safe extra low voltage and full computer control. The control panel is reasonable in setting, simple in operation, reliable in performance, easy to clean and sterilizable.

## **3. PERFORMANCE FEATURE**

### **3.1 Classification**

3.1.1 According to the type of electric shock prevention: CLASS I

3.1.2 According to the degree of protection against electric shock: Model B equipment, its symbol is



3.1.3 According to the degree of protection against harmful liquids: ordinary equipment

3.1.4 According to the work system: the dental chair is intermittently operated, the duty ratio is 10%, that is, the work is 2 minutes and rest for 18 minutes. The dental chair should not run continuously for more than 2 minutes.

### **3.2 Weight: 260kg**

### **3.3 Material: steel frame, injection molded casing, glass cuspidor**

### **3.4 working conditions**

3.4.1 Environmental conditions

3.4.1.1 Ambient temperature range:  $+10^{\circ}\text{C} \sim +40^{\circ}\text{C}$

3.4.1.2 Relative humidity range: 30%~75%

3.4.1.3 Atmospheric pressure range: 700hPa~1060hPa

3.4.2 Power supply: 220V~50Hz

3.4.3 Water source: water pressure 0.2MPa~0.4MPa, recommended water hardness  $\leq 60\text{mg/l}$

3.4.4 Air source: air pressure 0.55MPa (sub-box pressure)

The external air source pressure is 0.6MPa~0.8MPa, and it does not contain water or oil.

3.4.5 Power: 500VA (including dental chair)

### **3.5 Transportation and storage conditions**

3.5.1 Ambient temperature range:  $-40^{\circ}\text{C} \sim +55^{\circ}\text{C}$

3.5.2 Relative humidity range:  $\leq 80\%$

3.5.3 Atmospheric pressure range: 500hPa~1060hPa

3.5.4 Pay attention to transportation and storage: “upward” and “keep dry”

### **3.6 main technical indicators**

3.6.1 Ground leakage current of the whole machine:  $\leq 0.5\text{mA}$

3.6.2 Insulation resistance:  $\geq 2\text{M}\Omega$

3.6.3 fuse type and rating:

F1、F2: 250V AC

F8AH (  $\phi 5 \times 20$  )

|       |               |                                        |
|-------|---------------|----------------------------------------|
| F3:   | 250V AC       | T5AH ( $\phi$ 5x20 )                   |
| F 4 : | 2 5 0 V   A C | T 8 A H ( $\phi$ 6 . 3 5 x 3 1 . 7 5 ) |
| F5:   | 250V AC       | T10AH ( $\phi$ 6.35x31.75 )            |
| F6:   | 250V AC       | T2AH ( $\phi$ 5x20 )                   |

3.6.4 Operation light: AC12V~24V 23VA Illuminance: up to 39000Lux stepless dimming

3.6.5 Constant temperature water heater: AC24V 80W Water temperature: 40 °C  $\pm$  5 °C

3.6.6 dental chair lifting capacity: 2000N

3.6.7 dental chair lifting range: 530mm ~ 920mm

3.6.8 Backrest and horizontal plane pitch angle: 1 ° ~ 70 °

3.6.9 seat horizontal rotation angle: 30°

3.6.10 headrest telescopic adjustment amount: 150mm

### 3.7 Instrument Control Method: Foot Switch

### 3.8 strong suction device (strong suction): gas negative pressure type

3.8.1 When the air pressure is 400kPa, the vacuum can reach 30kPa.

3.8.2 When the air pressure is 400kPa, the pumping rate should be no less than 1/min.

### 3.9 suction device (weak suction): water negative pressure

3.9.1 When the air pressure is 400kPa, the vacuum can reach 30kPa.

3.9.2 When the air pressure is 400kPa, the pumping rate should be no less than 1/min.

### 3.10 device load

3.10.1 The maximum weight of the dental chair is 135kg.

3.10.2 The operation tray must never exceed the maximum negative weight described below.

3.10.3 The delivery tray can be loaded with a maximum weight of 1.5 kg (evenly distributed).

3.10.4 The tray on the assistant's board can load up to 1kg (evenly distributed).

3.11 Product use period: The product production date is listed on the label, and the service life is 5 years.

## 4. BZ638 DENTAL CHAIR

### 4.1 Structure introduction

4.1.1 The treatment machine is a floor-standing structure of the side box. For instructions on the use of the dental chair, see the instructions for use of the dental

chair (Figure 1). Located on the assistant panel and the control panel of the operation tray, the buttons (Figures 2 and 3) control the corresponding actions of the dental chair.

4.1.2 The power source, air source and water source of the access device (including the dental chair) are supplied through the built-in sub-case of the front cover of the dental chair.

4.1.3 Mouthwash and flushing water are controlled by solenoid valve; constant temperature mouthwash heater adopts 24V voltage, which is safe and reliable. Its switch is set on the main control panel. It is easy to operate and can provide hot water sputum and assistant frame at any time. Three guns spray hot water, hot fog function.

4.1.4 There is a main switch on the back of the dental chair to control the power, air source and water source entering the equipment; the handle of the instrument is controlled by induction (the palm of the hand naturally grips the middle of the handle) to lock the arm of the instrument to make the instrument tray at the required height.

4.1.5 The foot switch and the control switch in the handpiece holder control the work of the high and low speed handpiece and the scaler.

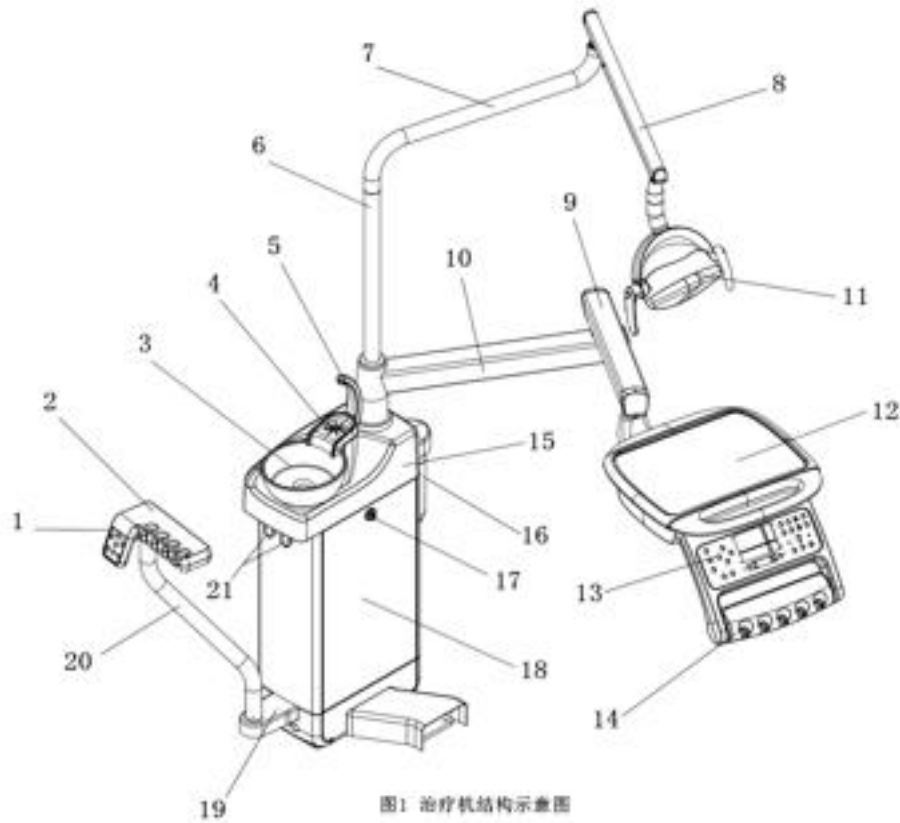
4.1.6 The buttons on the assistant panel and the buttons on the instrument tray (see Figures 2 and 3) can control the corresponding actions of the treatment machine and the dental chair. Strong and weak suction are jointly controlled by the solenoid valve in the side box and the switch components in the assistant panel.

4.1.7 The main box is hung with a pure water storage bottle. The pure water is convenient for the user to use pure water for the handpiece to work and lengthen the life of handpiece. The assembly and disassembly method is safe and convenient, meeting the needs of the modern dental industry. Switching between tap water and pure water is simple.

4.1.8 The assistant control panel can be rotated, has safety protection function, and has a control panel for controlling cuspidor flush, mouthwash and oral light, which is convenient for assistant operation.

4.1.9 The stepless dimming of the oral lamp can adjust the intensity of the light when close to the sensor head. Dimming method: keep the hand close to the sensor head 5CM-8CM of the LED oral lamp in the state of lighting, and automatically enter the dimming state. When the buzzer is heard for the first time, the buzzer sounds the highest brightness. Once again, the buzzer sounds "beep" for the lowest brightness. In the dimming process, it is considered that the brightness is suitable for the hand to leave the sensor head.

4.1.10 The tap water pipeline adopts the filtering system: the flushing water, the mouthwash, the assistant control, the 3 way syringe, the handpiece and the instrument tray can all use the filtered tap water, and the handpiece and the instrument tray can also be used. The pure water storage bottle hanging outside the box can make the water more clean and improve the service life of the handpiece.



1. Assistant control    2. Assistant holder    3. Cuspidor    4. Cup holder  
 5. Cup filling    6. Column    7. Light arm-1    8. Light arm-2  
 9. Balance arm    10. Rotating arm    11. Operation light    12. Operation tray  
 13. Main control panel    14. Handpiece holder    15. Side box  
 16. Pure water bottle    17. Side box door switch    18. Side box door  
 19. Side box base    20. Assistan holder  
 21. Saliva ejector with high and low suction

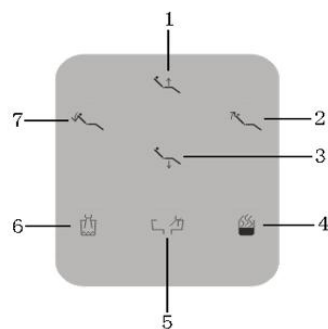


Fig.2 Assistant control panel

- 1.Lift up 2.Backrest backward 3.Down 4.Heating
- 5.Cuspidor flushing 6.Water supply 7.Backrest forward

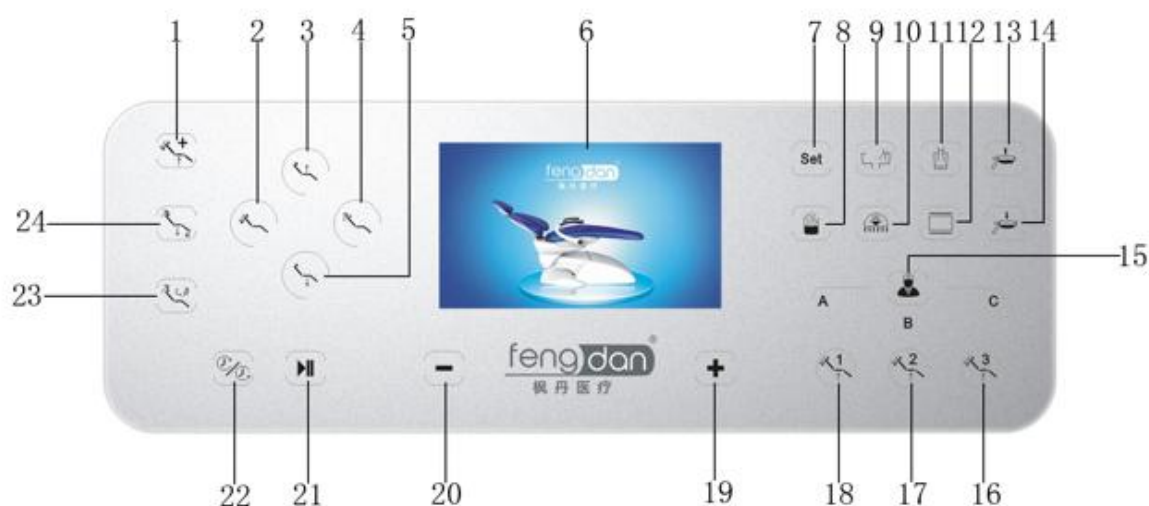


Fig.3 Main control panel

- 1.Emergency position 2.Backrest forward 3.Lift up 4.Backrest backward
- 5.Down 6.LCD Screen 7.Set button 8.Heating 9.Cuspidor flushing
- 10.Operating light button 11.Water supply 12.X-ray film viewer
- 13.Movable tray up 14.Movable tray down
- 15.Three doctors memory selected 16.Doctor-3 17.Doctor-2 18.Doctor-1
- 19.option button “+” 20.Option button “-” 21.Start/Enter button
- 22.Timing/air pressure

8

**Fig.4**

**Fig.5**

## **4.2 Installation instruction**

4.2.1 Remove the wooden box and install the machine in the appropriate position according to the instruction manual of the dental chair. For the relevant dimensions, see the dental treatment machine and the matching dental chair dimension figure. (See Figure 4, Figure 5)

4.2.2 Before the installation, the location of the gas supply, water supply pipe, exhaust pipe and power socket must be reserved. Connect the air supply, the upper water joint and the water supply joint of the treatment machine spare parts package (water supply and upper air pipe are 1/2"), and the other end and the blue and white water drawn from the spiral hose ,The trachea is connected and there is no leakage of any form at the joint.

4.2.3 Connect the sewer pipe from the spiral hose to the drain connector, and insert the outlet of the drain connector into the drain pipe of the trench (the sewer pipe is 1/2"). After the installation, open the upper water and upper gas valves in built-in auxiliary box, (the valve is in the open position when leaving the factory), and the relevant dimensions are shown in the vertical plane of the trench.

4.2.4 Cuspidor installation: Take out the cuspidor base and the water supply pipe from the accessory box and assemble them in a proper way. Disassemble the cuspidor package,

install the cuspidor directly on the cuspidor base, and take out the cuspidor filter accessories and install them properly.

4.2.5 Installation of light arm and oral light: Insert the light post (including decoration ring and set screw) into the special hole of the instrument arm. The wire inside the light arm is connected to the box through the light post, put the light arm and the oral light (including decoration) on the light post.

4.2.6 X-Ray film viewer (optional): Install the X-Ray film viewer bracket on the instrument tray, and then use the screw to connect the viewer to the bracket reliably.

4.2.7 Installation of various instruments on the instrument tray and assistant control holder.

4.2.8 Installation of strong and weak suction pipes.

4.2.9 Installation of 3-way syringe.

4.2.10 Refer to the handpiece instructions and install the handpiece section.

4.2.11 Turn on the power supply, water source and air source for debugging. The gauge pressure of the sub-tank should be stable at 0.55 MPa.

Note: A hospital or individual clinic using this device must be equipped with or connected to an amalgam separation unit in the dental waste discharge system.

## **4.3Instructions**

Turn on the power, air, and water sources of the device, and open the main switch on the back of the frame (front opening and behind closing), and the dental chair is in use. Adjust the dental chair to the appropriate position according to the instructions for use of the dental chair, turn the dental light bracket, turn or lift the light to keep the light in the right position.

4.3.1 Display screen and setting instructions



Figures 7 Control panel



Control panel and display main screen, setting screen as shown

Figures 8 Display screen

Figures 9 Setting screen

#### 4.3.2 Main control panel function description

There are two ways to display the control panel. The white icon indicates that the running status is not currently activated. The blue indicates the current active running status. The display mode of the display is similar. The blue icon indicates that the running status is not currently activated, and the orange indicates the current operating status.

1. “” Lift up button

Pressed this button, the unit will lift upward as the icon shows. The icon turns into blue. It will stop lifting up when you leave your hand. The icon turns into white. If you keep pressing this button, the unit will also stop once it reach the limited highest position.

2. “” Down button

Pressed this button, the unit will move downward as the icon shows. The icon turns into blue. It will stop moving down when you leave your hand, and the icon turns into white. If you keep pressing this button, the unit will also stop once it reach the limited lowest position.

3. “” Backrest forward button

Pressed this button, the backrest will move forward as the icon shows. The icon turns into blue. It will stop forward when you leave your hand, and the icon turns into white. If you keep pressing this button, the backrest will also stop once it reach the limited front position.

4. “” Backrest backward button

Pressed this button, the backrest will move backward as the icon shows. The icon turns into blue. It will stop backward when you leave your hand. The icon turns into white. If you keep pressing this button, the backrest will also stop once it reach the limited back position.



Figure 10 Direction function rendering

5. “” Water supply button

Pressed this button, water supply starts. The icon turns into blue. Water supply stop automatically when setting time runs out. The icon turns into white. Water will stop supply once you press this button during it works.

Water supply time setting: Keep pressing “Set” SET button four to five seconds. Then leave your hand when the indicating light of SET button turns into blue. Press “+”、“-” button to select the next step and the previous step. Press “供水时间设置” water supplying setting button then press “▶▶” on/off button, then will start to set time, press “▶▶” on/off button. The time on the screen will continue to increase (the maximum time value is 34 seconds), and the water supply button on the control panel will be blue, until there is the lasting time you need, and leave your hand to finish the setting. Press “+” is going on next step “ ”, press return button, finally press “ ” SET button back to home page.

As shown in Figure  ing the interface for the water supply 



Figure 11

## 6. “” Cuspidor flush button

Pressed this button, cuspidor flush starts. The icon turns into blue. The icon on the screen “” is orange. When setting time automatically runs out, it stops. The icon turns into white. Cuspidor flush will stop once you press this button during it works.

Cuspidor flush time setting: Keep pressing “Set” four to five seconds. Press “+”、“-” button to select the next step and the previous step. Press “冲眼时间设置” Cuspidor rinsing setting button then press “▶▶” on/off button, then will start to set time, press “▶▶” on/off button. Then leave your hand when the indicating light of SET button turns into blue. There are four time modes. Press “ ” cuspidor flushing button in order, time modes setting are as below:

Press “” for 30 seconds cuspidor flushing, and indicative tone sounds once;

Press “” again for 1 minute flushing, and indicative tone sounds twice;

Press “” again for 2 minutes, and indicative tone sounds three times;

Press “” again, it will be normally opened status, and indicative tone sounds four times.

## 7. “” Heating button

Pressed this button, heating starts. The icon turns into blue. The icon on the screen “” is orange. When water temperature automatically reaches the setting one, it stops. The icon turns into white. Heating will stop once you press this button during it works.

## 8. “” X ray viewer button

Pressed this button, x ray film viewer turns on. The icon turns into blue. The icon on the screen “” is orange. Press it again, it turns off. The icon turns into white.

#### 9. “” Operating light button

Pressed this button, operating light turns on. The icon turns into blue. The icon on the screen “” is orange. Press it again, it turns off. The icon turns into white.

#### 10. “” Emergency position

Press this button, dental chair will reach its highest position and the backrest will reach its most backward position. This action can be stopped by pressing any direction button.

#### 11. “” Zero position

Pressed this button before or after treatment, dental chair run immediately to the initial state; Operating light and x ray film viewer will turn on/off automatically; Seats dropped to the lowest position; Backrest forward to the very front position, which is convenient for patients. This action can be stop by pressing any direction button.

#### 12. “” Spitting positions

Pressed this button during working, backrest forward; bowl rinsing starts and light turns off at the same time. Icon for spiting position button and cuspidor flushing turn blue. The icon on the screen “” “” is orange. Pressed again, the chair returns to working status before; backrest backward; bowl rinsing stops and light turns on when backrest is back still; The icon for light turns blue. This action can be stop by pressing any direction button.

#### 13. “” Three doctors memory selected: “A” 、 “ B” 、 “ C”

Pressed this button after memory position setting, doctors can select the chair position among A,B,C. The corresponding indicate light will be blue on during choosing.

#### 14. “” 、 “” 、 “” Chair position memory 1 , 2 and 3

Pressed this button for different chair position. The corresponding indicate “” 、 “” 、 “” 、 “”

#### 15. “” Timing and air pressure switching button

Timing mode: Pressed this button, display indicator “” displays 00:00, and icon for positive timing and “S” will be blue on. Pressed “” on/off button for starting; Pressed “” again, positive timing stop; Pressed “” again for resetting the time, and the display indicator “” displays 00:00. The maximum is 59:59. Before setting the countdown, doctors need to stop the present timing.

Countdown: Pressed this button to enter countdown setting mode. display indicator “” displays the ready setting time, and icon for positive timing and “S” will be blue on. The minimum is 00:00.

Countdown setting as below:

Stop the present time with pressing “” on/off button; Start setting. Keep pressing “” , leave your hand when second icon flickers; Set the time by pressing “+” or “-” until there is the time you need. Then pressed “” for next time blank setting and cyclical switching. Pressed “” for finishing the setting.

When the countdown runs out to 00:00, the indicative tone keeps sounding. Stop the sound by pressing one of these icon; “+” , “-” , “” or “” .

Air pressure mode: Pressed this button, display indicator “**8888**” displays 00:00, and icon of “Mpa” will be blue on. The display indicator number will change as air pressure strength. display indicator “**8888**” displays 00:00 if there no air pressure.

As shown in Figures 13 and 14, set the interface for positive/countdown

As shown in Figure 15, this is the working interface for handpeice.



Figures 13



Figures 14



Figures 15

16. “” ON/OFF button

This button works only in timing mode. In positive timing, it works as on/off and resetting function; In countdown mode, it works as on/off, resetting, returning and works as timing setting entered by keeping pressing;

17. “+”、“-”

This button works only in countdown mode; it works as increasing/decreasing function when normal pressing; keep pressing will be more rapidly increasing/decreasing.

## 18. “” SET button

### ①. Water supplying setting

Press and hold the “” setting button, and when the display switches to the setting interface, you can release your hand.

Press the “+” and “-” buttons to select the function. Select “” water supply time setting and press “” to on/off the button to enter the water supply time setting interface; just press and hold the “” on/off button, the display The number of seconds will increase.

When it is added to the required time, press the “+” button to select “” and then press “” to on/off the button to confirm. You can exit the water supply time setting interface and return to the previous menu. When setting the water supply time, refer to the water required by the container, release the water supply button, and stop the water supply.

Press the “Settings” button again, the indicator will be off, the setting is completed, and the display will return to the main interface. The computer has made a new memory. When you use it in the future, just press the water button and it will automatically give the water in the container. (If the water pressure suddenly changes greatly or the size of the container is changed, please adjust the water supply according to the above steps.)

This setting can be saved after power off.

### ②. Time setting for bowl rinsing

Pressed “” SET button, leave your hand when the indicative light keeps blue on. Click “+” and “-” buttons, pressed “”, Press the “” on/off button to enter the flush time setting interface. There are four setting modes as below:

Press “” for 30 seconds cuspidor flushing, Press the “” on/off button and indicative tone sounds once;

Press “” again for 1 minute flushing, Press the “” on/off button and indicative tone sounds twice;

Press “” again for 2 minutes, Press the “” on/off button and indicative tone sounds three times;

Press “” again, it will be normally opened status, Press the “” on/off button and indicative tone sounds four times.

After the setting is completed, press the “+” and “-” buttons to select “” to return, press “” to on/off the button to confirm and return to the setting interface. To exit the setting mode, press the “” setting button or press the “+” or “-” button to select “” to return and press the “” to start/pause button. The setting indicator is off and the display returns to the main interface, indicating that the punching time has been saved.

### ③. Chair position memory setting

A+ (1、2、3) Chair position memory for doctor A

B+ (1、2、3) Chair position memory for doctor B

C+ (1、2、3) Chair position memory for doctor C

Press and hold the “” setting button, and when the display switches to the setting interface, you can release your hand.

Tap the “+” and “-” buttons to select the function. After selecting “” memory position setting, press “” to on/off the button to enter the memory position setting interface. At this time, press “”, “”, “”, “” adjust the height of the electric chair. Example: Press the “” on/off button to switch the doctor position. The “” of the display is displayed as doctor A. Then press the “+” and “-” buttons to select the “” memory position. The icon on the display will flash. Press and hold the up “” and “” down buttons to adjust and press “” to on/off the button. The icon on the display is statically displayed, indicating that it is currently set. Other memory positions and so on, after setting, you can tap the “” setting button or press “+” or “-” button to select “” to return and press “” to on/off button to exit.

This setting can be saved after power off.

As shown in Figure 16, setting the interface for the  position



Figures 16 memory position setting interface

④.Manual setting for the highest and lowest chair position

Press and hold the “” setting button, and when the display switches to the setting interface, you can release your hand.

Tap the “+” and “-” buttons to select the function. After selecting “” language setting, press “” to on/off the button to enter the highest and lowest chair position setting interface, set the indicator to flash, and the buzzer will sound slowly and enter the setting. status. At this time, you can press the “” button to adjust the highest position of the electric chair. Press “+” and “-” to select “”, then press “” to on/off the button to confirm. Other highest and lowest chair position setting methods are the same as above.

This setting can be saved after power off.

As shown in Figure 17, the interface for the highest and lowest chair position setting



Figure 17 highest and lowest chair position setting Interface

### ⑤、Language setting

Press and hold the “Set” setting button, and when the display switches to the setting interface, you can release your hand.

Tap the “+” and “-” buttons to select the function. After selecting “语言设置 LANGUAGE” language setting, press “▶▶” to start/pause the button to enter the language setting interface. There are two languages: “中文” Chinese and “English” English.

As shown in Figure 18, the language setting interface



Figures 18 language setting interface

### ⑤. Factory reset

Press and hold the “Set” setting button, and when the display switches to the setting interface, you can release your hand.

Tap the “+” and “-” buttons to select the function. Select “恢复出厂设置” to restore the factory settings, press “▶▶” to on/off the button to enter the factory reset interface, select “恢复出厂设置” press “▶▶” to start/pause the button, beep After the long sounding, the electric dental chair starts to move by itself. The electric dental chair finds the highest seat on its own, the front of the backrest and the seat is the lowest. After the last position of the backrest, the buzzer will automatically find the double high and low low positions.

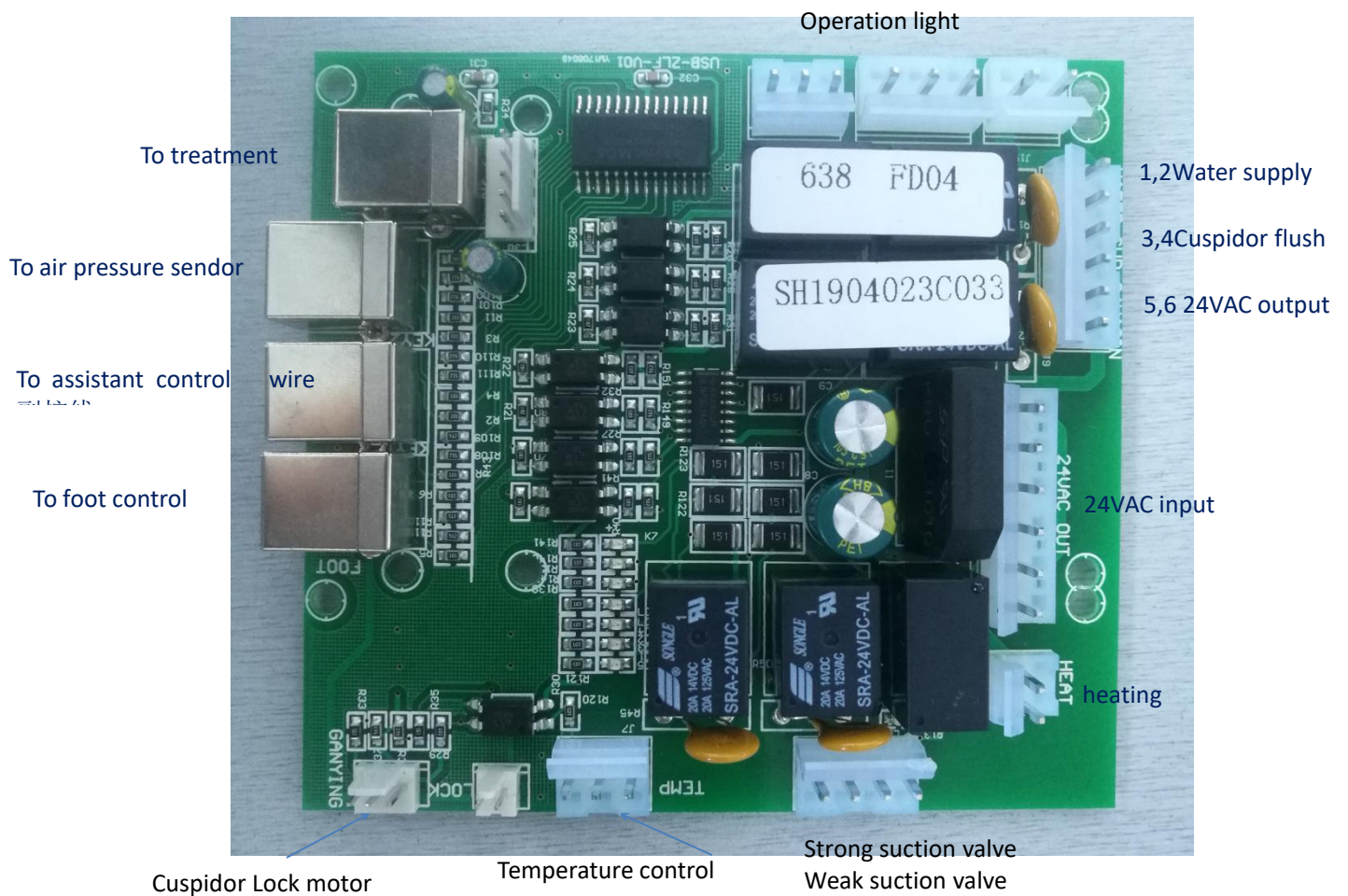
This setting can be saved after power off.

As shown in Figure 19, Factory reset interface

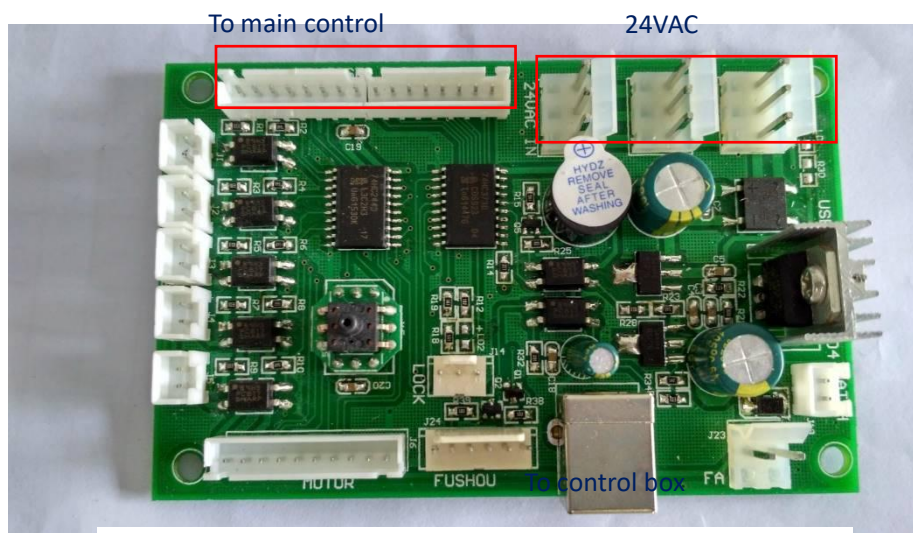
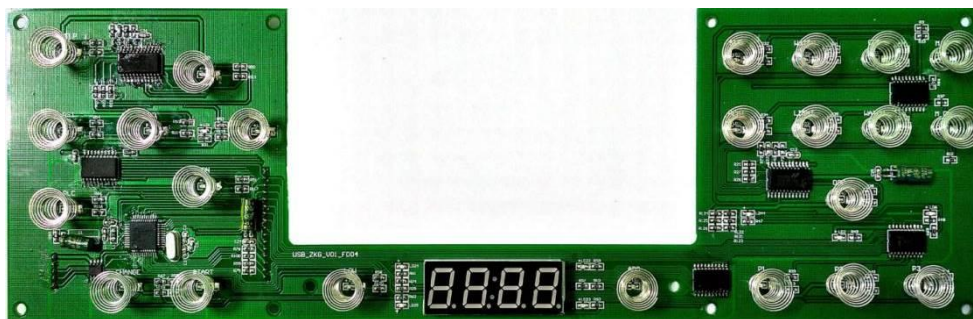
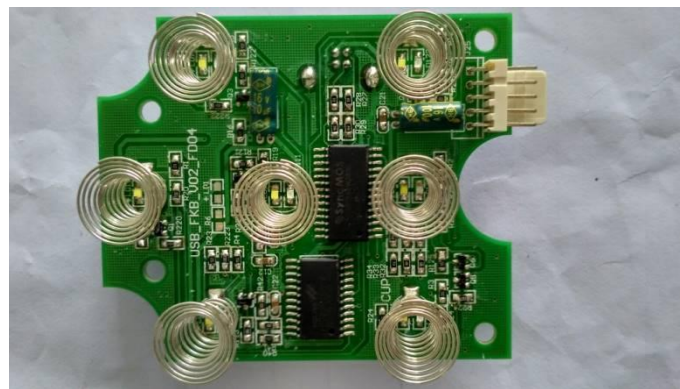
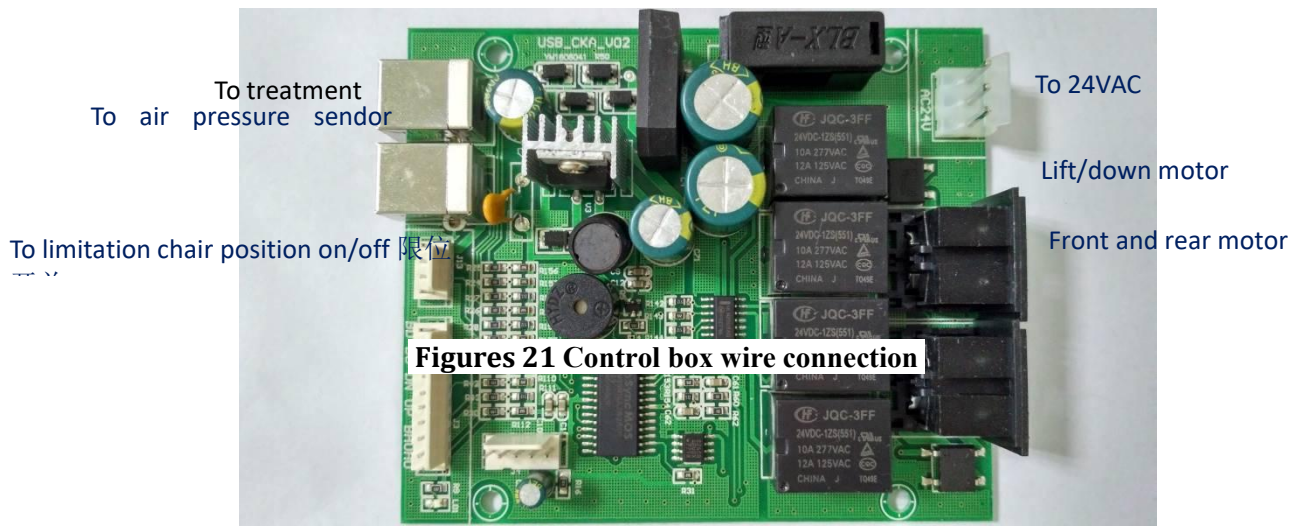


Figures 19 Factory reset interface

## II. ELECTRIC CHART



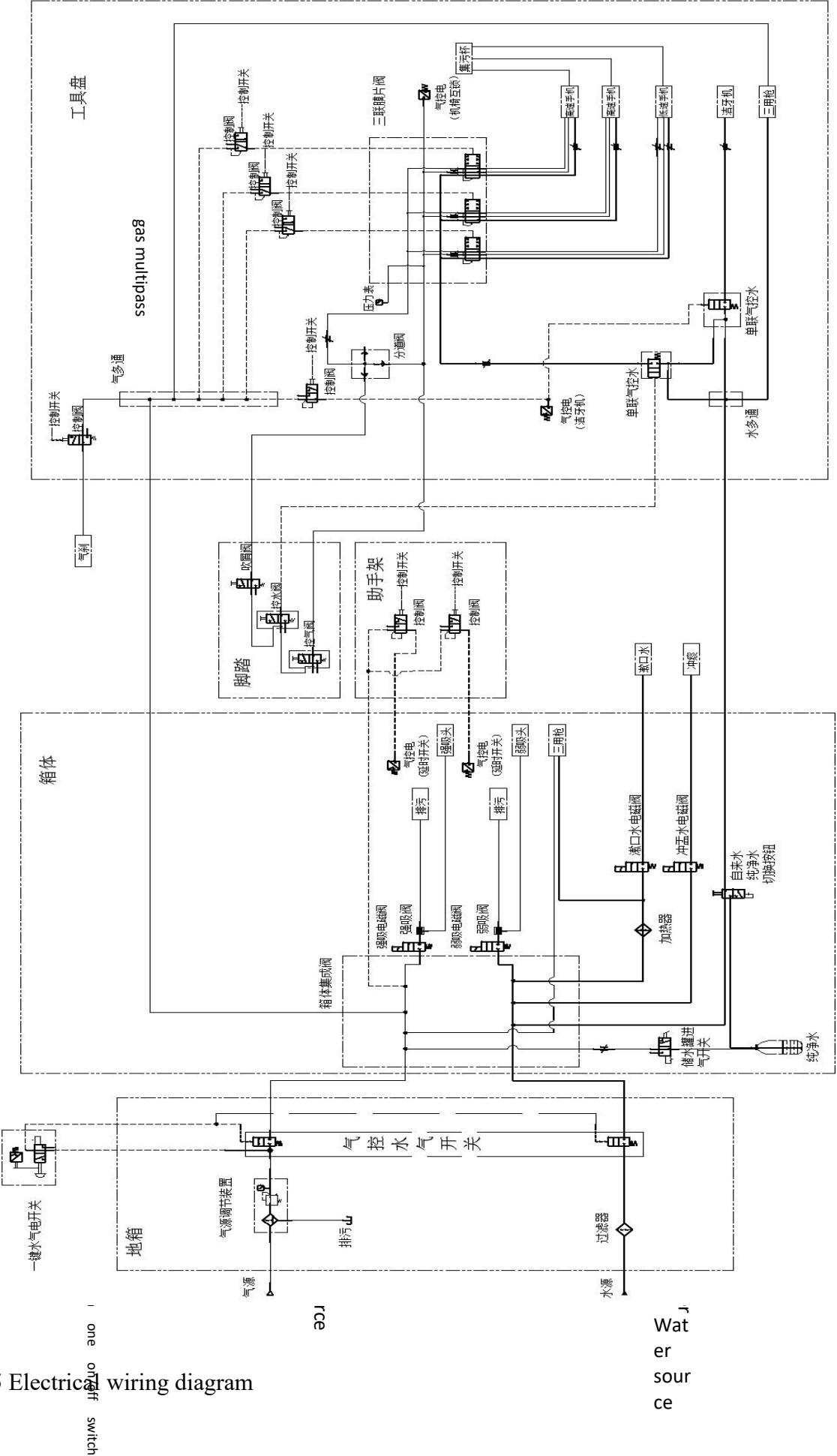
Figures 20 Circuit board



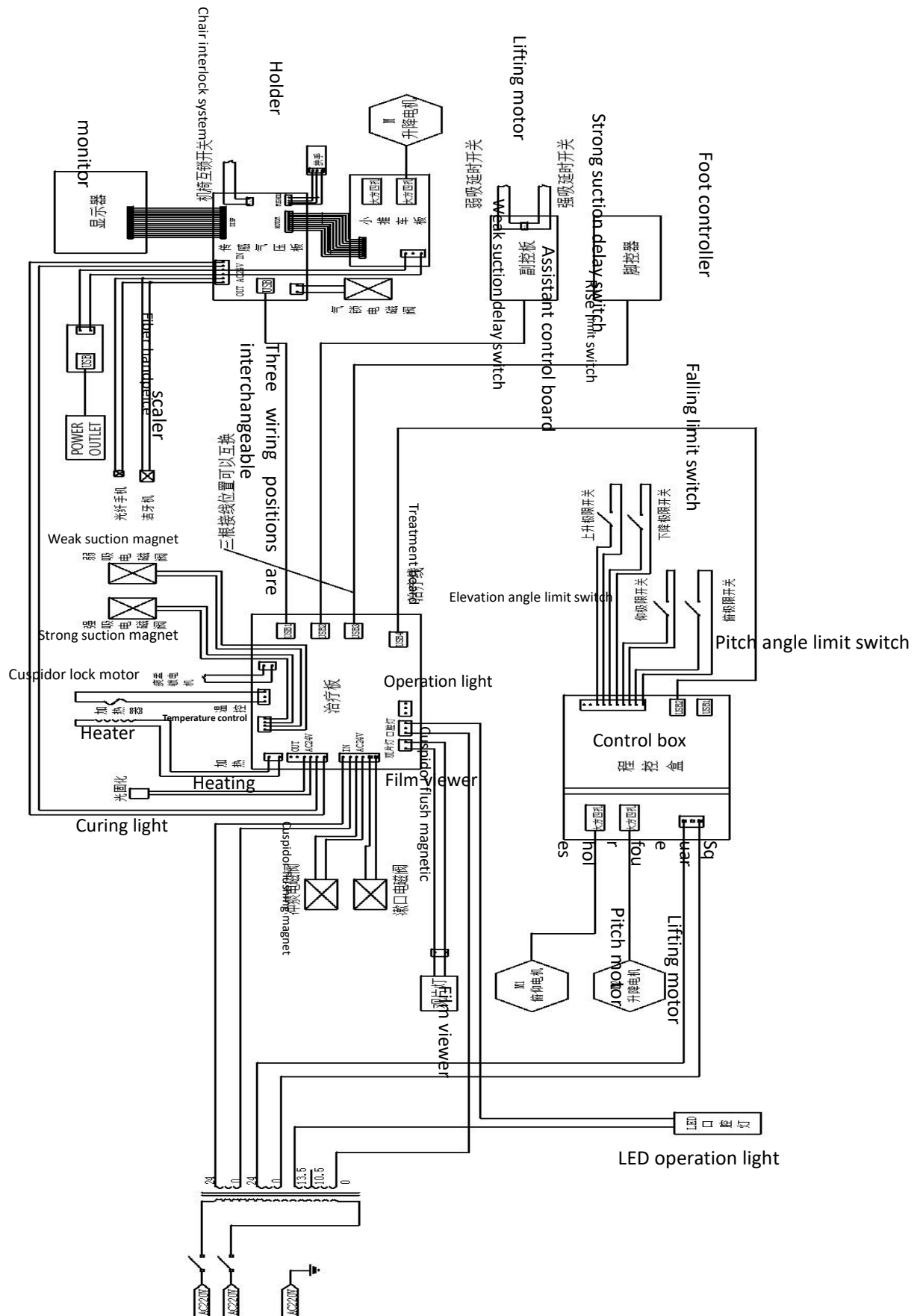
#### 4.3.4 Water-gas schematic diagram

Figures 24 Water-gas schematic diagram

4.3.5 Electric wiring diagram



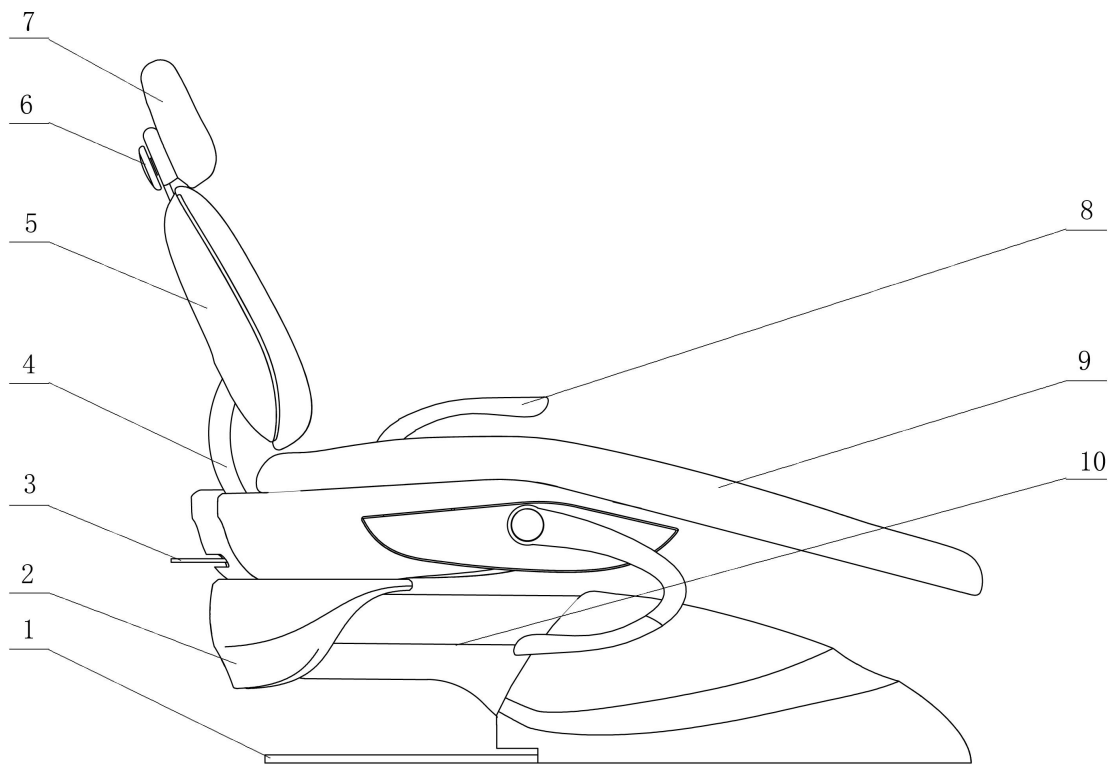
Pure water



Figures 25 Circuit schematic

## 5. DENTAL UNIT

## 5.1 UNIT STRUCTURE



- |         |             |           |         |
|---------|-------------|-----------|---------|
| 1. 底板   | 2. 中座架罩壳    | 3. 椅座锁紧手柄 | 4. 俯仰装置 |
| 5. 靠背   | 6. 头枕角度调节手柄 | 7. 头枕     | 8. 扶手   |
| 9. 座垫护罩 | 10. 升降装置    |           |         |

- |                  |                                     |                      |                    |
|------------------|-------------------------------------|----------------------|--------------------|
| 1. Chair base    | 2. Chair frame cover                | 3. chair lock handle | 4. Backrest device |
| 5. Backrest      | 6. Headrest angle adjustment handle | 7. Headrest          | 8. Armrest         |
| 9. Cushion cover | 10. Lifting device                  |                      |                    |

## 5.2 INSTALLATION

5.2.1 Unpack the box, take out the spare parts, and remove the 4 fixing bolts and the fixed angle iron bracket from the bottom of the box.

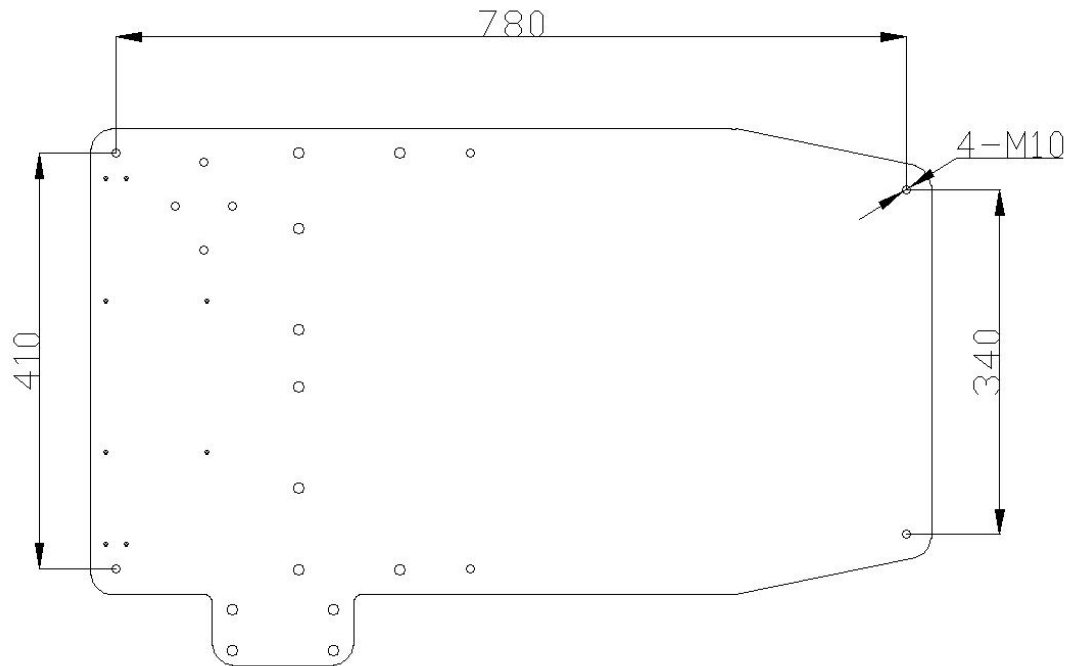
Note: Power cannot be turned on before the fixed angle iron bracket is removed.

5.2.2 Install the moveable handle in the position 1, 2, 3, and 4 holes of dental unit bottom plate to move the device to the installation position and then remove the moveable handle.( Moveable handle is equipped by installer).

Please note: Lift the chair body is forbidden when moving the dental unit, to avoid damaging the dental chair parts

5.2.3 Install Leveling screws in the position 1, 2, 3 and 4 holes of the chair bottom plate and balance board M12 hole. Adjust the screws to make the dental chair in a horizontal and stable position, then put back the chair frame cover.

Note: Do not make the chair barycentre deviate from balanced position to avoid the device dumping.



#### 5.2.4 Cover installation

#### 5.2.5 Turn on the power to test device (Pneumatic switch control the live wire)

Note: If the pneumatic switch module fails to connect the air source when the device is tested, it could be artificially closed by using the insulation; If the pneumatic switch module connects the air source, the pneumatic switch will be controlled and closed by air source instead of manual.

Note: The power supply must have a reliable ground wire.

### 5.3 Instructions for use

#### 5.3.1 Foot control operation:

There are 4 symbols on the cover of foot paddle, which respectively show 4 different chair movement directions.

1. Up and down movement : Move forward the foot control, the chair will ascend; move backward the foot control, the chair will descend.

2. **Backrest movement:** Move the foot control to the left, the backrest will be down; Move the foot control to the right, the backrest will be up.

Note: The foot control protection level is IPX4.

5.3.2 Main control board operation ( Please see Picture 3, equipped on the delivery tray) and assistant control board operation ( Please see Picture 2, equipped on assistant control tray).

1. **Ascending of the dental chair:** Press key NO.3, the chair will ascend; press key NO.5, the chair will descend; release the keys the chair movement will stop going up or down. If keep press key NO.3 or key NO.5, the chair will keep ascending to top and stop moving or descending to the limited position and stop moving.

2. **Backrest movement:** Press key NO.4 and NO.2 to control the backrest movement forward or backward.

3. **Chair position memory function:** Dentists can make 3 different memory position according to their different habit. No matter what position the chair is in, when press key NO.18, the chair will move to preset position 1. When press key NO.17 or NO.16, the chair will move to the preset position 2 or 3.

4. **Zero position function:** press key NO.24, the chair will move back the zero position no matter what the chair position is in.

5. **Spitting position function:** When press key No.23, the chair will move to the position suitable for patient's spitting and when press again the key NO.23, the chair will move to the previous treatment position.

6. **Instant stop function:** When press any key about the chair movement, the chair will stop from moving immediately.

7. **Emergency position:** When pressing key NO.1, the chair will automatically move to emergency position.

8. **Anti-collision function:** there is a safety switch under the chair lower parallel cover. When encounter obstacles during the chair goes down, the chair will stop instantly to prevent from danger.

9. **Adjustable headrest height and angle:** The headrest height can be adjusted by moving the holder of the headrest. Press both side buttons of the handle to loosen the hand, then adjust the suitable angle and stop pressing the both side buttons.

10. **Usage of the armrests:** The right armrest is moveable, convenient for patients when they get in or get off the chair. Turn the right armrest to the lowest position before the patient gets on the

chair. After the patient sits on the chair, turn the armrest back to top position.

**11. Seat horizontal rotation function:** The seat could can be rotated horizontally by 30 degrees. Firstly loosen the seat lock handle counterclockwise, and then rotate the seat to the proper position, then lock the handle clockwise and start treatment.

If the lock handle is loose because of the internal wear, please use a M6 Allen key to insert into the hole under the handle, and adjust the top screw inside the locking device counterclockwise to proper position. The seat can be lock.

Note: When adjusting the seat angle, do not collide the seat with the side box or other chair parts.

## 6. MAINTENANCE

 Please note! Please turn off the power of the dental unit before performing maintenance and surface cleaning or disinfection. For daily maintenance, the equipment should be kept clean, the pipeline should be unblocked, the leakage phenomenon should be eliminated, and the rotating parts should be filled with lubricating oil at the right time to keep the equipment working in good condition.

### 6.1 Cleaning and disinfection:

It is recommended to use household cleaning net as the cleaning agent on the outer surface of the equipment. It is recommended to use the medical alcohol solution for scrubbing the frequently being touched part. (recommended for half a month)

6.1.1 The cleaning process is the first step in all disinfection procedures

1、Thoroughly wipe with a detergent or surfactant, then rinse off with water. This cleaning process removes a large amount of microorganisms from the surface.

2、The drugs and chemicals commonly used in dental hospitals are likely to damage the paint and plastic parts of the equipment surface. Therefore it is recommended to use isolation products as much as possible.

6.1.2 Instructions for cleaning and disinfection

1. When cleaning and disinfecting, please use soft and disposable paper or sterile gauze.

2. It is recommended to use a rag, sponge or other material that can be used multiple times.

3. The three-way syringe is recommended to be autoclaved.

4.Strong suction head, weak suction head are recommended to use glutaraldehyde

disinfectant for disinfection.

5. Cuspidor should be cleaning with soft brush often brush.

Note: Discard all materials used for cleaning and disinfection after cleaning.

## **6.2 Maintenance of filter**

### **6.2.1 Water system**

To ensure the normal use of the equipment, a filter is installed at the inlet end of the equipment to block the impurities in the water so that it does not enter the equipment, but for a long time, the sewage will block the filter element and affect the flow of water. Clean or replace the filter element to ensure a normal function.

It is necessary to clean or replace the filter element in one of the following cases.

1. The use time is more than one year;
2. The pressure loss of the filter core is above 0.1MPa;
3. The filter core is contaminated;
- 4, the water becomes turbid;

### **6.2.2 Air system**

In order to ensure clean and dry air of stable pressure input in this unit, air filtering reducing valve is installed at the inlet of the floor box to control the air pressure not to exceed its set value and also eliminating the impurities and moisture in the filtering air to some extent. The water content filtered will be condensed in the filter cup and shall be discharged after long time filtering to ensure satisfactory filtering effects.

Water discharging of the reducing valve must be performed if any of the following occurs:

1. Already used for more than a week;
2. Water in the filter cup reaches three-fourth of the total volume;
3. Water color changed in the filter cup (not clear any more).

#### **The specific method of cleaning is:**

1. Regularly (recommended for three months) to clean the gas filter at the dental chair; discharge the water in the air filter once every half month to prevent the water from entering the air path and affect the normal use of the machine; press the front of the water filter to release the switch Button, the water in the cup can be washed out.

2. Periodically (recommended for three months) to clean the water filter at the dental chair. Remove the mounting screws during cleaning, remove the nut at the bottom of the cup, then unscrew the cup, take out the filter cylinder, and clean the parts. Install and tighten in order to ensure reliable sealing.

3. Please clean the strong suction and weak suction filter in time to ensure the strong and weak suction water is smooth: turn the filter cup left to release the hook, pull down to remove the cup, take out the filter, and pour the dirt Put into the garbage collection bag and dispose of it. Clean the filter and the inner wall of the cup with clean water or neutral detergent. Put the filter (small protrusion up) into the cup and install the cup in place.

4. Periodically (recommended for one month) to clean the lower part of the instrument tray. Unscrew the bottle, clean it with detergent, and then screw the bottle back on the joint to use.

5. Please use lens paper or cotton wool to scrub the lens of the oral lamp. Do not use alcohol cotton or other solvent substances.

6, dental chair motor should not be frequently started and reversed, so as not to affect the life of the motor.

7. Always check the outer skin of the power cord for damage, and whether the power plug is in good contact. If there is a safety problem risk, it should be replaced by a professional maintenance personnel.

8. It is recommended that the electrical safety inspection be carried out by the professional maintenance personnel of the hospital for half a year, to check whether the leakage current and the protective earthing connection meet the requirements.

9. After the parts and parts are disposed of, it is recommended to deal with them according to local regulations.

## 7. COMMON FAULTS AND TROUBLESHOOTING

| Problem                                    | Cause                                                                                                                                                                                                                                  | Solution                                                                                                                                                                    |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handpiece water non-stop                   | The outlet valve is defective.                                                                                                                                                                                                         | Refer to the handpiece manual.                                                                                                                                              |
| Handpiece water contains bubbles           | 1. High speed machine tip gasket is bad<br>2. Pipe rupture                                                                                                                                                                             | a. Reference mobile phone instruction manual<br>b. Check, replace                                                                                                           |
| Water atomization non-function             | 1 high speed head nozzle blockage<br>2 water fine-tuning is improperly adjusted                                                                                                                                                        | a. Contact mobile phone supplier<br>b. Re-adjust the water trim valve                                                                                                       |
| Handpiece no water come out                | 1 water pressure is too low<br>2 water valve is not open<br>3 The water switch on the 3-pin switch is not open<br>4 water source switch is not open<br>5 tap water and pure water transfer switch<br>6 pure water cup without pressure | a adjust water pressure<br>b open the water switch<br>c turn on the water source switch<br>d turn on the water switch<br>e adjustment switch<br>f adjust control air switch |
| Handpiece power is too weak                | 1 bad burs, poor bearing<br>2 pressure is not enough                                                                                                                                                                                   | a contact supplier<br>b check air pressure                                                                                                                                  |
| Air leak when the handpiece is not working | Valve is loose                                                                                                                                                                                                                         | Adjust the position of the rack valves                                                                                                                                      |

|                                   |                                                                                             |                                                                                      |
|-----------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Unstable working pressure         | 1 filter blocked<br>2 intake pipe twisted knot pipe                                         | a cleaning<br>b check pipe                                                           |
| Rushing water is not smooth       | Solenoid valve is blocked                                                                   | Solenoid valve need cleaning                                                         |
| Sucking power is weak             | 1 filter blockage<br>2 water pressure or air pressure is not enough                         | a cleaning filter<br>b adjust pressure                                               |
| Three-way syringe no water        | 1 water pipe blocked<br>2 water control button is not properly adjusted                     | a Block the nozzle and press the water and air button at the same time<br>b readjust |
| Three-way syringe air with watero | 1 air filter too much water<br>2 valve core failure<br>3 nozzle installation is not correct | a timely drainage<br>b check replacement<br>c reinstall                              |

Fig.2 Causes and methods

If the equipment still does not work properly after the above inspection and treatment, please contact the dealer or our after-sales service personnel, and inform the product model, factory number and fault details.

Note: This manual is used in conjunction with standard products. For special order products, please refer to the relevant attachment page of this manual.

## 8. PACKING LIST

| Item | Name                    | QTY |
|------|-------------------------|-----|
| ①    | Light colum             | 1   |
| ②    | Light arm               | 1   |
| ③    | LED lamp                | 1   |
| ④    | Cuspidor                | 1   |
| ⑤    | Cart or instrument tray | 1   |
| ⑥    | Film viewer             | 1   |
| ⑦    | Assistant control       | 1   |
| ⑧    | Seat cushion            | 1   |
| ⑨    | Backrest                | 1   |
| ⑩    | Headrest                | 1   |
| ⑪    | Dental stool            | 1   |
| ⑫    | Dental unit             | 1   |
| ⑬    | User manual             | 1   |

|   |               |   |
|---|---------------|---|
| ⑭ | QC            | 1 |
| ⑮ | Warranty card | 1 |

### Accessories

| NO. | Item/Model                        | Qty |
|-----|-----------------------------------|-----|
| ①   | Light column                      | 1   |
| ②   | Light arm                         | 1   |
| ③   | LED operation light               | 1   |
| ④   | Spittoon                          | 1   |
| ⑤   | Mobile cart<br>( operation tray ) | 1   |
| ⑥   | X-ray film viewer                 | 1   |

|   |                                                                  |   |
|---|------------------------------------------------------------------|---|
| ⑦ | Assistant control                                                | 1 |
| ⑧ | Seat cushion                                                     | 1 |
| ⑨ | Backrest                                                         | 1 |
| ⑩ | Headrest                                                         | 1 |
| ⑪ | Luxury doctor' s stool                                           | 1 |
| ⑫ | Integrated dental unit<br>( or floor<br>type<br>dental<br>unit ) | 1 |
| ⑬ | User manual                                                      | 1 |
| ⑭ | Quality certificate                                              | 1 |
| ⑮ | Warranty card                                                    | 1 |

## 9. SAFETY WARNING

### 9.1 Warning sign

Please observe the warnings and safety instructions, so as to avoid personal injury or property damage.

These tips use the following special signs:



Personal injury warning  
May cause a risk of mild to severe injury.



Property damage warning  
A dangerous situation that could result in damage to an item in this equipment or other operating environment.

State

Operation help tips  
Application tips and other useful information.

## 9.2 Tips on the equipment

10.2.2 The outer packaging wooden box is marked with the following symbols:

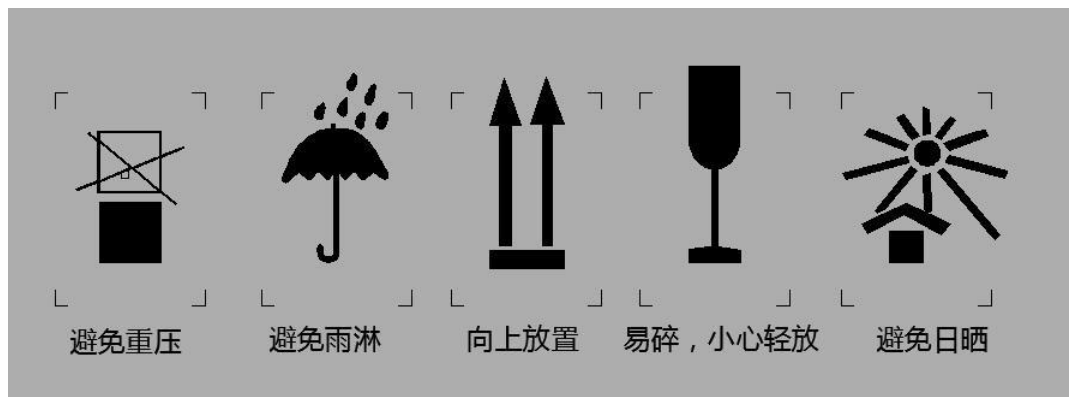


Note that accompanying documentation for the equipment



### Model B parts

9.2.2 The outer packaging wooden box is marked with the following symbols:



**1、Equipment quality:** To ensure patient safety, only drinking water and dry, oil-free medical gases can be supplied to the equipment. To ensure that the water quality in this equipment meets medical requirements and national statutory requirements, users must be responsible for water quality and regularly check water quality.

**2、Patient chair:** The maximum load of the patient chair is 150kg. The patient's limbs must be placed on the seat cushion.

**3、Vent:** The vents of the equipment must not be blocked, otherwise it will affect the air circulation. It may cause the equipment to overheat. Do not spray liquid such as disinfectant into the vents, so as to avoid malfunction of the equipment.

**4、Electromagnetic compatibility :** Electromagnetic compatibility: Portable and mobile high-frequency communication tools can affect medical electronics. Therefore, mobile communication tools such as mobile phones should not be used in clinics and hospital areas. If using an external high-frequency surgical device, do not place it on the hanging of this device.

## 10.SECURITIES

1. Please read and understand all contents in the user manual before operation.
2. This product is ideal for dental hospitals and clinics. The personnel who operate the equipment must be trained professionals (such as doctors). This product is only suitable for the diagnosis and treatment of oral diseases.
3. The power outlet cable should be configured as standard and the ground wire must be secure. This machine must not be connected to other mobile

devices.

Turn off the water, gas and power main switch when off work.

The constant temperature mouthwash heater is strictly prohibited from heating when the water is stopped.

Before the water bottle is filled with water, the water bottle control gas switch must be turned off.

4. The influence of electromagnetic interference has been considered in the design of this product. In order to ensure normal application, the high-frequency electrical signal equipment should be kept away from the interference during operation.

1. The compressed air supplied to the treatment machine should be free of oil, and other hygienic indicators meet the relevant requirements. Compressors that supply compressed air are self-contained and must be filtered through a 23μm filter.

2. During the operation of the dental chair, ensure that no accessible items are present during the range of motion.

3. The filter pore diameter of the water filter used in this machine is 85μm, but the water in the filter pressure reducing valve should be drained once a week, and the water filter core and the weak suction filter cup should be cleaned once a month.

4. The 3-way syringe handle and nozzle are placed in the sterilization bag before disinfection, and then 135℃ (2bar) high pressure steam sterilization, disinfection time is not less than 15 minutes.

5. The instrument tray must not be stacked with heavy objects.

6. If you are working with an external device for planting work, disconnect the power to the dental chair each time. To avoid personal injury due to malfunction and accidental touch of the control button.

7. A company or individual clinic using the device must be equipped with or coupled to an amalgam separation device in the dental waste discharge system.

8. Perform routine maintenance on a quarterly basis. When replacing electrical components or maintenance and cleaning, the power must be turned off.

9. Do not use this unit in the presence of flammable anesthetic gas mixed with air or flammable anesthetic gas mixed with oxygen or nitrogen oxide.

10. If need to install functional accessories in this machine, optional accessories such as scaler, curing light etc. Or other instruments must be CE-certified quality products.

11. Transportation and storage environment requirements:

a. Straight up when transporting, handle with care and against rain.

12. Storage environment: The humidity does not over 85%, no corrosive gas, good ventilation, the equipment must be stored correctly, so as to maintain a good working condition. The manufacturer is not responsible for misuse, negligence or improper use of the equipment.

13. The relevant waste water and garbage must be placed in accordance with local environmental protection requirements.

14. The maintenance of this model must be carried out by professional maintenance personnel authorized by our company. The disassembling and repair may cause fatal damage to the machine and no longer enjoy the warranty service provided by our company.

15. Do not touch the light bulb directly with your hand. After the bulb has cooled down, wear protective gloves and replace it to avoid burns. It is strictly forbidden to touch the PC board and the manufacturer's electronic components with a hand or metal device.

16. The pressure of the treatment machine is set at the factory, and non-professionals are not allowed to adjust at will.

17. The dental chair's action limit is locked, and non-professionals are not allowed to adjust at will.

18. The chair is cleaned with a damp cloth and a neutral detergent to ensure that the leather surface is smooth and elastic and free of corrosion.

The PU parts and ABS parts are cleaned with a soft cloth dipped in soapy water; the metal baking parts are cleaned with a soft cloth dipped in soapy water or with a car wax.

19. The dental chair is rated at 135kg and will not work properly if overloaded.

20. The air supply pressure is 0.6~0.8MPa, and the water pressure is 0.2~0.4MPa. A clean water source should be used.

21. Check the equipment regularly to check whether there are leaks in side box, air water tube of instrument tray.

22. Portable and mobile high frequency communication tools can affect medical electronics. Mobile communication tools such as mobile phones must not be used in clinics and hospital areas. If using an external high-frequency surgical device, do not place it on the hanging of this equipment.

**Note:** Non-professionals are not allowed to disassemble the machine. The company only provides accessories for customers who have a repair agreement.