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Hygiene Delivery Systems
User Guide

P/N:8502305 Version：D Date：2024-10-08

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Please contact us if you have any feedback and opinions on this document：
Add: 1590 S Milliken Ave., unit A, Ontario, CA 91761
Tel: (626) 620 0456
E-mail : sales@adsequip.com
http://www.adsequip.com/

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1 Introductions

1.1 Products information

Unit conversion	
MPa	psi
0.2MPa	29psi
0.4MPa	58psi
0.6MPa	87psi
0.8MPa	116psi

Name：Delivery system

Model：Hygiene Delivery Systems

Working condition requirements：

① Ambient temperature：5 ℃～40 ℃；

② Relative Humidity：≤80%；

③ Nominal Voltage：AC110 V±22 V；

④ Nominal Frequency：60 Hz±1 Hz；

⑤ Water Pressure：29 psi～58 psi；

⑥ Input air pressure 72.5 psi~101.5 psi , Air flow ≥50 L/min；

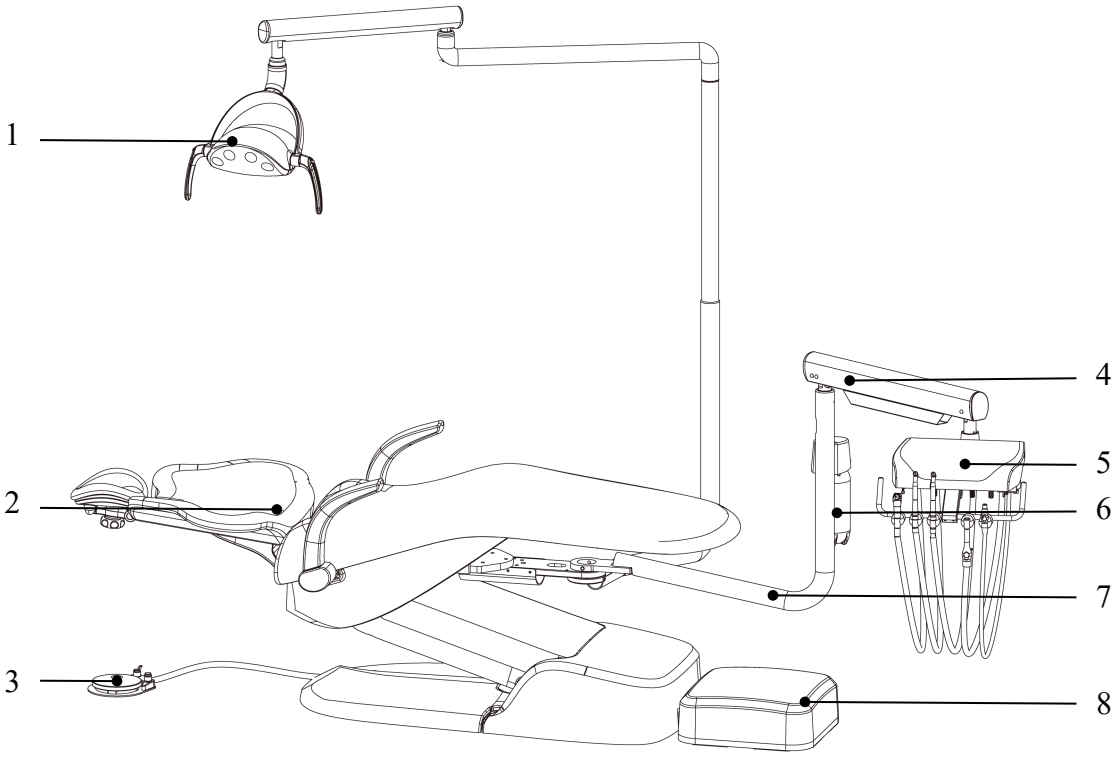
1.2 Symbols explanations

 Manufacturer	 EU Representative
 Manufacturing Date	 Serial Number
 Handle with Care	 Keep Dry

 Refer to Instructions	 Caution!
 Refer to Attached Document.	 Backrest down
 Avoid Electric Shock	 Backrest up
 Ground Protection	 Chair down
 Setup Button	 Chair up
 Spitting position	 Program chair position 1
 Program chair position 2	 Program chair position 3

2 Compositions

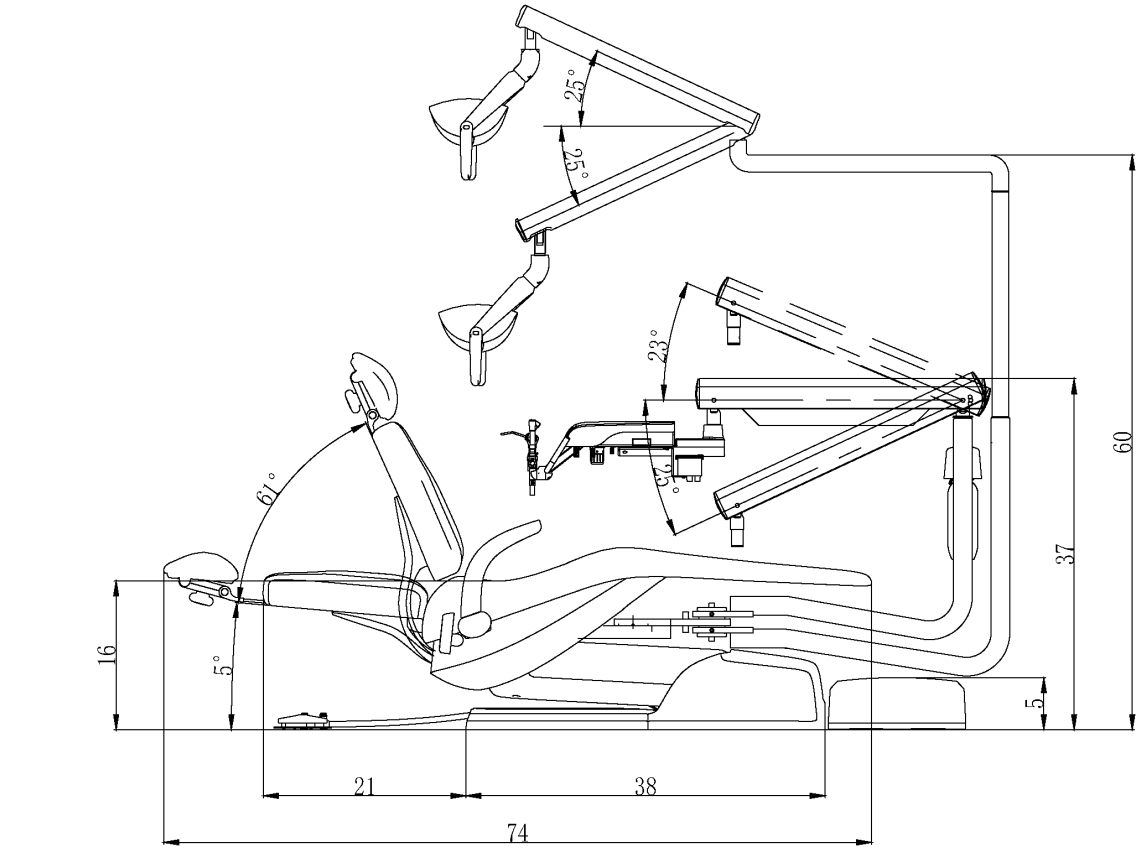
The system is composed by following components.

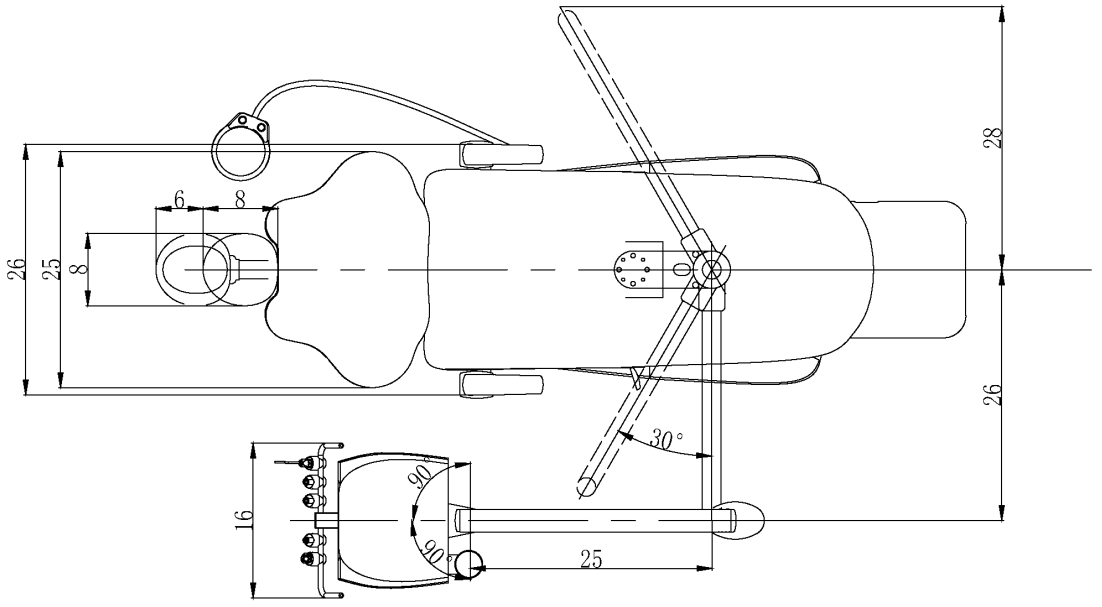


No.	Components	No.	Components
1	dental light	5	Tool tray
2	dental chair	6	Water bottle storage
3	Foot switch	7	Rotary arm
4	Flexible Arm	8	Floor box

3 Sizes

unit:inches





4 Specifications

Light illuminance	8000-40000 Lux
Max load of delivery head	2.5kg
Ambient temperature	5 ℃～40 ℃
Air supply pressure	72.5 psi～101.5 psi
Water supply pressure	29～58 psi

5 Preparations

5.1 Attentions

Before install the unit, you should:

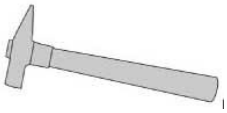
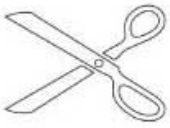
- Confirm the floor construction is safety to support the chair and clean.
- Apply two manually operated valves for the air and water source.
- Exhaust the dirty water and air before connecting.

Before install the unit, please read the manual carefully:

- Input voltage AC110V , 60 Hz.
- Make sure the dental unit is well-grounded.
- All the electrical components and connections should be made by an authorized technician.
- Only fuse and accessories recognized by ADS technician can be used.
- This device should not operate in the environment of high temperature, high humidity, vibration flammability, unbalance, or dusty.
- Only the authorized spare parts can be used in this device.
- This device can not be used in the environment of strong magnetic, electromagnetic.

5.2 Tools recommended

The tools and instruments need to prepare before installation

	Electrical drill		Pincers
	Hammer		Scissors
	Leveling instrument		Flat-bladed Screw driver
	Phillip screw driver		Allen wrench
	Spanner		Hexagon socket wrench

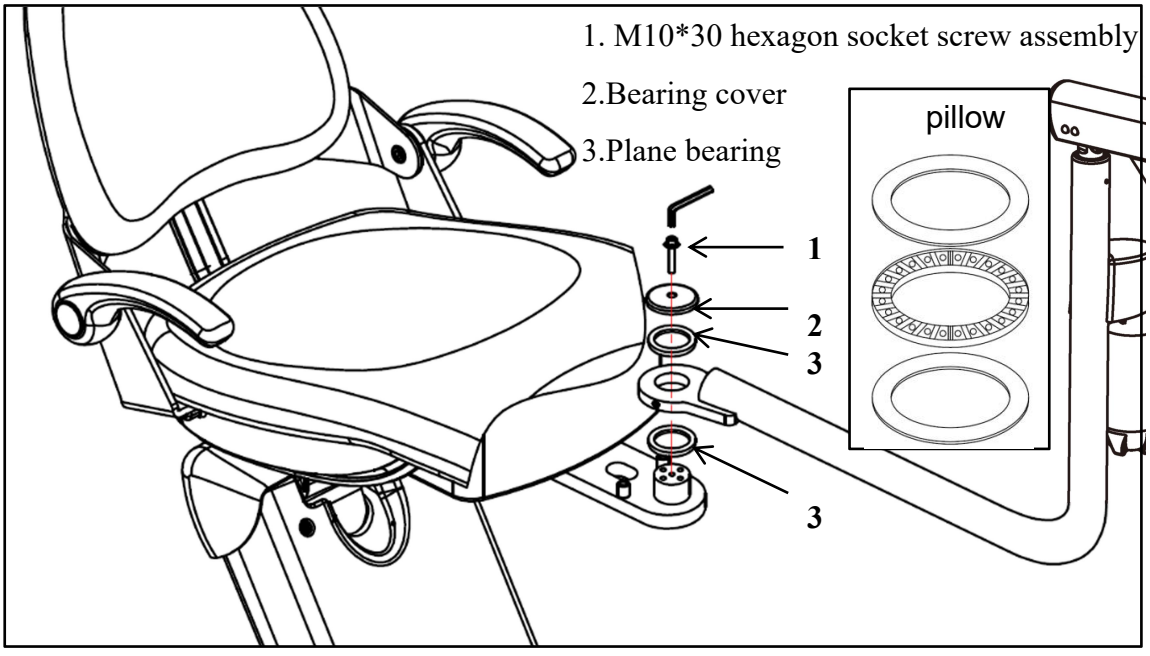
6 Installation

It is necessary to check whether the system and its accessories are damaged after unpacking .In addition, please check all accessories according to the accessories list. Please install the unit in following orders.

6. 1 Install the rotary arm

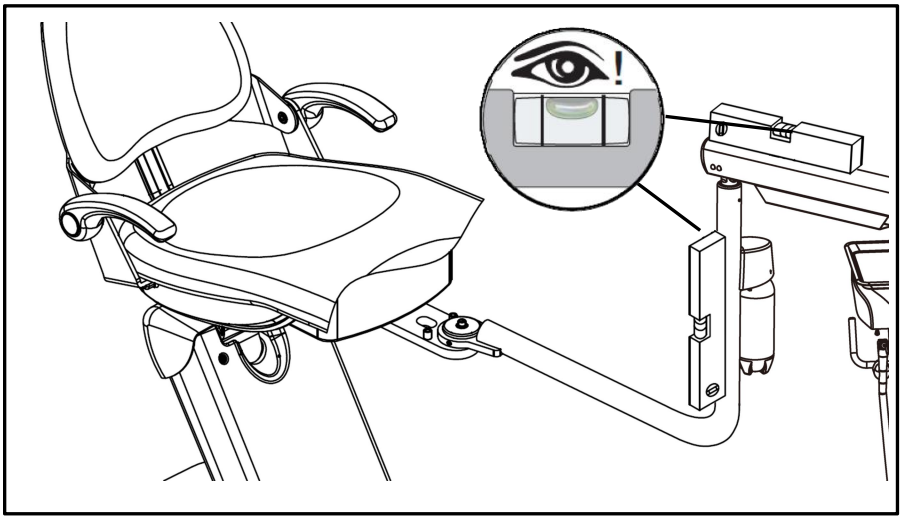
1. Release the M10*30 screw of the connecting plate, mount the rotary arm to the front mounted connecting plate as the figure shown, then fasten the screw.

Tools: 8mm Allen wrench

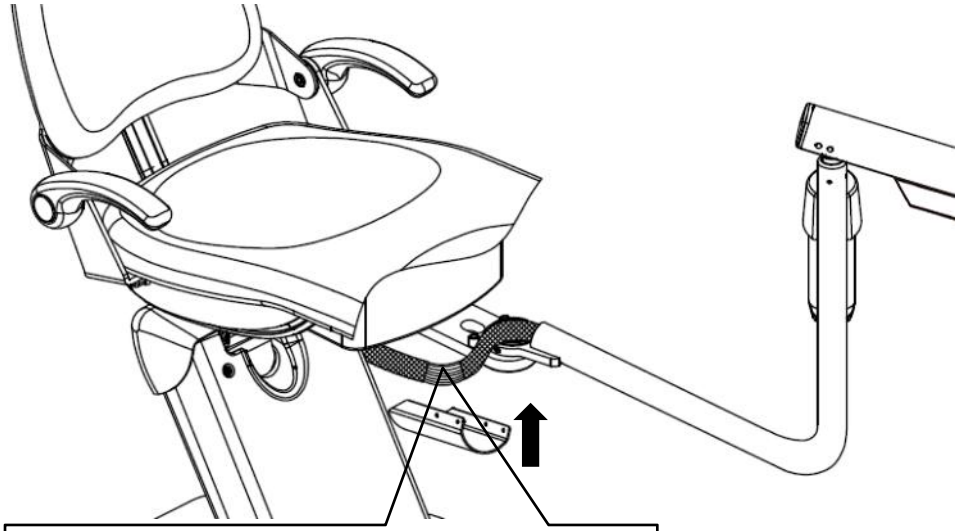


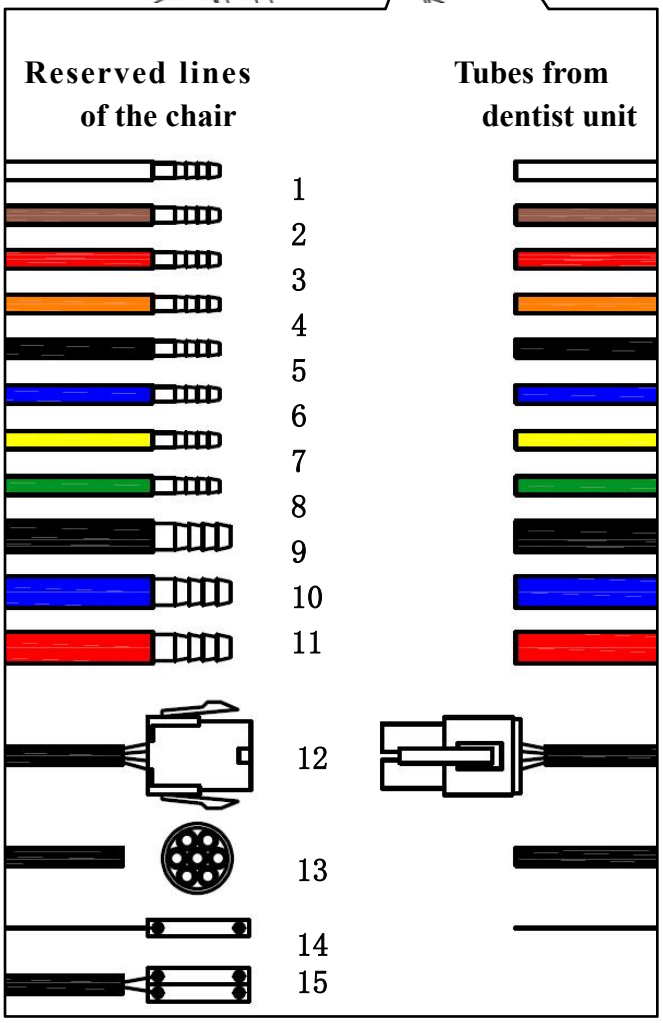
2. Assure the levelness of the rotary by regulating the four screws on the connecting plate.

Tools: Leveling instrument



3. The tubes of the dentist unit and those reserved of the chair shall be connected by color, and close the cover after connection. Ignore the reserved wires,you have no need to connect them for there's no control panel on delivery head.





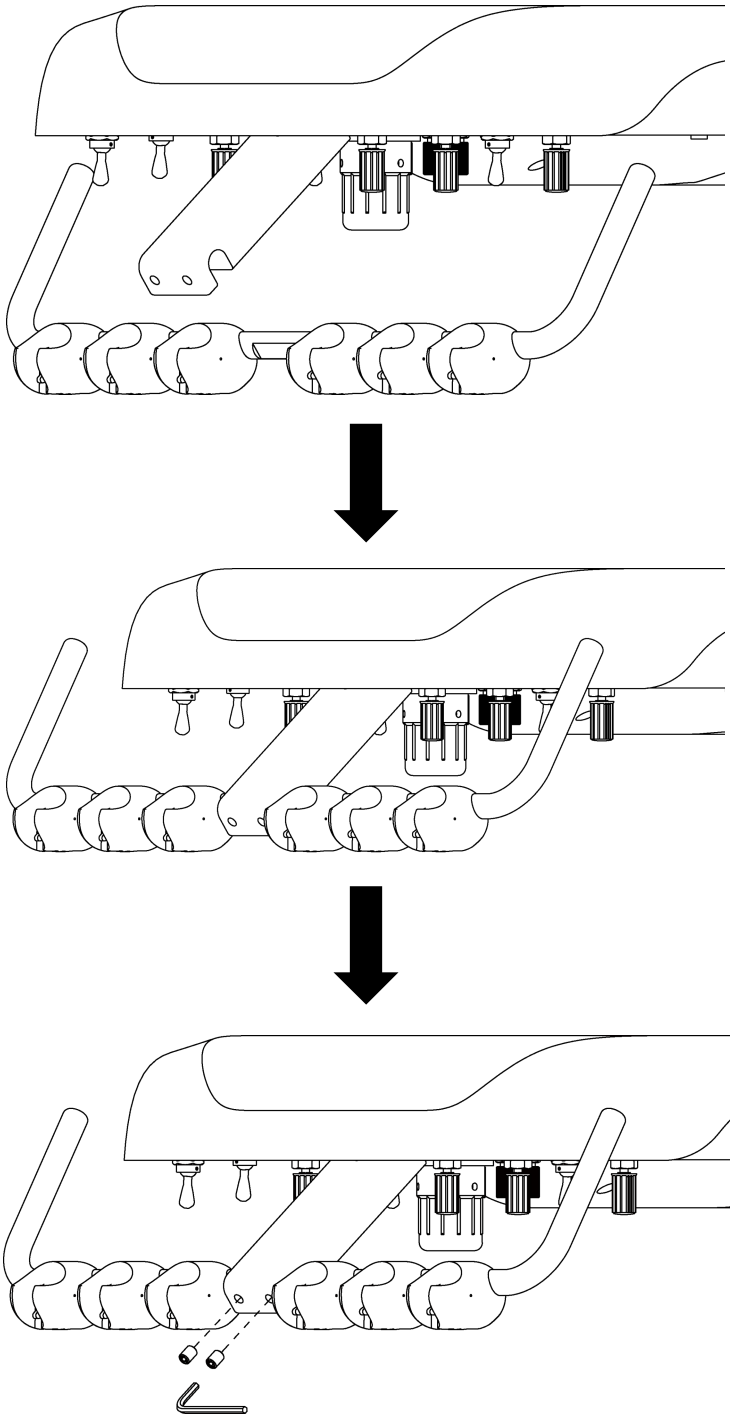
1. 1/8" white， reserved for dentist unit
2. 1/8" brown，reserved for dentist unit
3. 1/8" red，reserved for dentist unit
4. 1/8" orange，reserved for dentist unit
5. 1/8" black，reserved for dentist unit
6. 1/8" blue，reserved for dentist unit
7. 1/8" yellow，reserved for dentist unit
8. 1/8" green，reserved for dentist unit
9. 1/4" black，reserved for dentist unit
10. 1/4" blue，reserved for dentist unit
11. 1/4" red，reserved for dentist unit
12. Control wire for delivery head
13. 24V,7 core power cord for delivery head
14. 24V power cord for dental light
15. Ground wire for delivery head

6.2 Install the tool disk unit

6.2.1 Mounting bracket

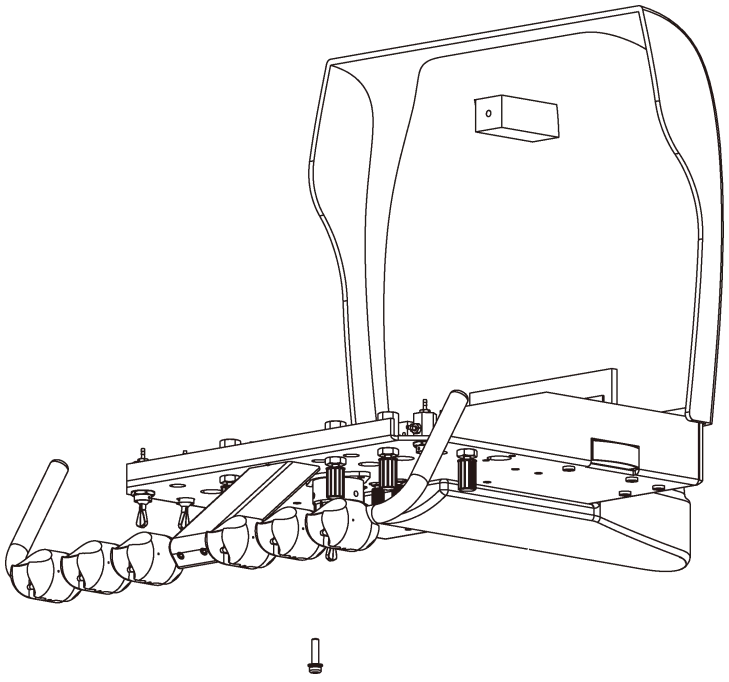
1. Install the hanger on the hanger connecting block as shown in the figure, and then fix the hanger with two M6*16 tip setting screws.

Tool: 3mm hex wrench



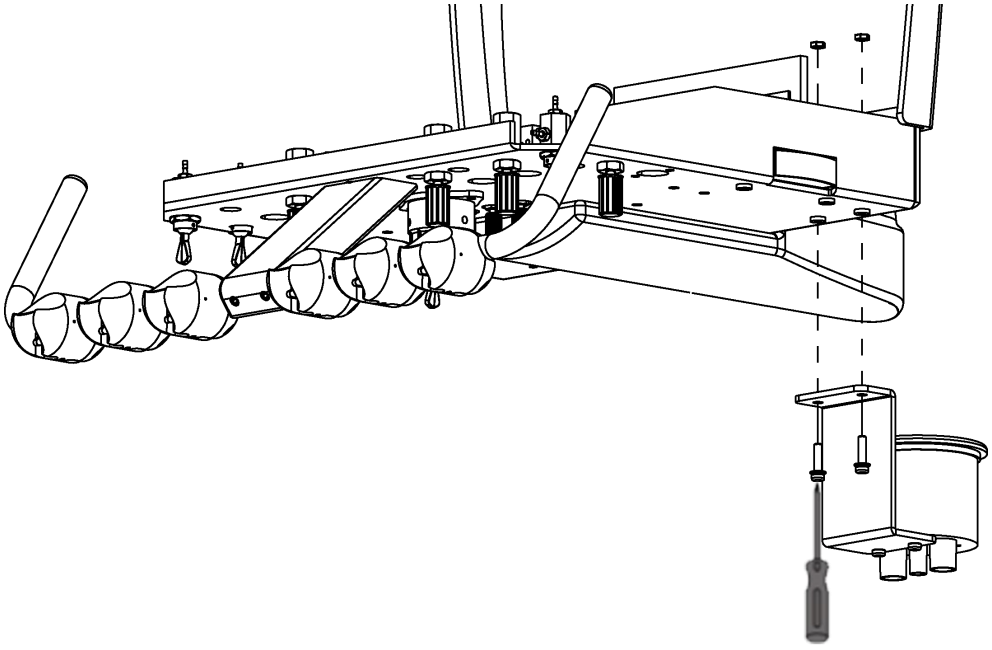
6.2.2 Installing Filters

1. Loosen the screws securing the upper cover of the tool disk to open the upper cover.



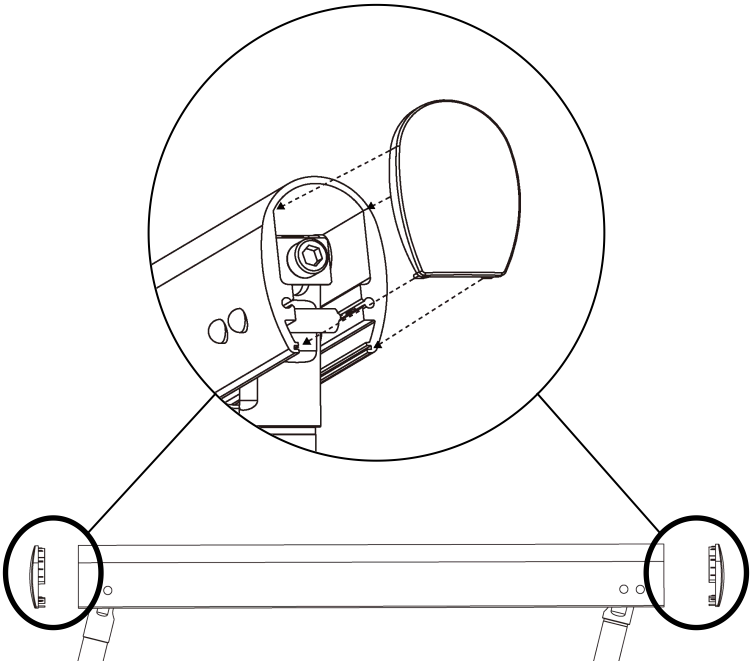
2. Secure the filter to the position shown in the figure using two M4*16 cross-pan assembly screws and M4 nuts.

Tools: Phillips screwdriver, hex socket wrench

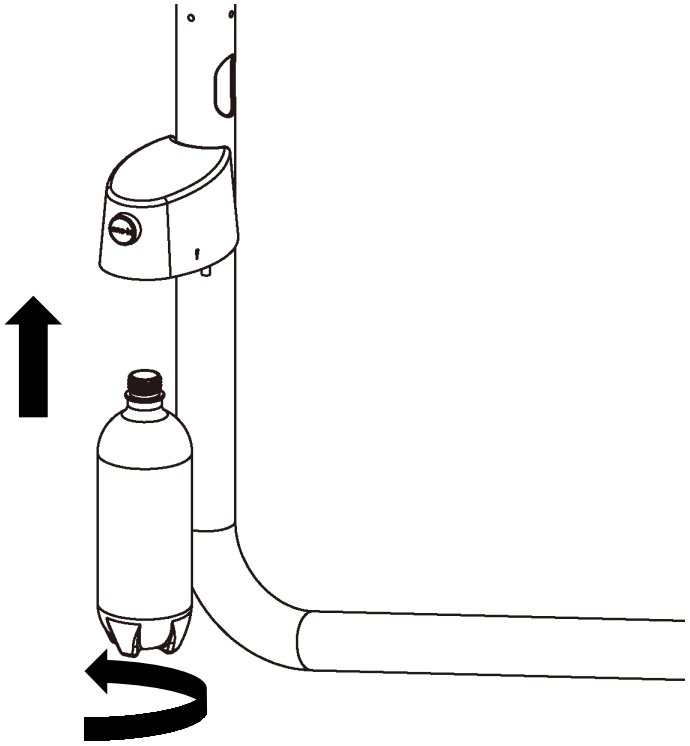


6.2.3 Install the balance arm decorative cover and water bottle

1. Install the two decorative covers on both ends of the balance arm



2. Install the water bottle in the shown position.

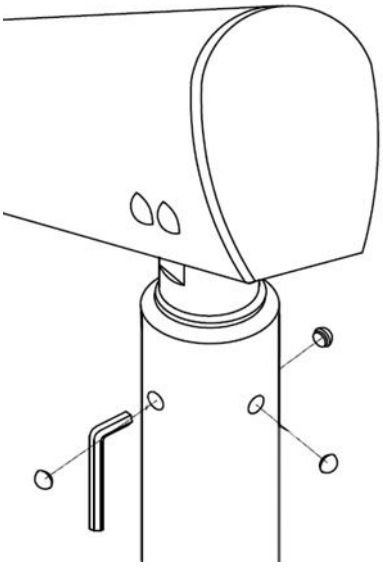


6.3 Adjust the balance arm

1. Remove the screw cover, change the screw tightness, and adjust the damping force of the horizontal arm.

Note: Loosen the screws counterclockwise and tighten them clockwise.

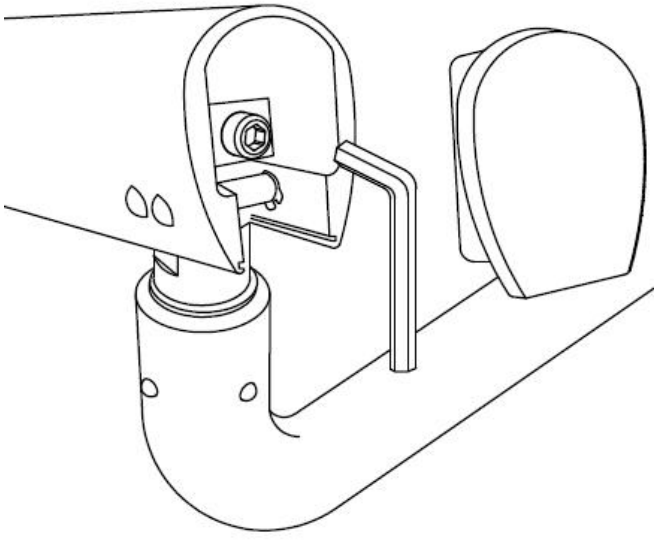
Tool :3mm hex wrench.



2. Remove the horizontal arm end cover and adjust the screw tightness to get a proper balance force.

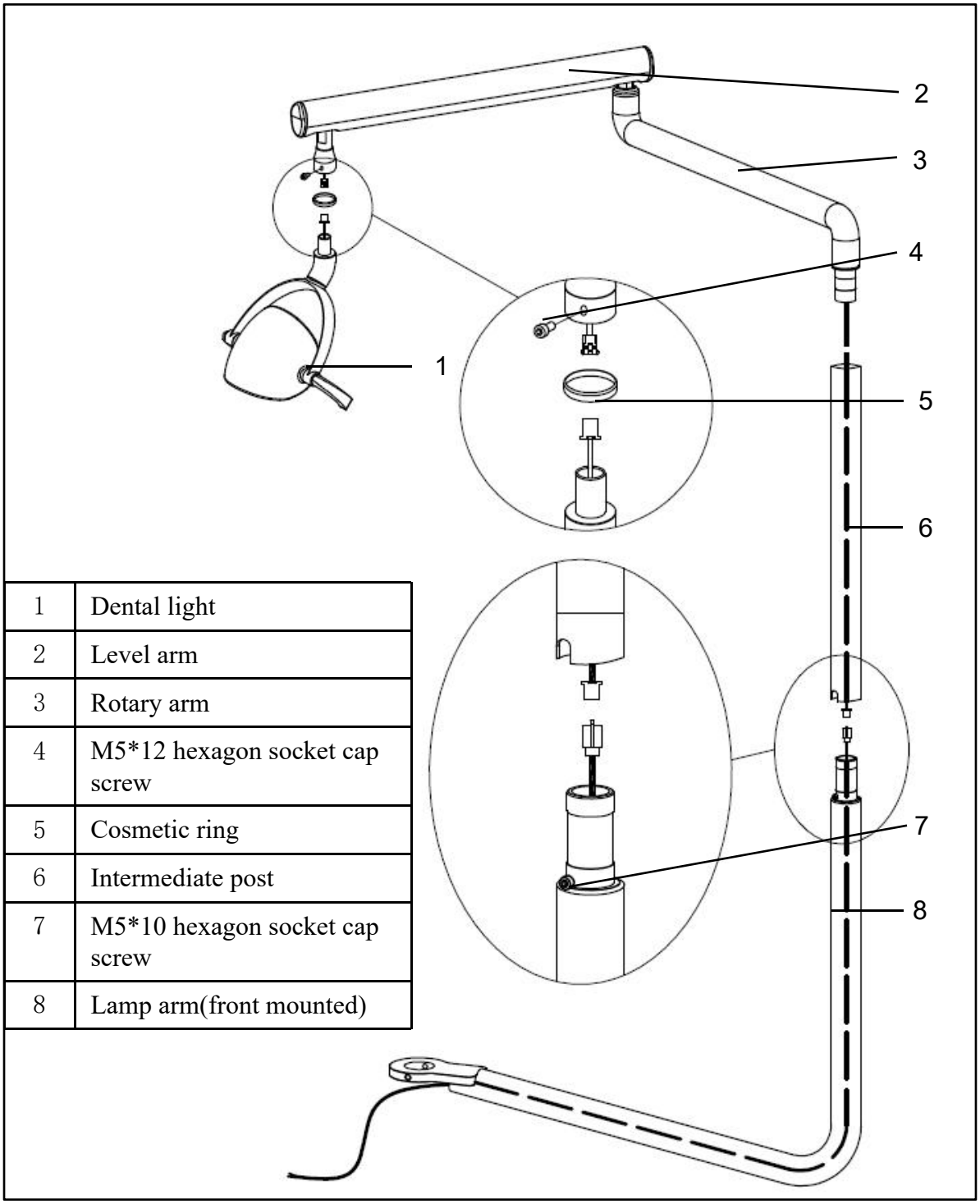
Note: Loosen the screws counterclockwise and tighten them clockwise.

Tools :5mm hex wrench.



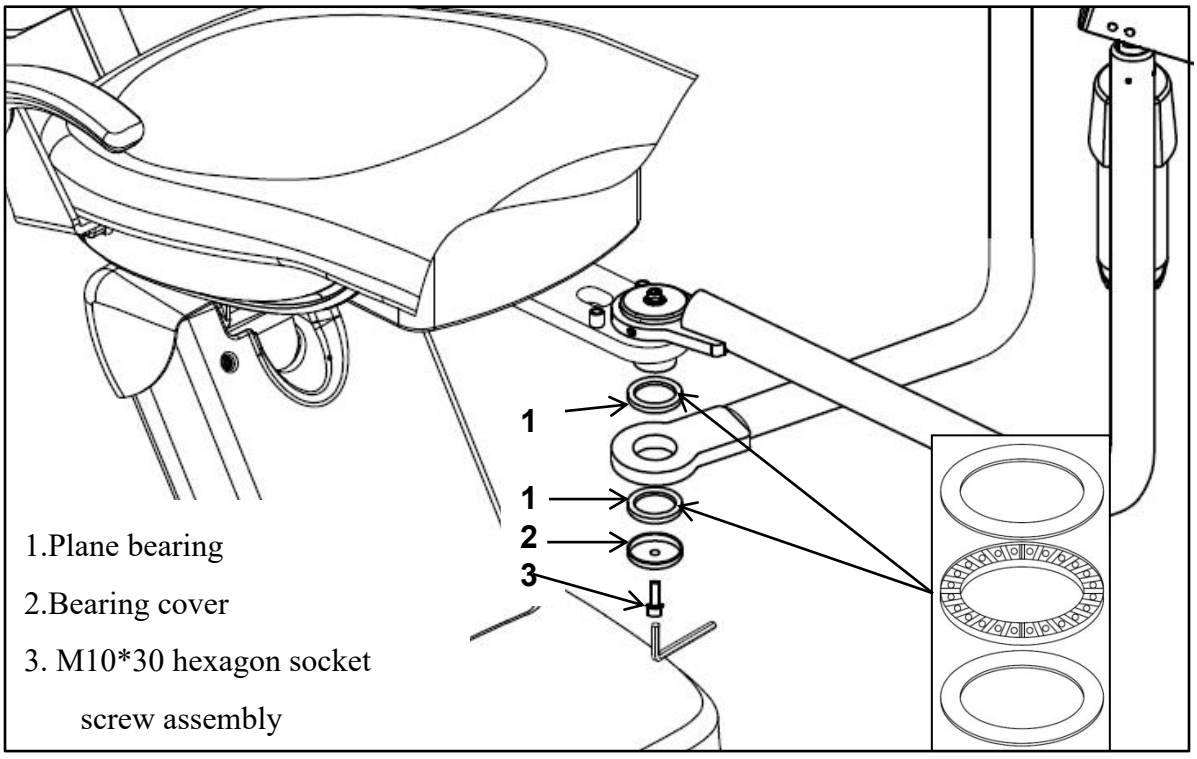
6.4 Install dental light（optional）

Notice： Please ignore this step if there is no lamp configuration.

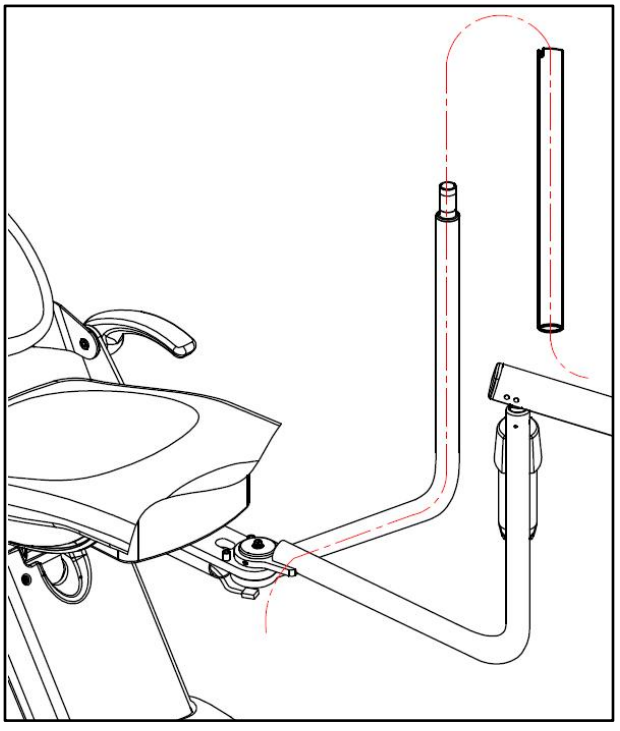


1	Dental light
2	Level arm
3	Rotary arm
4	M5*12 hexagon socket cap screw
5	Cosmetic ring
6	Intermediate post
7	M5*10 hexagon socket cap screw
8	Lamp arm(front mounted)

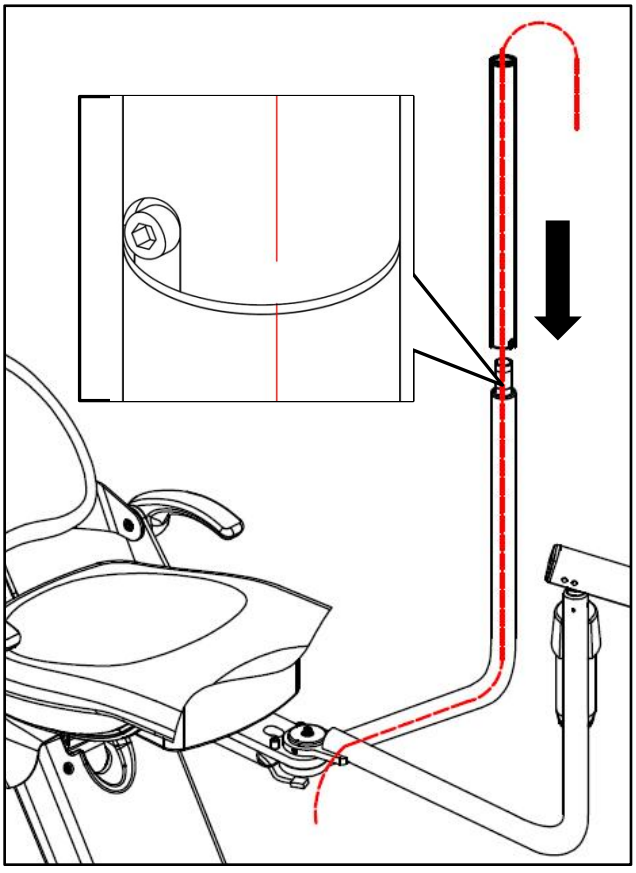
1. Release the M10*30 screw of the connecting plate, mount the lamp arm to the front mounted connecting plate as the figure shown, then fasten the screw.



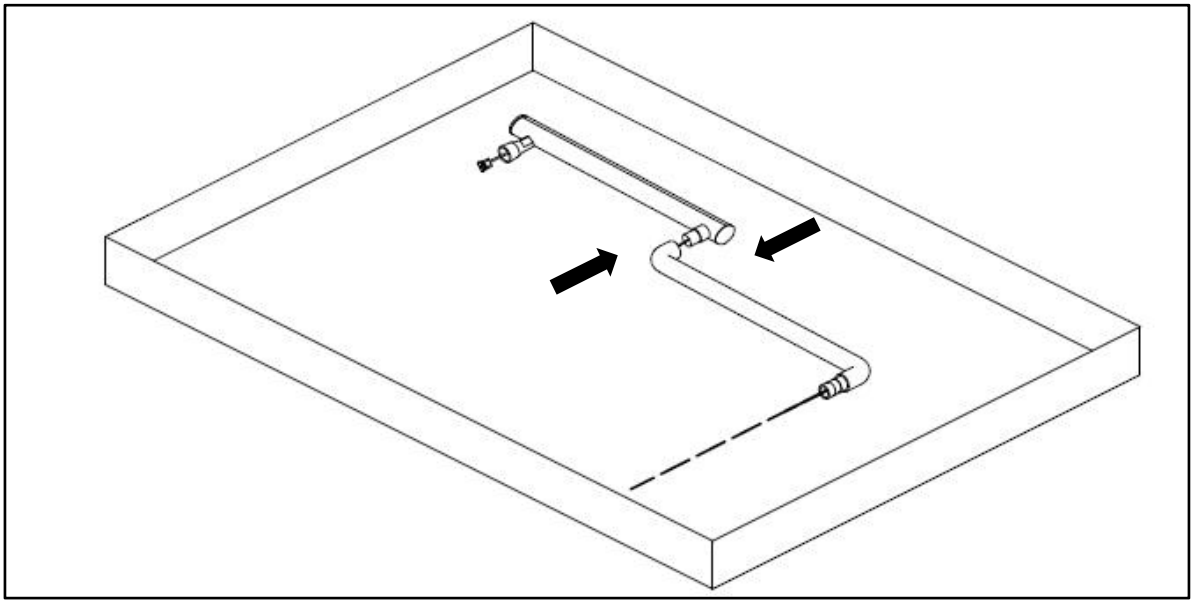
2. Let the guide line route though the intermediate post as the figure shown, the post end which has a jag should be upward.



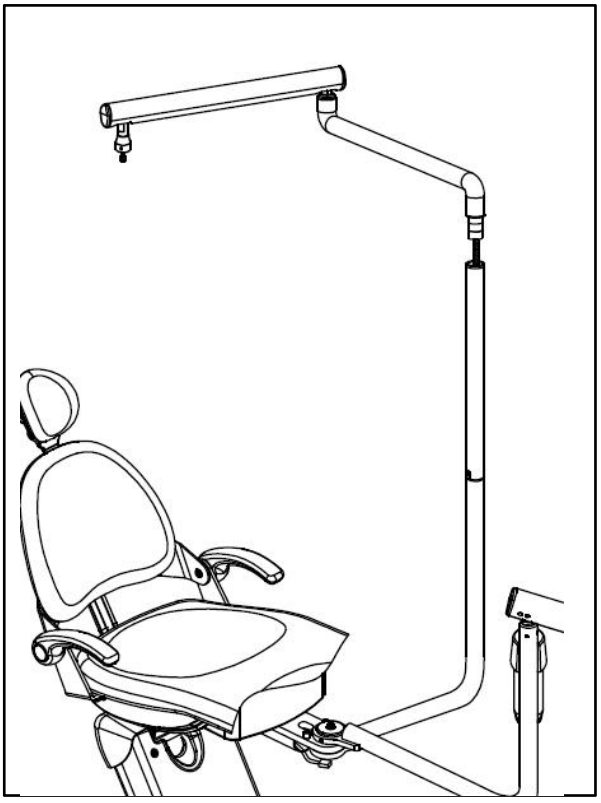
3. Joint the intermediate post and the rotary arm, the jag on the post is screw position .



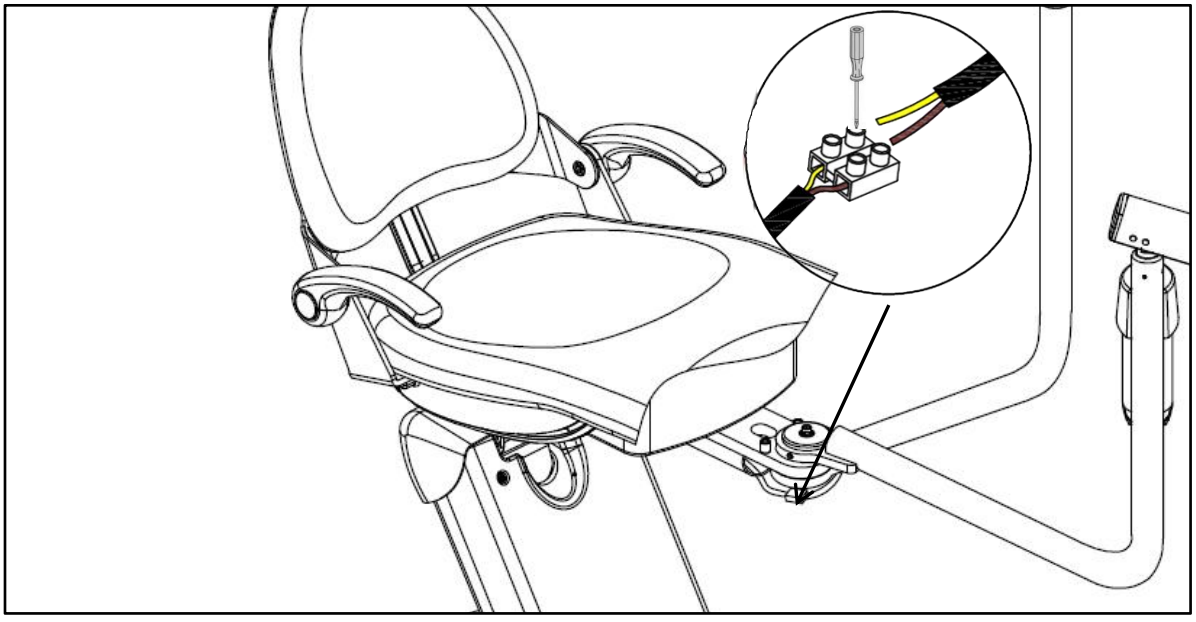
4. Joint the level arm and the rotary arm, take them out from the carton.



5. Tie the light wire and the guide line together, pull the guide line to lead the wire pass through the post and the lamp arm .

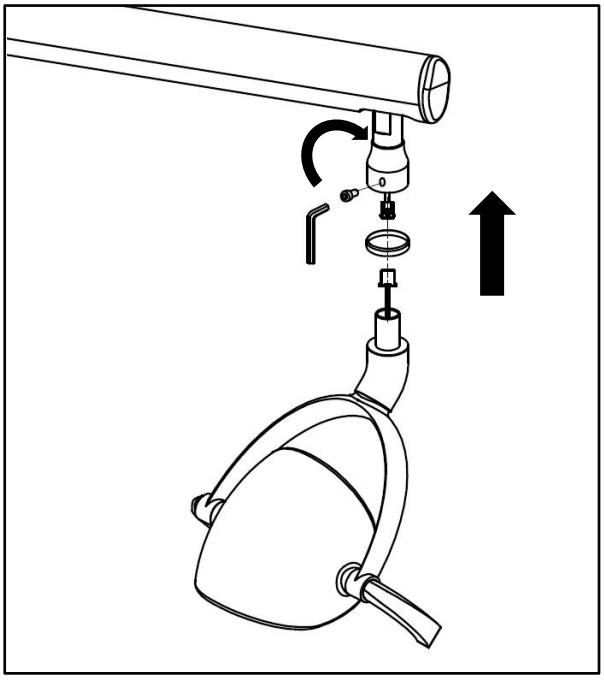


6. Connect the light wires and the reserved wires brown to brown, yellow to blue.



7. Take out the lamp from the package, pass the wire through the cosmetic ring and connect the wire terminals, then joint the light head and the level arm together, fully fasten with a M5*12 screw.

Note: Hold the lamp , do not drop it to avoid damage.

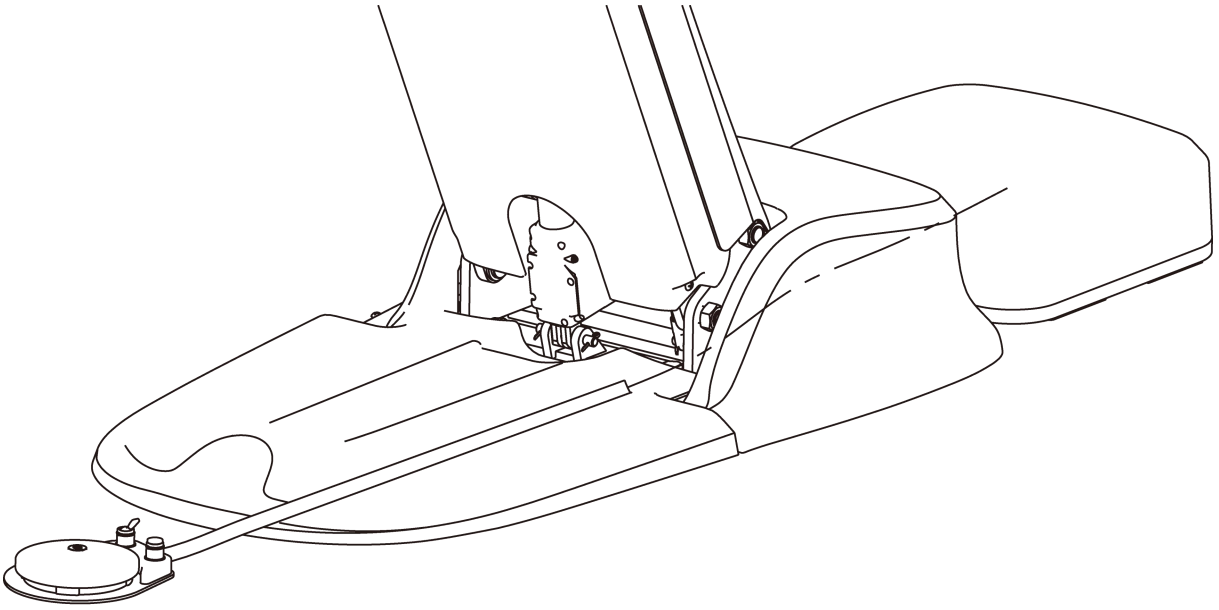


Tools:

4mm Allen wrench

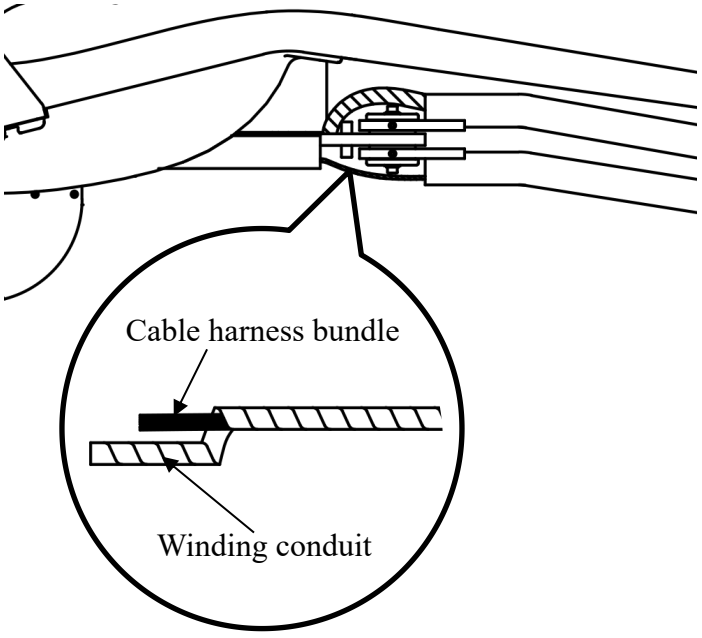
6.5 Install foot control

1. Insert the foot control tube from the shown position and connect it to the ground box.

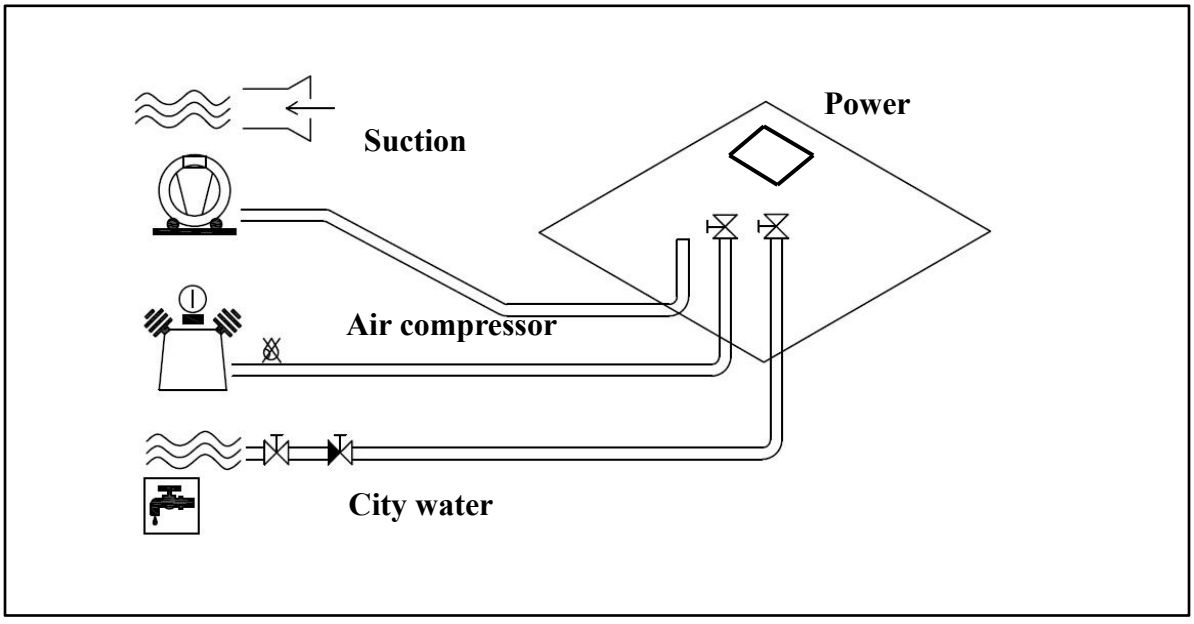


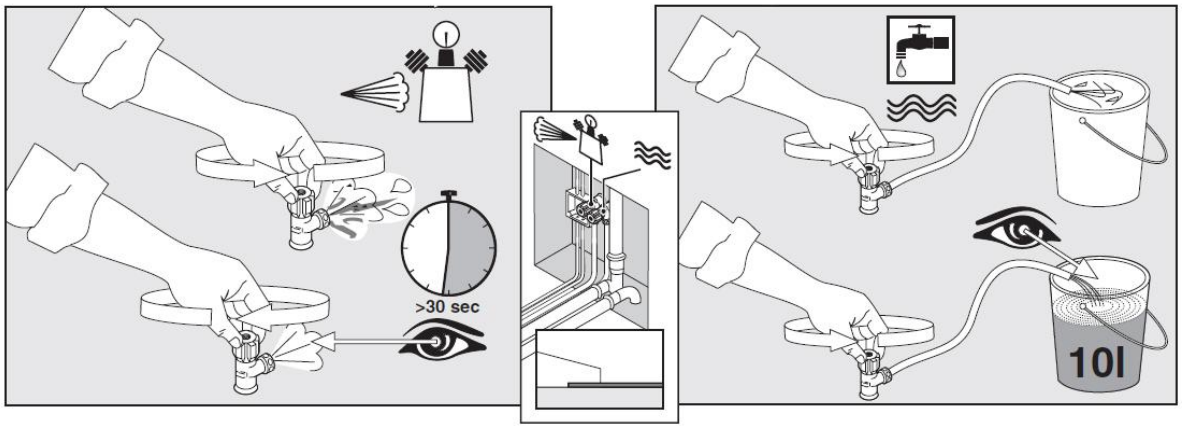
6.6 Post-Installation Wire Harness Protection

1. Upon completion of dental chair installation procedures, enclose any exposed sections of the internal wire harness bundle within a flexible winding conduit.



6.7 Before junction box connection

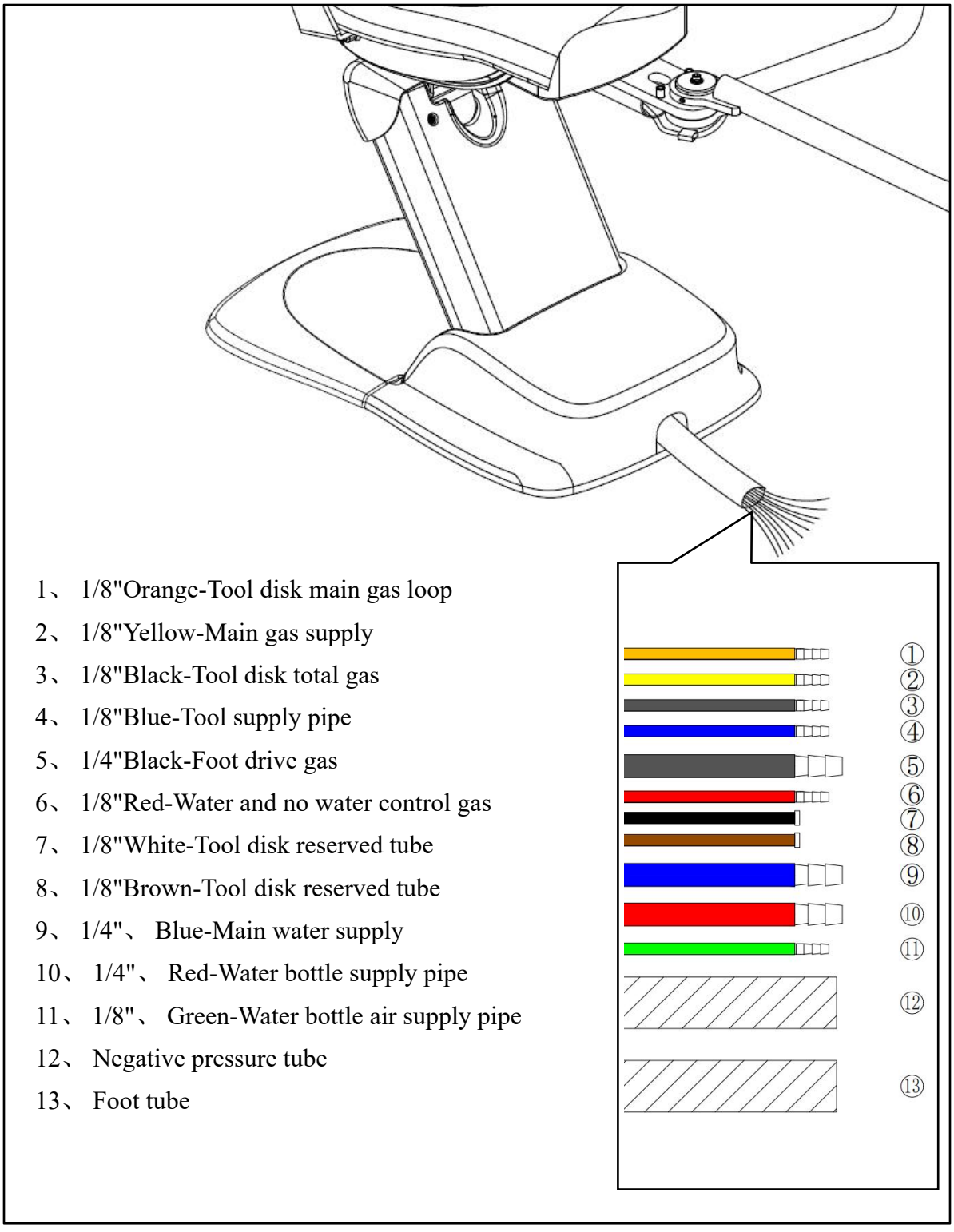




The tubes & wires are in the tubing zone or inside the external junction box, their places depend on your chair configurations.

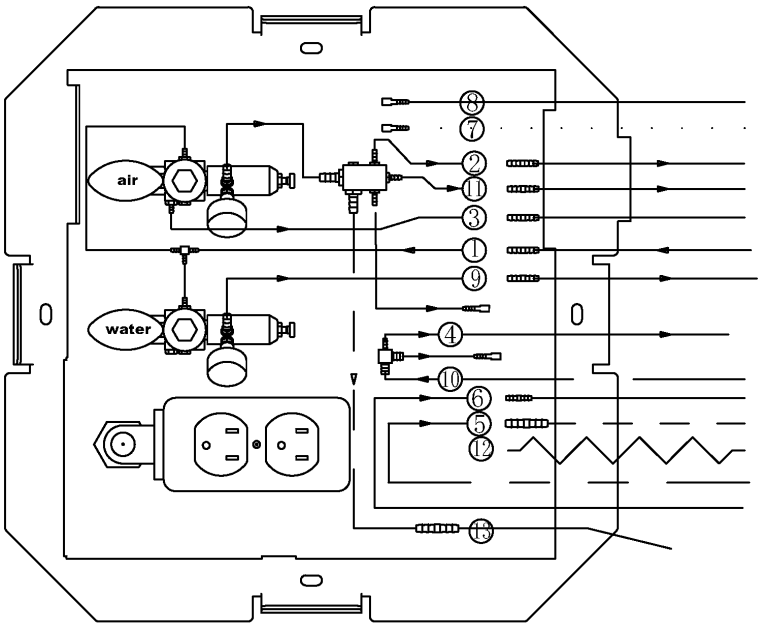
1. Open the valves to exhaust water and air, clean the tubes before connecting.
2.. Open the cover of the junction box，connect the air-in，water-in and water-out .
3. Take out the power box of dental light ,connect the power cord to the power box, and plug into the socket.
4. Close the cover after making sure they are well-performed.

6.8 Connections of junction box



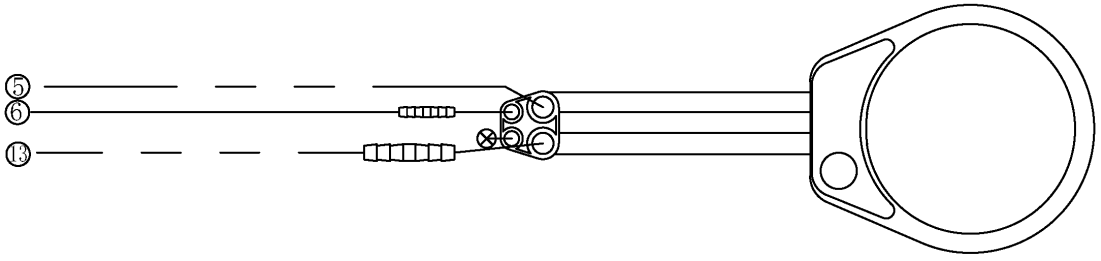
1、 1/8"Orange-Tool disk main gas loop
2、 1/8"Yellow-Main gas supply
3、 1/8"Black-Tool disk total gas
4、 1/8"Blue-Tool supply pipe
5、 1/4"Black-Foot drive gas
6、 1/8"Red-Water and no water control gas
7、 1/8"White-Tool disk reserved tube
8、 1/8"Brown-Tool disk reserved tube
9、 1/4"、 Blue-Main water supply
10、 1/4"、 Red-Water bottle supply pipe
11、 1/8"、 Green-Water bottle air supply pipe
12、 Negative pressure tube
13、 Foot tube

The tubes of junction box and those of the chair shall be connected by color.



Foot tubes connection

Connect the foot tubes and the tubes of junction box & the chair by color.



7 Application notice

7.1 Attentions

Before operating the unit, please read the manual carefully

- Input voltage : AC110V，60Hz.
- Make sure the unit is in good grounding .
- The unit needs professional maintenance..
- All the electrical components and connections should be made by an authorized technician.
- All power and water,air supply must be cut off after work finished every day.
- The equipment should not be operated in the environment of high temperature, high humidity, vibration, flammability, unbalance, or dusty.
- No object can be touched in the unit's working range.
- Do not touch the bulb and the refector of the dental light when the equipment is working.
- This equipment can not be used in the environment of strong magnetic, electromagnetic.

• The equipment should not be used for purposes other than intended use .

• The water source of the system should be purified tap water, the water used shall conform to the local water standards, water hardness ≤ 450 mg/L .

• The compressed air used for the system requires no water, no oil, and no sanitary defects. The air used in dentistry shall comply with local standards.

• Sterilize the water tubings with once a day with standard disinfectant. Water bottles are only available for use with distilled water.

• Exhaust water in the air pressure regulator filter in time.

• Clean or replace water filter core in time.

• The filter should be cleaned every week .

• The power must be cut off when replacing electrical components.

• The power must be cut off before maintenance and cleaning.

• If you want to install functional accessories in the machine, such as scaler, curing light or other accessories ,they must be high quality products that passed the safety certification .

• Transportation, storage environment requirements：

a. Ambient temperature range： -40 ~ +70° C,

b. Relative humidity range： 20%~90%, Including condensation ,

c. Air pressure range： 12.5~15psi.

• Protect against rain and vibration in transportation, handle with care.

•Packaged equipment should be stored indoor with less than 80% relative humidity , non-corrosive gases, and in good ventilation.

• The waste water, waste disposal must meet the local environmental protection requirements.

• The system should be operated by professional dentist and people with training, or under the guidance of professional dentist. The unauthorized, the untrained,and non-professionals are not free to carry out any operations.

• Equipment maintenance must be done by the company's professional technicians, unauthorized dismantling and maintenance may cause fatal harm to the machine, and no longer enjoy the company's warranty service.

7. 2 Warning Information

- You should read and understand the contents of the instructions carefully before operating the equipment.
- Operation should follow all warnings and cautions on the instrument .
- The power socket cable should be in accordance with the standard configuration and the ground wire must be secure .
- Delivery head shall not be stacked with too heavy items (max load 2.5kg) .
- Air pressure of the system has been set before leaving factory, non-professionals are not free to adjust.
- Turn off the main switch of water, gas, power when get off work every day.
- The handpiece shall supply water only when the foot switch is in the state of water supply. (only for 4-pin handpiece tube)
- Hospitals or individual clinics who use the equipment must be equipped with or connected to an amalgam separation device in the waste discharge system .
- The water and air must be exhausted and then cut off the water source and electricity when maintaning or repairing; switch on the power, water and air before the use.
- The 3-way syringe handle and syringe tip should be put into the disinfection bag to disinfect, and then 134 ℃ (pressure 29.8psi) high pressure steam disinfection, disinfection time is no less than 3 minutes.
- Please read the user’s guide before cleaning and disinfecting the high speed turbine and pneumatic micromotor.
- The cover clean with wet cloth and neutral detergent to ensure smooth and elastic leather surface free from corrosion; ABS parts clean with a soft cloth dampened with soap water; the metal baking parts wash with soft cloth dipped in soapy water or wipe with a wax spray.
- Take an extra care with a fiber-optic handpiece to avoid damaging the shining tip and make sure the tip will not come into contact with the treated mixture, keep a certain distance or use a transparent sheet before the first 5 seconds of treatment.
- Any traces left by the mixture on the tool must be removed immediately, remove the fiber-optic handpiece and clean it with a cloth dipped in alcohol.
- Don’t point the light of the fiber-optic handpiece to the patient's eyes for the light may harm to patient's eyes,even cause temporary blindness!
- Connect the polishing handpiece ONLY to the dedicated handpiece tubing (non-standard feature). Any damage caused by connecting to other handpiece tubing, such as valve clogging, is not covered under the warranty. For details of dedicated polishing handpiece tubing, contact dealers or the manufacturer.

8 Operations

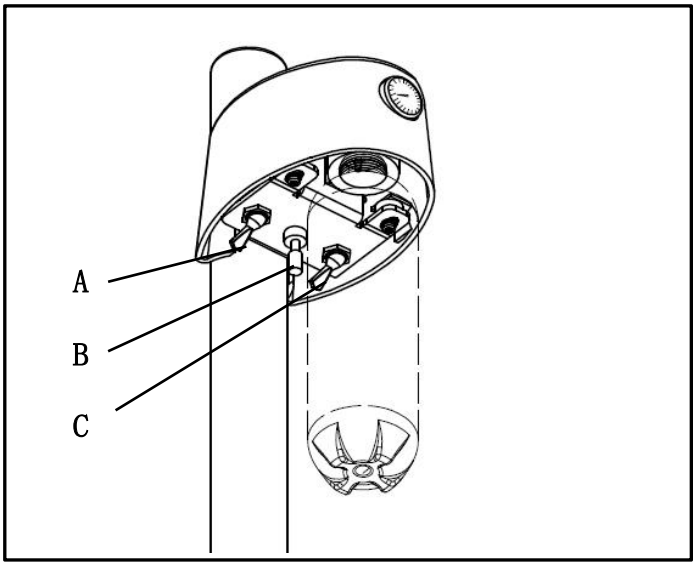
8. 1 Water supply system

1.5 L quick-disconnect water bottle mounted on the front rotary arm ,provide simple and convenient solution to control water quality.

A Air Supply

B Air pressure adjustment

C City/Bottle selector



Using Bottled Water

1.Turn the Air Supply switch to the OFF position and allow several seconds for air pressure to be released from the bottle. **Never attempt to unscrew the bottle while it is pressurized!**

2.After relieving pressure,remove the empty bottle and install a full bottle.

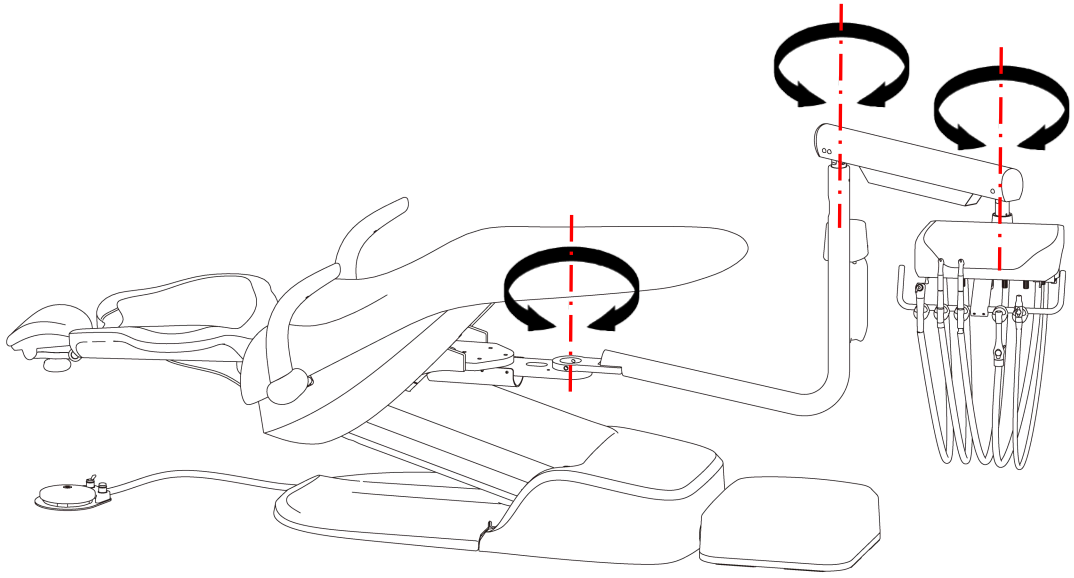
3.Turn the Air Supply switch to the ON position and check for leakage at the bottle .

CAUTION: Only water bottles supplied by the manufacturer can be used .Do not use soft drink bottles which are thin walled and may rupture when under pressure.

WARNING: Do not attempt to adjust the water bottle pressure. Bottle pressure is factory pre-set 40psi.Pressurizing the water bottle over 40 psi may cause the bottle to rupture.

8.2 Dentist unit

The device can be rotated as shown.



8.3 Foot control

- To close the water coolant, please put the toggle to the left position.
- To open the water coolant, please put the toggle to the right position.



8.4 Junction box

Water,air, electric pipelines and the globe valve

The manual disconnect valve is used for controlling the flow of gas and water to the delivery head. To prevent leakage, these valves should remain fully open (rotating counterclockwise), except for maintenance. Air and water flow through their filters and into the regulator. Please replace these filters when they are blocked and restricted.

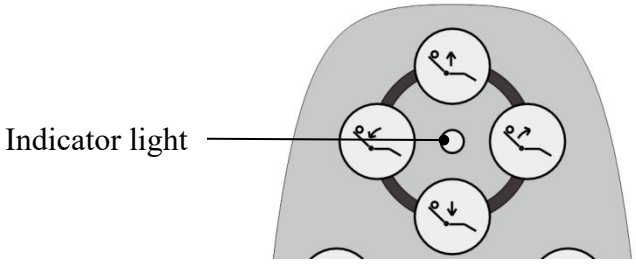
8.5 Control panel（non-standard configuration）

Main control panel



8.5.1 System state

The light-on of control panel indicates a normal working state, and you can operate normally



8.5.2 Chair position buttons

Symbols	Functions	Symbols	Functions
	Backrest Up	P	Set
	Backrest Down	LP	Spitting position
	Chair Down	P_1	Program Chair Positions 1
	Chair up	P_2	Program Chair Positions 1
0	Original position	P_3	Program Chair Positions 1

8.5.3 Initial settings of the chair

Notice： The hydraulic system shall have the initial setting of the chair in following situations：

First installation or replacement of mainboard

Insert/replace/repair any position feedback potentiometer or wiring

Reset or replace the limit switch.

Reset the motion range of the chair.

Caution： When setting up the system, do not extent the maximum range of the cylinder to prevent the hydraulic pump from working improperly!

Hydraulic system initial settings specification:

1. Reset chair setting: Long press "P" key for about 12 seconds until the second buzzer, enter the initial setting state, press "P1" key, buzzer 1, exit the setting state.
2. Set the initial chair position and the spitting chair position: Long press the "0" key for about 12 seconds until the second beep, enter the initial setting state, lower the chair to the lowest, and raise the backrest to the highest, and then press the "O" key. Adjust the chair again, raising the chair to its highest point and the backrest to its lowest point, then press the "LP" key to complete the setup.

8.5.4 Initial settings description



- Adjust the chair to the required working position and the oral lamp to the required state (on or off), then long press the "P" key (about 2 seconds), and the system will enter the setting state after one buzzer (release the key at this time to avoid entering the reset initial setting state), then press the "P1" key, and then long press the "P" key (about 2 seconds), after two buzzers, The Settings are complete and exit the Settings state.
- When setting P2 and P3, repeat P1.

8.5.5 Chair positions description

. Backrest Up 

Press this button continuously and the backrest will move upwards. When the backrest reach the desired position, stop pressing the button and the backrest will stop immediately.

NOTE: If you press the button continuously, when the chair backrest reach the limit position, it will automatically stop the movement.

. Backrest Down 

Press this button continuously and the backrest will move downwards. When the backrest reach the desired position, stop pressing the button and the backrest will stop immediately.

NOTE: If you press the button continuously, when the chair backrest reach the limit position, it will automatically stop the movement.



. Chair up

Press this button continuously and the chair will move upwards. When the backrest reach the desired position, stop pressing the button and the backrest will stop immediately.

NOTE: If you press the button continuously, when the chair backrest reach the limit position, it will automatically stop the movement.

. Chair down 

Press this button continuously and the chair will move downwards. When the backrest reach the desired position, stop pressing the button and the backrest will stop immediately.

NOTE: If you press the button continuously, when the chair backrest reach the limit position, it will automatically stop the movement.

. Original position 

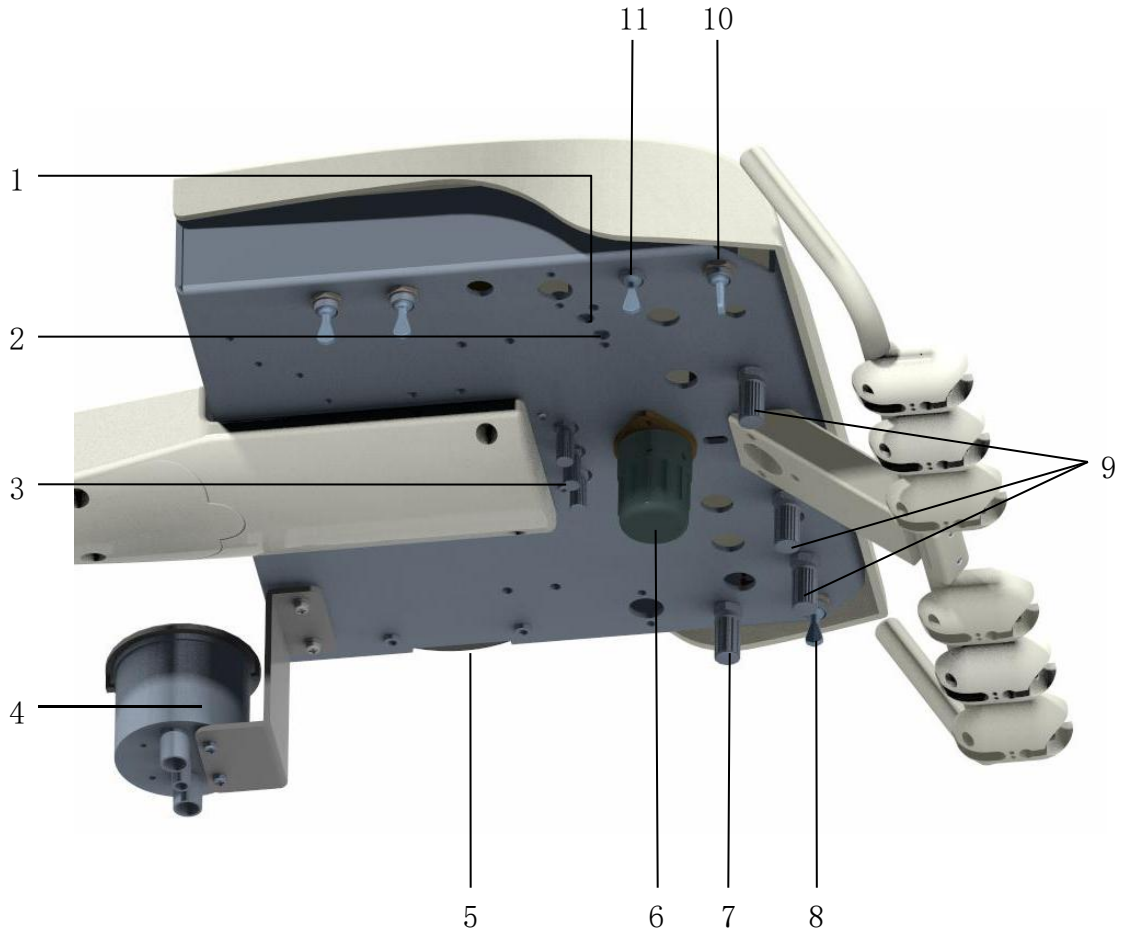
Press the button, the chair and backrest will move to the original position automatically(Original position : backrest highest , the chair lowest) and light off . Press this button again , the chair returns to former position and light on. The chair shall stop at a new position by halfway stop.

. Spitting button 

Press the button, the chair and backrest will move to spitting position automatically(Spitting position : backrest highest , the chair is still) and light off . Press this button again , the chair returns to former position and light on. The chair shall stop at a new position by halfway stop.

9 Functions introduction

9.1 Valves layout of delivery head



No.	Components	No.	Components
1	Syringe air control	7	Air Coolant
2	Syringe water control	8	Air Brake
3	Handpiece air adjustment	9	Handpiece Flow Controls
4	filter	10	Air Brake
5	Drive Air Pressure Gauge	11	Master On/Off
6	Fouling cup		

9. 2 Functions introduction

Master On/Off: this toggle switch activater the air and water shut-off valves, which control the air and water supplies to the unit.

Air Coolant:

①Take off the handpiece from the holder.

② Find the controller of air coolant.

③Step on the foot control to start the handpiece.

④Adjust the air coolant, to the ideal atomization effect as the standard.

Rotate in counterclockwise to increase flow, clockwise to decrease flow.

Handpiece Flow Controls:

①Take off the handpiece from the holder.

②Find the controller of air coolant.

③Open the cooling water(open the water/no water state valve on the pedal control board).

④Step on the pedal control board to start the handpiece.

⑤Adjust the cooling water flow.

Rotate the control valve counterclockwise to increases water coolant, clockwise to decreases water coolant.

Air Brake:

These momentary toggles activate and release the pneumatic brake in the flex arm.

Syringe air control: Turn on the switch on the syringe and rotate this valve counterclockwise to increase flow, rotate clockwise to decrease flow.

Syringe water control: Turn on the switch on the syringe and rotate this valve counterclockwise to increase flow, rotate clockwise to decrease flow.



CAUTION: Only use water bottles supplied by the manufacturer.Do not use soft drink bottles which are thin walled and may rupture when under pressure.

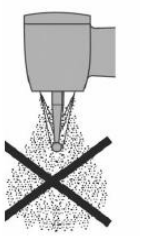


CAUTION: Avoid operating the handpieses for esterded periods longer htan is required to check gauge pressure.Extended operation without load can damage the handpiece.Do not operate the handpiece without a burr in the chuck.

Handpiece adjustment：

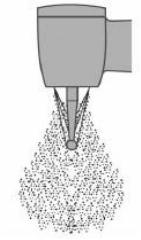
Turn off mist spray





Turn on mist spray









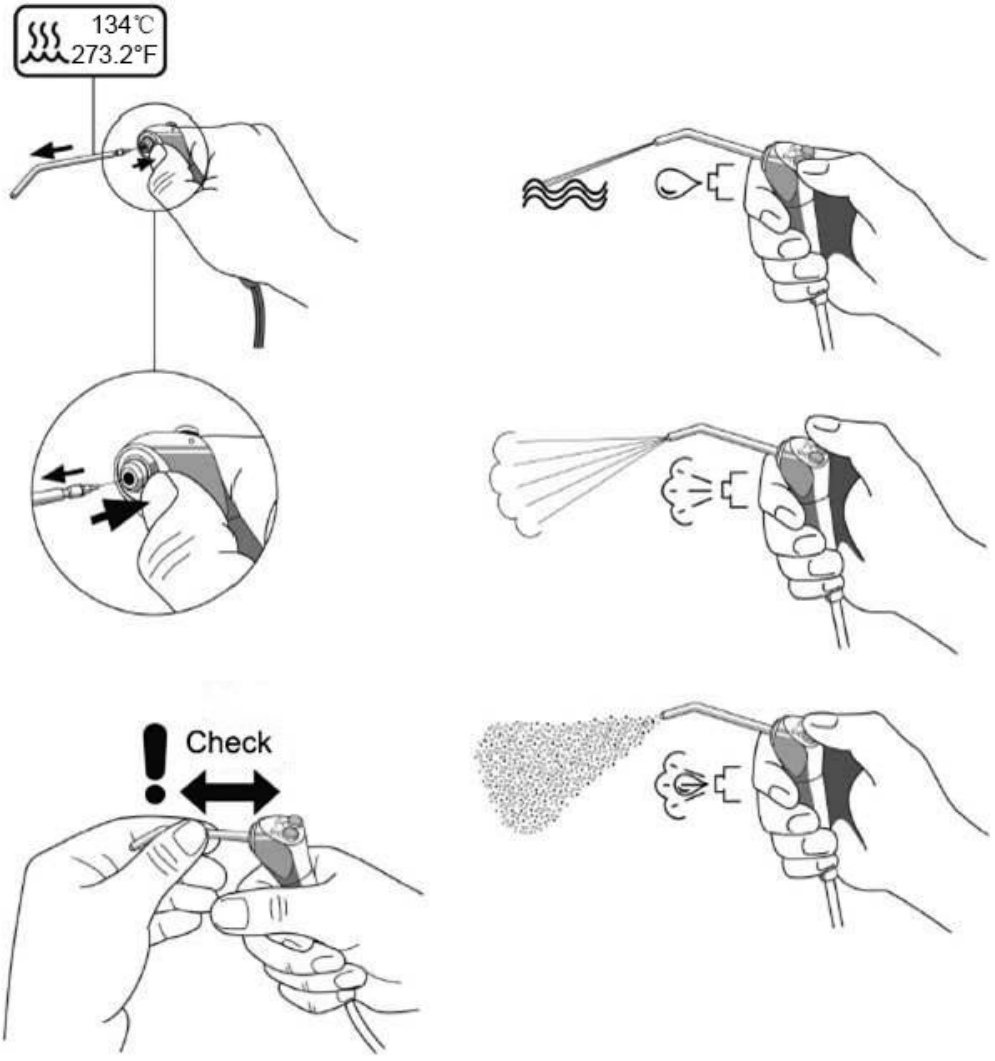
NO



OK

Note： Adjust the drive air pressure to meet the demands of handpiece manufacturer's drive air pressure specification. Refer to your handpiece documentation for the drive air pressure specification.

9. 3 3-way syringe adjustment



10 Maintenance & sterilization instructions

Touch surface & transfer surface

Touch surface refers to the surface area that need contact in dental treatment while can be potential cross contamination points.

Transfer surface refers to the surface area that contaminated from contacting with the instruments or other inactive object.

ADS company recommends isolating protection for all applicable touch surfaces and transfer surfaces. The partition used must be a plastic film approved the Food & Drug Administration. The plastic films should be taken off and discarded after the treatment of each patient.

10. 1 Handpiece tubings cleaning & maintenance

Flush the tubings independently or together.

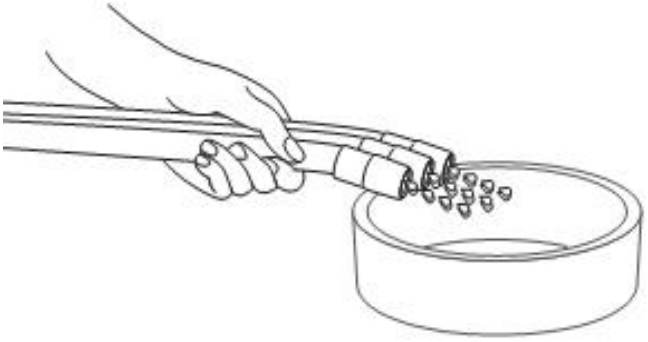
After each patient:

1. Disconnect the handpiece before flushing the conduit.

2. Gather handpiece tubings that use water coolant and hold them over a sink, cuspidor bowl, or basin.

3. Hold the tubings so that the water is directed away from you and into the receptacle .

4. Flush the tubing continuously about 20~30 min.



10. 2 Clean HVE & SE valves

Suggestions:

- Suck 2 cups of fresh water in every two hours during working time;
- Suck 1 liter of water after daily working.

10.3 Maintain 3-ways syringe

To ensure the proper functioning and longevity of the 3-ways syringe, regular maintenance is necessary.

Maintenance Frequency: at least once a month.

Daily Usage Precautions:

- Before each use, perform a preliminary operation check away from the patient's mouth. If you notice any looseness, vibration, air leaks, or water leaks, stop using the device immediately and have it serviced by a professional from your dealer.
- Do not clean the tip or other components of the syringe with hydrogen peroxide or disinfectants, as this can cause corrosion of the parts.
- If air, water, or spray functions malfunction, stop using the device immediately and contact your dealer.

Warning！

- Do not use a deformed syringe tip! There is a risk of danger and damage to the product!
- Any form of dropping or impact can cause damage to the syringe. Avoid dropping or impacting the syringe!

Procedure

1. Turn off the air supply and water supply from the dental unit.
2. Use an M4 hex wrench to uninstall the tip locking retainer.
3. Remove remaining components, such as the O-ring and spring, in sequence.



Figure 1 Angled Syringe Tip Locking Retainer Uninstallation



Figure 2 Straight Syringe Tip Locking Retainer Uninstallation

4. Push out the button retention pin. Figure 3 shows an example on the angled syringe.
5. Remove buttons and other components, such as the O-ring and spring, in sequence.

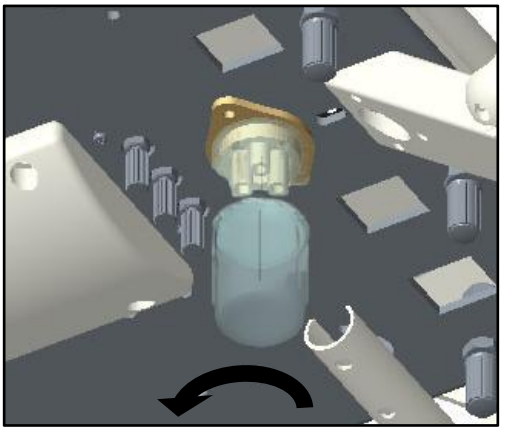


Figure 3 Syringe Button Uninstallation

6. Rinse the syringe components with purified water, which is to prevent blockages in the tubing, connectors, and seals.
7. Reinstall the components in reverse order.

10.4 Clean dirty collector

Keep weekly maintenance, increase maintenance times when use frequently .



To clean the collector:

1.Unscrew the dirty collector counterclockwise and remove it;

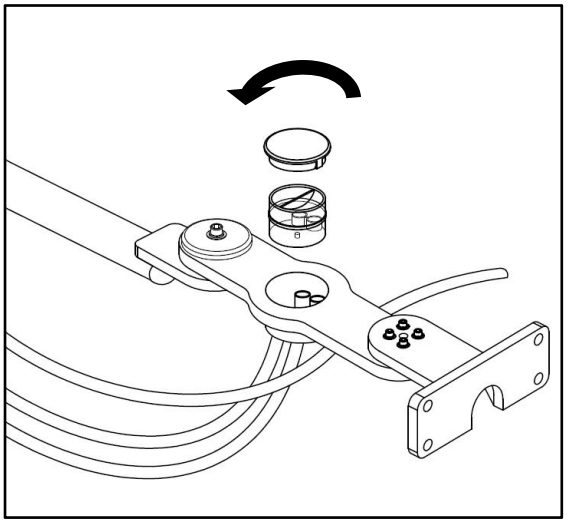
2.Discard used cotton.

3.Put some cotton into dirty collector;

4.Tighten the dirty collector clockwise.

10.5 Clean the filter

The filter aids in preventing solids from entering the suction system . To ensure a good working state of the suction system, please clean the filter screen at least twice a week.



To clean the filter：

1. Close the suction system.
2. Pull out the filter ,remove the filter screen and clean the solids.
3. Reinstall the filter.

11 Troubleshooting

Please contact your local dealer for help if there is malfunction occured in your system.

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

ADS Dental System Inc.

Add: 1590 S Milliken Ave., unit A, Ontario, CA 91761
Tel: (626) 620 0456
E-mail: ads@adsequip.com
http://www.adsequip.com/