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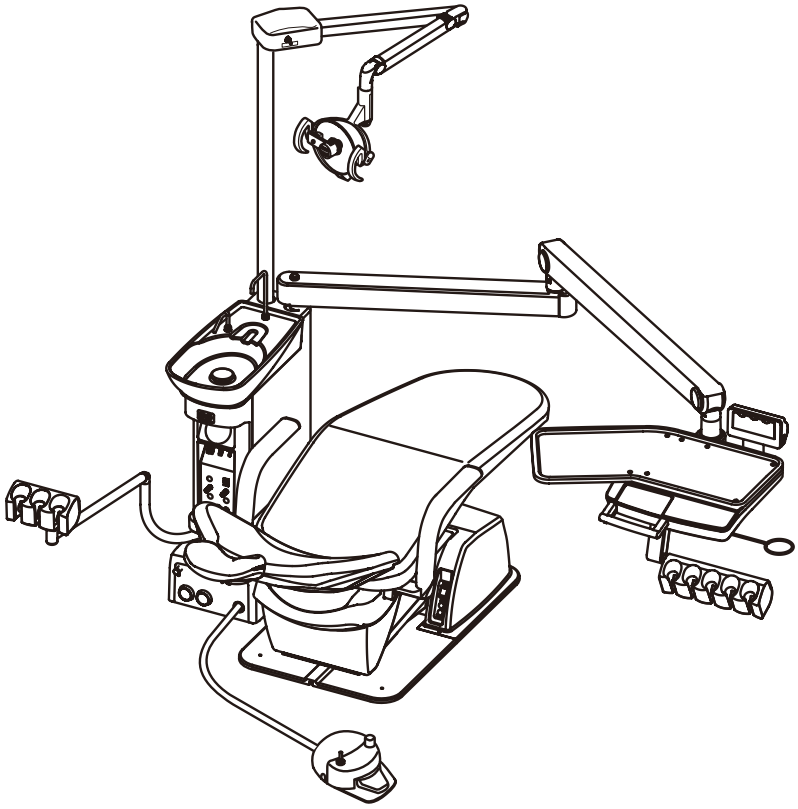
DENTAL UNIT

CLESTA eIII

INSTALLATION INSTRUCTIONS



IMPORTANT

This manual provides installation instructions for the CLESTA eIII.
The instructions contained in this booklet should be thoroughly read and understood before installing the chair and unit.
After the installation has been completed, keep this manual in a safe place and refer to it for future maintenance.

Belmont

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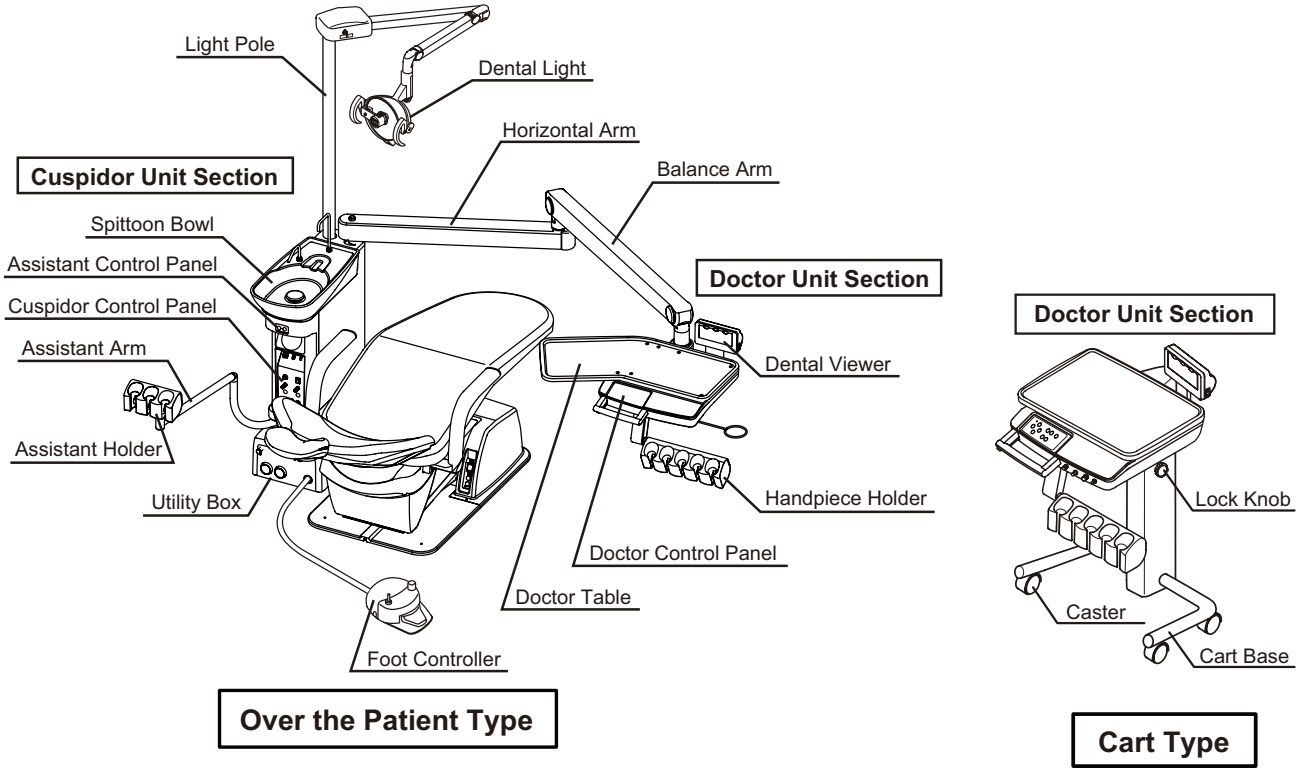
1. Overview and Major Components



2. Dimensions and Specifications

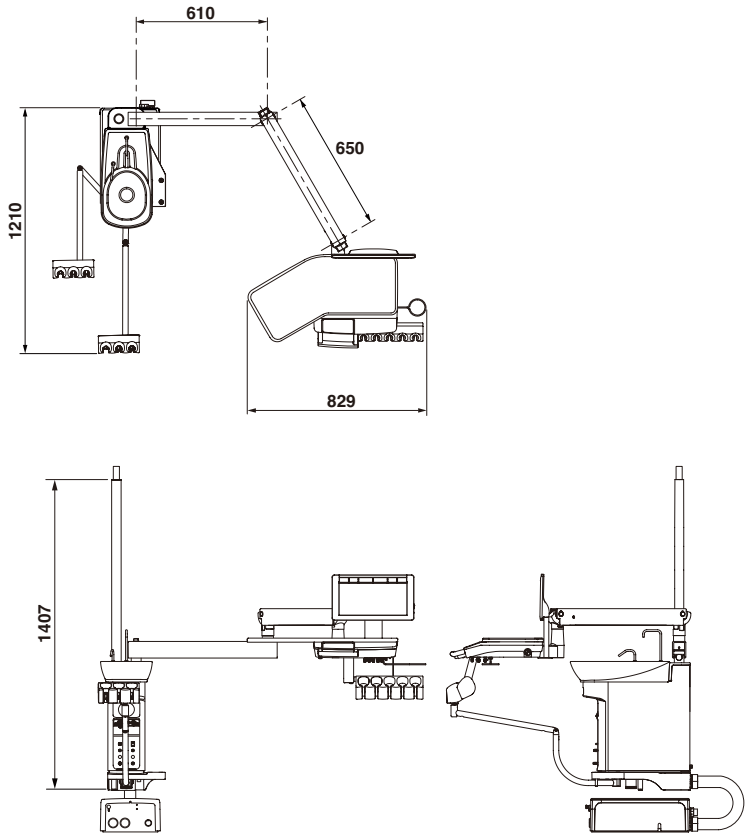
2-1. Specifications

Rated power supply	: AC110V 50/60Hz AC120V 50/60Hz AC220V 50/60Hz
	AC230V 50/60Hz AC240V 50Hz
Fuse	: 110V 120V 10A/125V
	220~240V 5A/250V
Air main pressure	: 0.45 ~ 0.5MPa
Water main pressure	: 0.1 ~ 0.2MPa
Weight	: 70kg (Without dental light) Over the Patient Type
	: 80.7kg (Without dental light) Cart Type
Dental Light	: AL-501 Dental light
	: 048 Dental light
Usage environment	: Temperature +10ºC ~ +40ºC
	Humidity 30% ~ 75%
	Air pressure 700 hPa ~ 1060 hPa
Transportation / Storage environment	: Temperature -20ºC ~ +70ºC
	Humidity 10% ~ 95%
	Air pressure 700 hPa ~ 1060 hPa
Service Life	: 10 Years

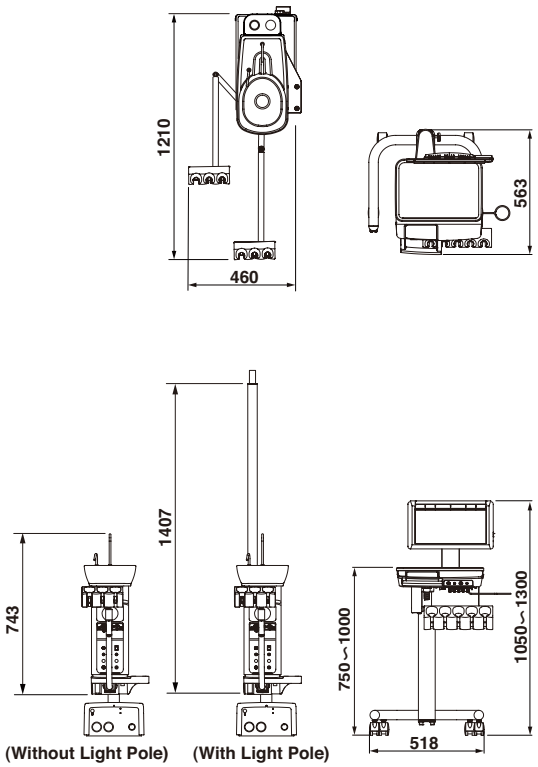
Equipment that is not suitable for use in air, flammable anesthetic gas, oxygen or nitrous oxide.

2-2. DIMENSIONS

■ Over the Patient Type



■ Cart Type



Unit : mm
Dimensional tolerance: ±10%

3. Installation Requirements

General Requirements

(1) The contractor is to supply the necessary service and materials to complete the installation to the satisfaction of the dentists and the installation engineer.

(2) This includes the supply and installation of the power source wires, air supply piping, water supply piping, suction piping including suction control wires and drain piping as noted on page 5 for installation position and plumbing layout.

Setting Requirements

(1) The CLESTA eIII dental unit comprises of a Chair section, Cuspidor unit section, Doctor table section and Dental light section.

(2) The CLESTA eIII should be mounted taking the opening end of drain pipe (Installation reference point) into due consideration. (See page 5 for installation position and plumbing layout)

(3) The area on which the CLESTA eIII is to be installed must have endurance force of 490kg/m2.

(4) The installation position of the CLESTA eIII is shown in page 5 for installation position and plumbing layout as a recommended example.

Piping and Plumbing Requirements

(1) All piping and conduit for cables are to be laid under the floor and to come out from the floor in the positions shown in page 5 for installation position and plumbing layout.

(2) The installation position and height from the floor of each pipe and cable conduit are shown in page 5 for installation position and plumbing layout.

(3) The recommended sizes, materials and end piece are shown in list below.

(4) Regarding installation of the vacuum pump and its connection to the main suction line, follow the specifications of central vacuum pump system manufacture's recommendation.

Item	Material	Size	End Piece
Compressed Air Supply Pipe	Shock Resistance P.V.C. Pipe HI-13	Out. Dia.18mm In. Dia. 13mm	PT1/2
Water Supply Pipe	Shock Resistance P.V.C. Pipe HI-13	Out. Dia.18mm In. Dia. 13mm	PT1/2
Suction Pipe	P.V.C. Pipe VP-20	Out Dia. 26mm IN. Dia. 20mm	
Drain Pipe	P.V.C. Pipe VP-50	Out. Dia.58mm In. Dia. 50mm	
Power Supply Cable Conduit	P.V.C. VE-16	In. Dia. 16mm	
Vacuum Control Wire Conduit	P.V.C. VE-16	In. Dia. 16mm	

Note : The suction pipe and drain pipe should be laid under the floor with an inclination of 1/200 - 1/400.
Air vacuum type does not require suction pipe, vacuum control wire and its conduit.

Air Supply Requirements

(1) Compressed air to be supplied should be filtered.
Dirt and moisture in the air may cause trouble in unit air system.

(2) Air Pressure
Regulate the outlet air pressure of the compressor to the utility box at 0.5-0.7MPa (5.0-7.0kg/cm^2) and the air pressure should be kept between 0.45-0.5MPa (4.5-5.0kg/cm^2) in the utility box at any time.

(3) Compressed Air Supply Capacity
Central vacuum type . . . at least 60 l/min.
Air vacuum type . . . at least 100 l/min

Water Supply Requirements

(1) The supply water should be clean.
Dirty water may cause trouble in unit water line.

(2) Regulate the water pressure of the water supply to the utility box at 0.2-0.4MPa (2.0-4.0kg/cm2) for operating unit efficiently. The water pressure should be kept between 0.1-0.2Mpa (1.0-2.0kg/ cm2) in the utility box at any time.

(3) Amount of water
Central saliva ejector type . . . at least 5 l/min.
Water saliva ejector type . . . at least 7 l/min

Electric Supply Requirements

(1) The connection of the power supply cable is to be carried out in accordance with the local electrical regulation.

(2) Capacity of the power supply (Include the CLESTA eIII Chair)

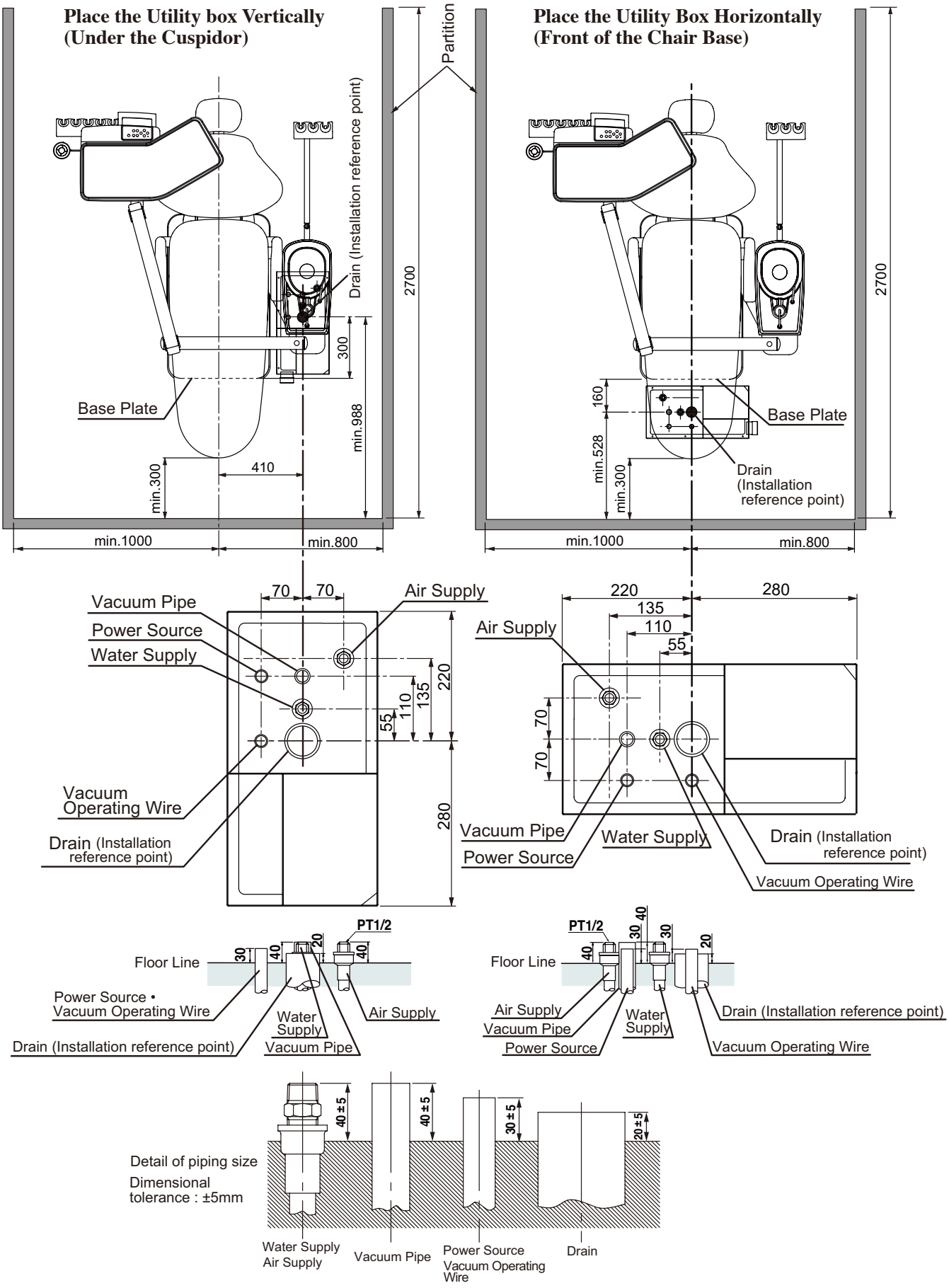
110/120V Type	Single Phase 50/60 Hz	: 10A
220V Type	Single Phase 50/60 Hz	: 5A
230V Type	Single Phase 50/60 Hz	: 5A
240V Type	Single Phase 50Hz	: 5A

(3) Power supply line should be provided with fuses or circuit breaker in accordance with power consumption.

(4) The earth wire (ground wire) should be proved in the utility box.

(5) All cables should have at least 500mm surplus from the floor so that they are long enough to be connected to the terminals in the utility box.

Unit : mm
Dimensional tolerance: ±10%



Air vacuum type does not need vacuum pipe, vacuum operating wires and conduit.

Installation Position and Plumbing Layout (Central Vacuum Type)

4. Necessary Tools for installation

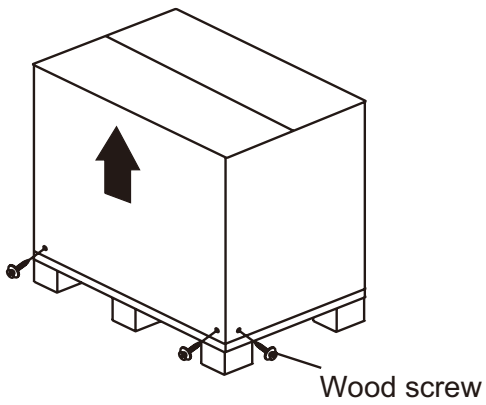
The following tools are necessary to assembling this product.

No.	Name of Tools	Qty.
1	Phillips head screwdrivers #2~ #4	1 pc./each
2	Flat head screwdriver	1 pc.
3	Precision screwdriver set (Phillips head / Flat head)	1 set
4	Adjustable wrench	1 pc.
5	Water pump pliers	1 pc.
6	Open end wrench set (5.5 ~ 24mm)	1 set
7	Allen wrench set (1.5 ~ 8mm)	1 set
8	Socket wrench set (8~22mm)	1 set
9	Long nose pliers	1 pc.
10	Diagonal pliers	1 pc.
11	Wire stripper	1 pc.
12	Wire crimp tool	1 pc.
13	Blade knife	1 pc.

5. Installation Instructions

5-1. Unit Section Unpacking

1. Remove all wood screws fixing the carton to the pallet and lift up to remove the carton.



2. Open the boxes that contain parts and check the contents of each box with the accessory parts list attached to the parts box and with below list. Make sure to use provided parts such as screws, joints, and stainless flexible pipes that are used to mount the chair or for plumbing in the utility box.
Also, check the necessary parts for installing the option by referring to the below list. Refer to the section 6: Installation of Accessories and Optional Parts instruction.
There are many small parts for optional kit that are packed in the plastic bag with option name label.

Utility Box (Plumbing) Parts / Unit fixing parts

No.	Description	Purpose / Location of use	Qty.
1	Spring washer M10	Unit fixing	4 pcs.
2	Nut M10	Unit fixing	4 pcs.
3	Hex head bolt M10 x 30	Unit leveling	4 pcs.
4	Wood screw M3.5 x 20	Utility box fixing	4 pcs.
5	Vacuum elbow	Utility box plumbing (Central vacuum)	1 pc.
6	Drain elbow	Utility box plumbing (Central vacuum)	1 pc.
7	Drain joint (Optional)	Utility box plumbing (Air vacuum)	1 pc.
8	Drain bush (Optional)	Utility box plumbing (Insert to drain pipe)	1 pc.
9	Stop valve (Water / Air)	Utility box plumbing	2 pcs.
10	Stainless flexible pipe	Utility box plumbing	2 pcs.

Unit Parts

No.	Description	Purpose / Location of use	Qty.
1	Waste receptacle & Bracket	Waste receptacle	1 pc./each
2	Light pole washer & Connectors (3 pcs.)	Dental light	1 pc./each
3	Cover hose clamp, pan head screw M3 x 16, Nut M3	Syringe (Assistant side)	1 pc./each
4	Collar, Pan head screw M4 x 35, Cap nut	Cart hose guide bracket	1 pc./each
5	Flat head screw M5 x 15	Table tray (Large size)	4 pcs.
6	Assistant arm stopper, M10 Spring washer	Mounting bracket	1 pc./each

Optional Parts

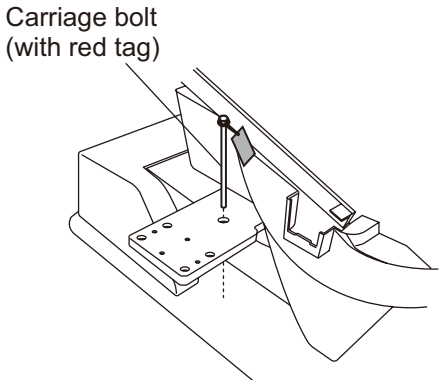
No.	Description	Purpose / Location of use	Qty.
1	Monitor rotation shaft, Washer, Bottom cover, Truss screw M4 x 12 (2 pcs.), Set screw M6 x 8 (2 pcs.), Hex cap bolt M5 x 8 (2 pcs)	Monitor bracket	1 set

Optional Kit

No.	Description	Purpose / Location of use	Qty.
1	EMS Scaler assembling Kit	EMS scaler	1 set
2	SP-4055 (P-Max) scaler assembling lit	SP-4055 (P-Max) scaler	1 set
3	SP-4055 NEWTRON scaler assembling kit	SP-4055 NEWTRON scaler	1 set
4	VARIOS170 scaler assembling kit	VARIOS170 scaler	1 set
5	CAVITRON scaler assembling kit	CAVITRON scaler	1 set
6	Handpiece flush-out assembling kit	Handpiece flush-out	1 set
7	Air service outlet assembling kit	Air service outlet	1 set
8	Water service outlet assembling kit	Water service outlet	1 set
9	DURR CS1 assembling kit	DURR CS1	1 set

5-2. Chair Section Preparation

1. Remove the carriage bolt from the chair.
   * Refer to the chair installation manual for preparation of the chair.
   * Do not attach the backrest and seat section until the unit installation has been completed.

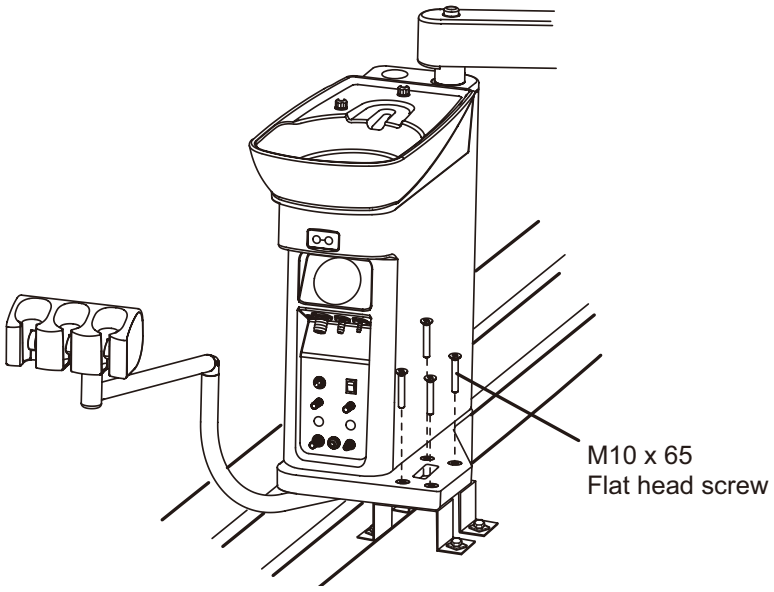


⚠CAUTION

Be sure to remove the carriage bolt from the chair before lift the chair by upper structure. This could cause damage to the chair if operate the chair without removing the carriage bolt.

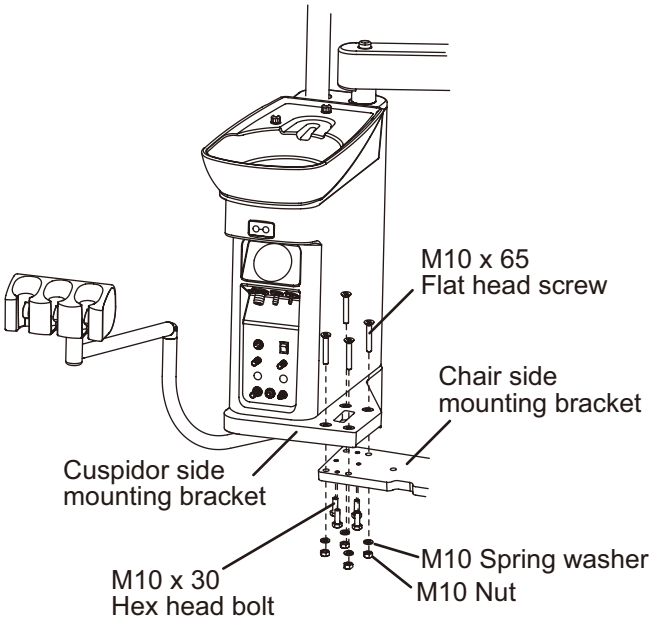
5-3. Unit Section Preparation

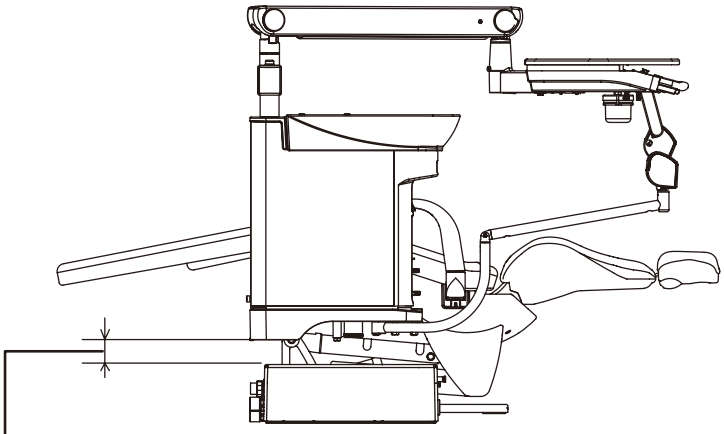
1. Remove two wood screws fixing the utility box to the pallet.
2. Remove four cuspidor unit fixing screws (M10 x 65 flat head screw) and hold the cuspidor unit.
   Four flat head screws are used when fix the cuspidor unit to the chair.



5-4. Mounting Cuspidor Unit to the Chair

1. Raise the dental chair to the highest position.
2. Mount the cuspidor unit on the mounting bracket of the chair and fix with four M10 x 65 flat head screw which fixed cuspidor unit to the pallet, and M10 spring washer, M10 Nut.
   Adjust the level of the cuspidor unit with four M10 x 30 level adjustment hex head bolt as needed.

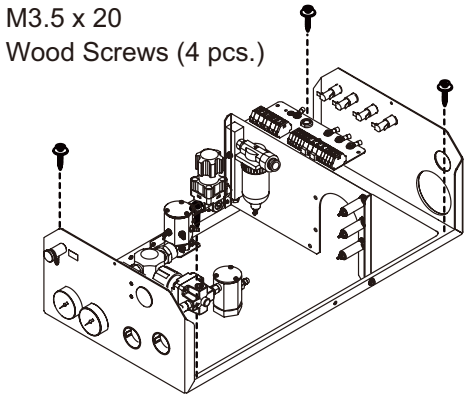




After mounted the cuspidor unit on the chair, please confirm that the cuspidor unit does not hit to the utility box when move the chair to lowest position.

5-5. Installation of Utility Box (Plumbing)

1. Install the water stop valve and the air stop valve to each supply pipe.
   The positioning of the stop valves are shown in page 5 for Installation Position and Plumbing Layout.
2. Fix the utility box to the floor with four M3.5 x 20 wood screws.



3. Drain Hose and Vacuum Hose Connection

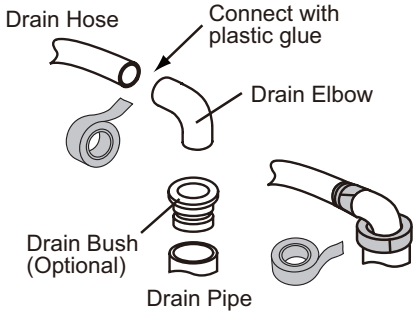
- Central Vacuum Type -

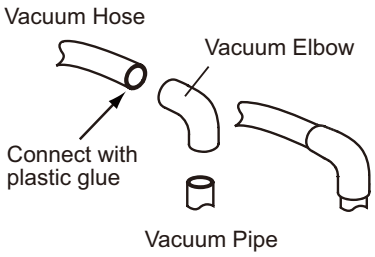
1) Cut the drain hose and vacuum hoses at suitable length and connect them to each elbow with plastic glue.

Note : The Drain hose should be sealed with silicone sealant or taping.

2) Insert the drain hose elbow and vacuum hose elbow into each pipe.

Note : The Drain pipe should be sealed with silicone sealant or taping.
Attaching Drain Bushing (Optional) to the Drain Pipe is desirable, and Drain Elbow should be bonded firmly into the Drain Pipe.





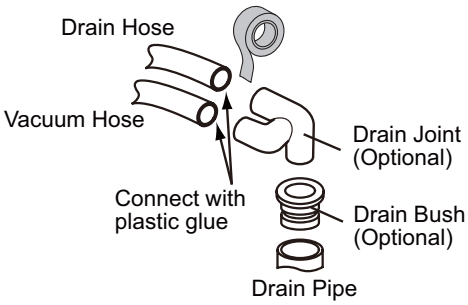
- Air Vacuum Type -

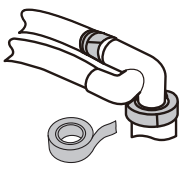
1) Cut the drain hose and vacuum hoses at suitable length and connect them to drain joint (Optional) with plastic glue (Pipe solvent).

Note : The Drain hose should be sealed with silicone sealant or taping.

2) Insert the drain joint (Optional) into drain pipe.

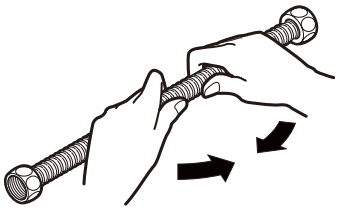
Note : The Drain pipe should be sealed with silicone sealant or taping.
Attaching drain bushing (Optional) to the drain pipe is desirable, and drain joint should be bonded firmly into the drain pipe.



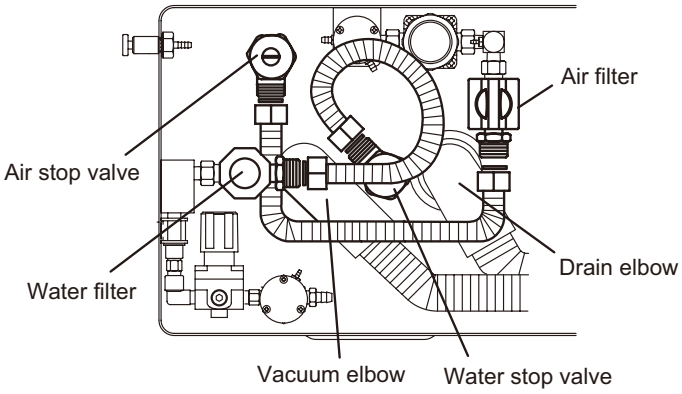


4. Water and Air Supply Line Connection

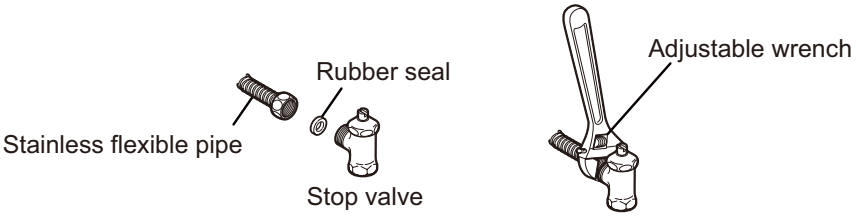
1) Bend each stainless flexible pipe to a suitable angle for easily connectable between water/air stop valves and water/air filters. (See figure below)



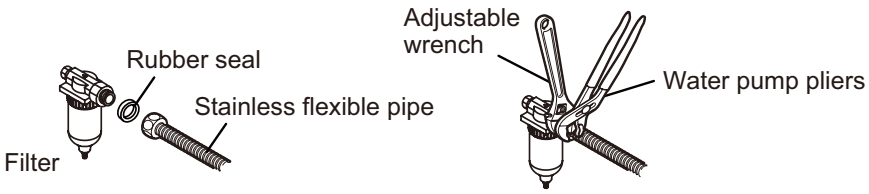
※ Be careful not to bend flexible pipe to acute angle. (Less than radius of 50mm)



2) Connect the stainless flexible pipe with rubber seal to water/air stop valves and tighten it securely using the adjustable wrench. Be careful not to pinch the rubber seal when connect it.

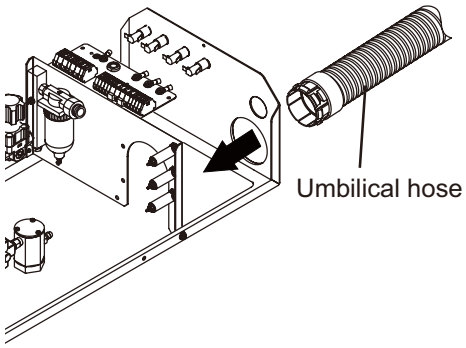


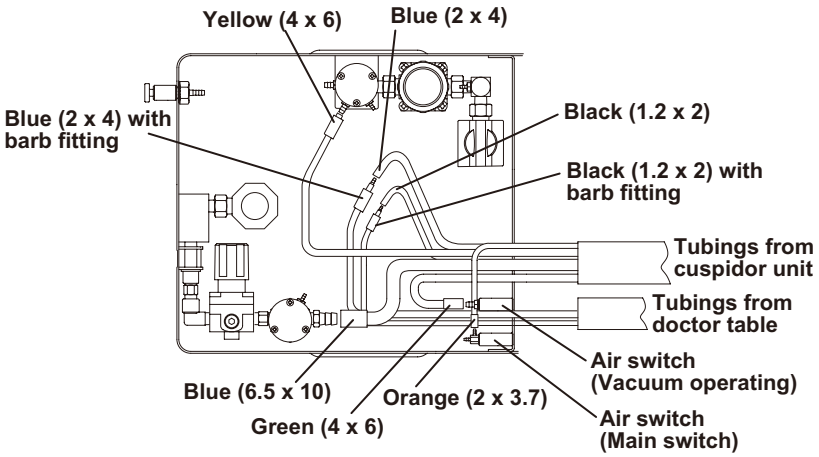
3) Connect the stainless flexible pipe with rubber seal to filters and tighten it securely using the adjustable wrench and water pump pliers. Be careful not to pinch the rubber seal when connect it.



5. Cart Type

1) Connect the umbilical hose to the utility box and connect the tubings from cuspidor unit to the utility parts. For air vacuum type, does not have the green turbing (ϕ4 x 6).





2) Connect the blue (2 x 4) tubing with barb fitting and black (1.2 x 2) tubing with barb fitting.

Blue tubing • • • Small size master valve in the cuspidor ~ Doctor table water line

Black tubing • • • Shuttle valve of the cupfiller in the cuspidor ~ Cupfiller switch of the doctor table

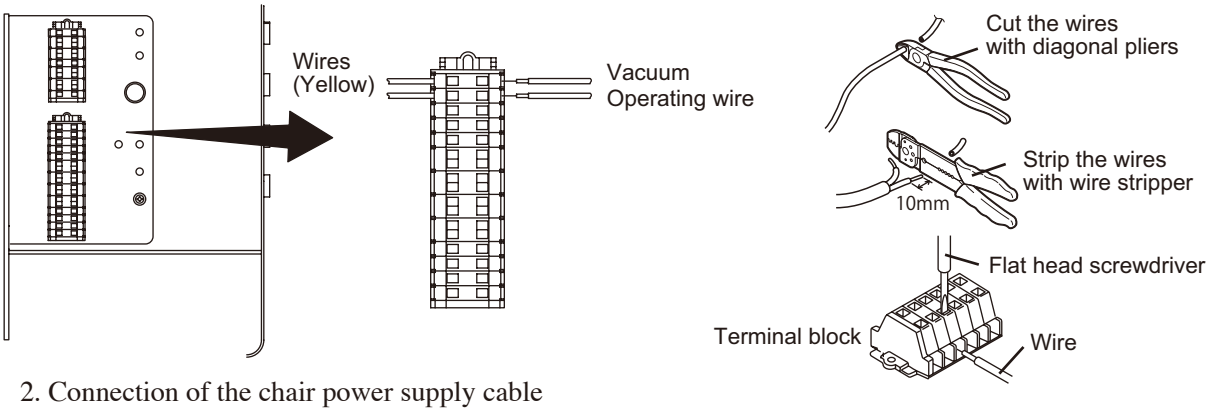
5-6. Electrical Connections in the Utility Section

* Be sure turn off the breaker of the power source line and main switch before connect the wirings.
  Be sure to connect the earth wire into the utility frame.

1. Connect the central vacuum operating wires to the terminal block.
   (This connection is central vacuum type only. The Air vacuum type does not have this connection.)

* How to connect terminal block

1) Cut the vacuum operating wires at suitable length with a diagonal pliers.
2) Cut the exterior insulation of the vacuum operating wires about 10mm using the wire stripper.
3) While pressing the slot of the terminal with a small head flat head screwdriver, insert the wire to the terminal and release the screwdriver. Make sure that the wire is connected securely.



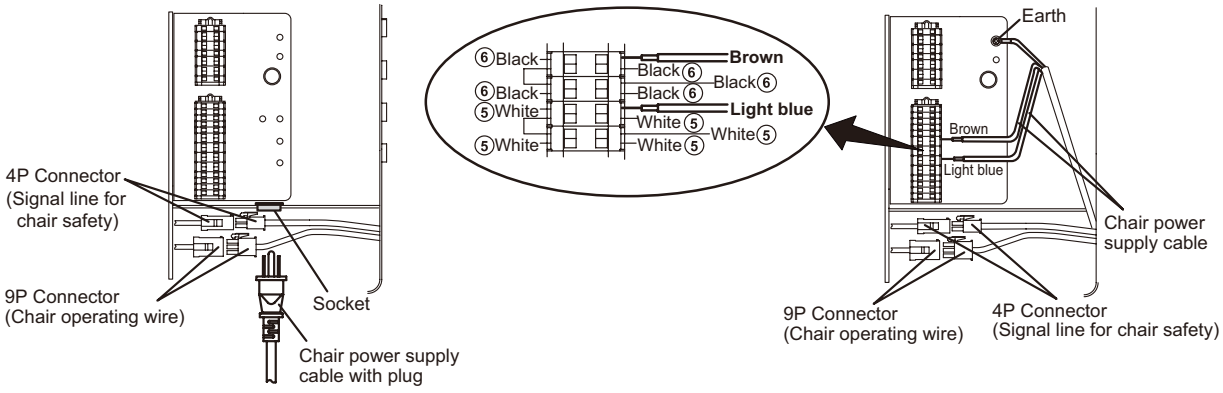
2. Connection of the chair power supply cable

-100V Type-

Connect the plug of the chair power supply cable to socket in the utility box.
Connect the unit side connectors (4P and 9P) the chair side connectors (4P and 9P) in the utility section.

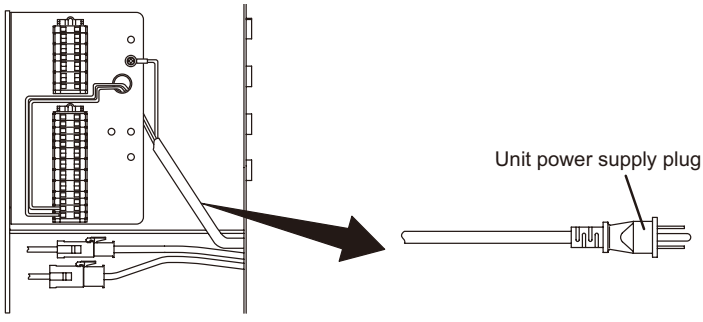
-200V Type-

Connect the chair power supply cable to the terminal block in the utility box. Connect the earth wire of the power supply cable onto the utility frame with M4 screw. (M4 screw is attached on the frame)
Connect the unit side connectors (4P and 9P) the chair side connectors (4P and 9P) in the utility section.



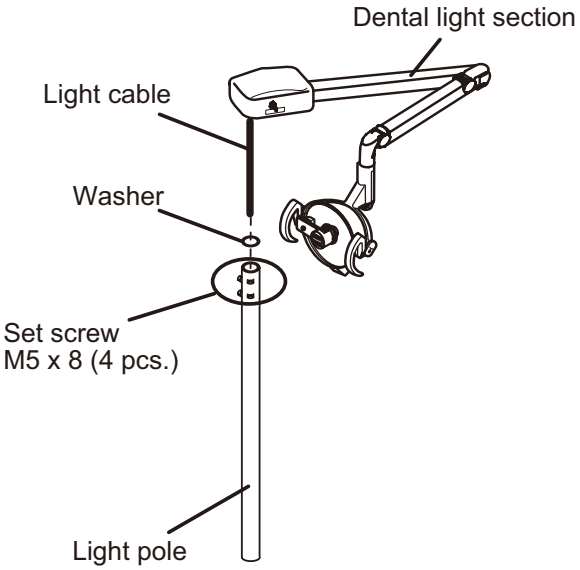
-100V Type- **-200V Type-**

3. Connect the unit power supply plug into the suitable power supply line in the utility section.
   The power supply plug may not be able to use depending on the countries. Use a plug adapter or replace a plug to plug it into the power supply line.

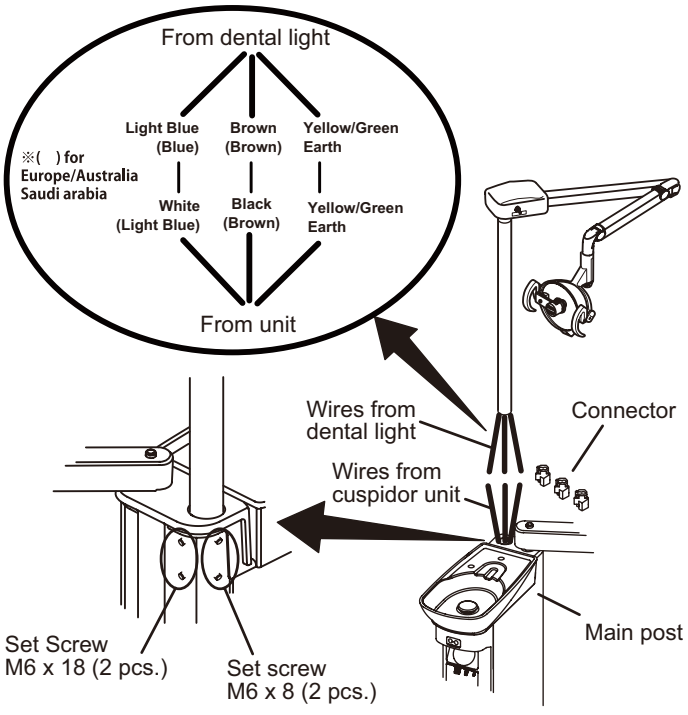


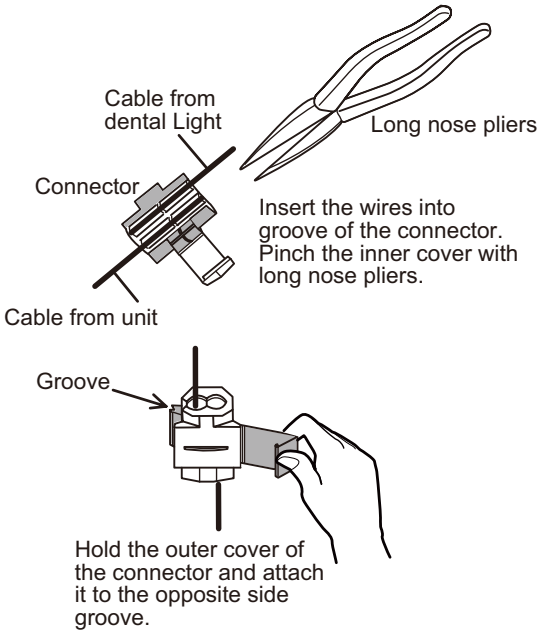
5-7. Installation of the Dental Light

1. Put washer (ϕ28.8 x ϕ40.5) on the light pole. Pass the light cable through the light pole and attach the dental light section to the light pole. Fix the light section and light pole with M5 x 8 set screws using the 5mm allen wrench. (Set screws are attached onto the light pole)



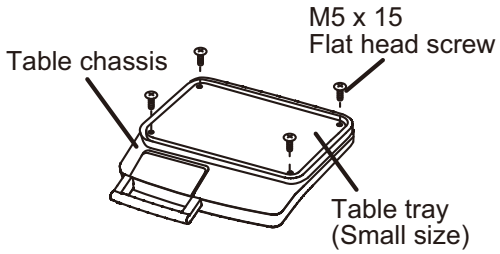
2.Connect the wires from the dental light and wires from the cuspidor unit one by one with connectors using the long nose pliers.
See the figure below for color of the wires from the dental light and the unit.
Insert the light pole to the main post and fix with two M6 x 18 and two M6 x 8 set screws using the M6 allen wrench (Set screws are attached onto the main post).



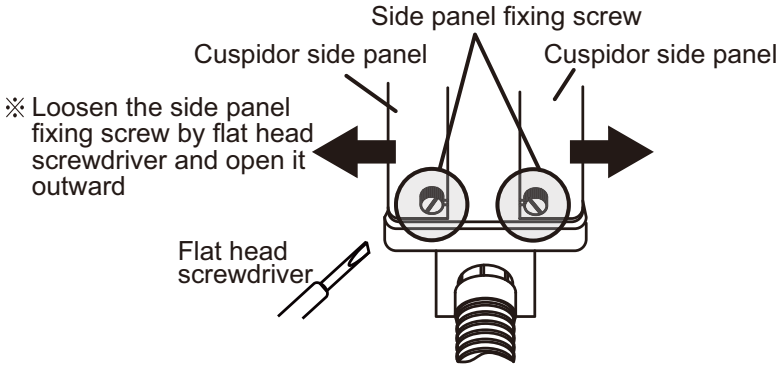


6. Installation of Accessories and Optional Parts

* Refer to the Final Assembly File (FAF) for installing the handpiece and separator.
* Do not attach the covers until the installation has been completed (Wiring, tubing connection and accessories, optional parts installation). The small size table tray and the cuspidor side panels are attached to the unit at the factory. Remove the small size table tray and cuspidor side panel as follows.



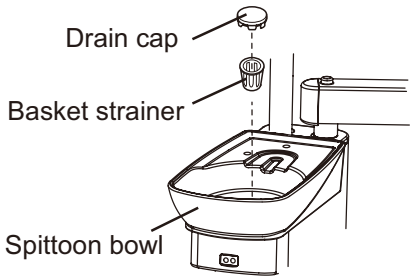
- How to open the table tray -



- How to open the cuspidor side panel -

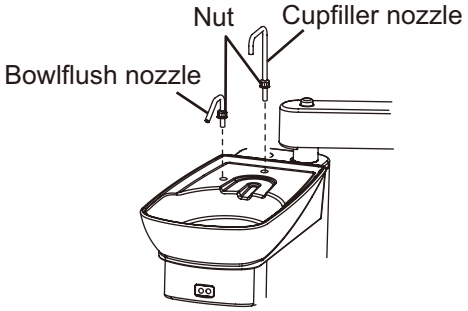
6-1. Drain Cap and Basket Strainer

Fit the drain cap and the basket strainer in the spittoon bowl.



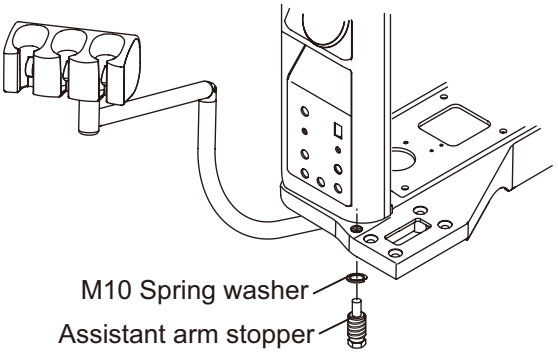
6-2. Cupfiller Nozzle and Bowlflush Nozzle

Insert the cupfiller nozzle and the bowlflush nozzle to the spittoon bowl and tighten each nut by hand.



6-3. Assistant Arm Stopper

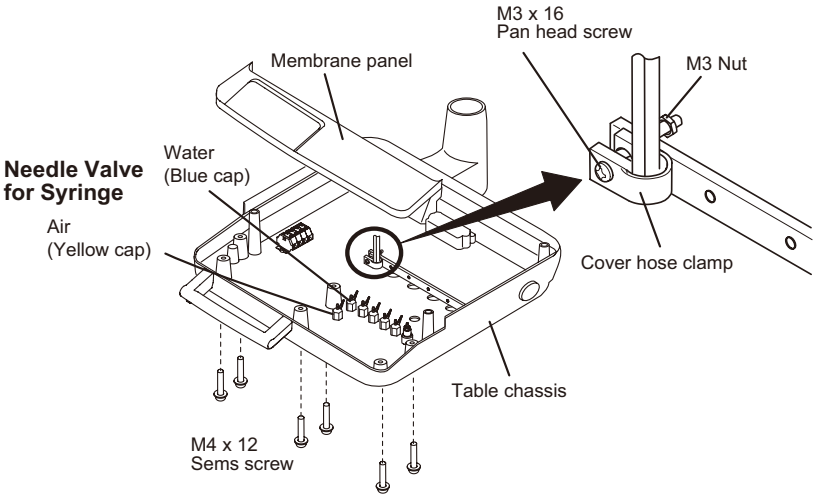
The assistant arm stopper is not attached to the mounting bracket due to the packaging restrictions. Attach the assistant arm stopper by using the 17mm spanner until M10 spring washer becomes flat. Be careful not to over tighten the screw, it may break the screw.

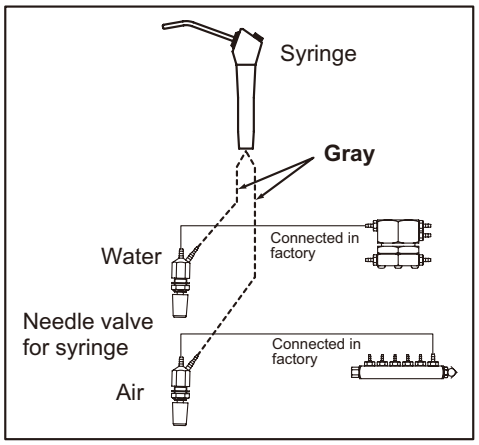


6-4. DCI Syringe

- Doctor Table side -

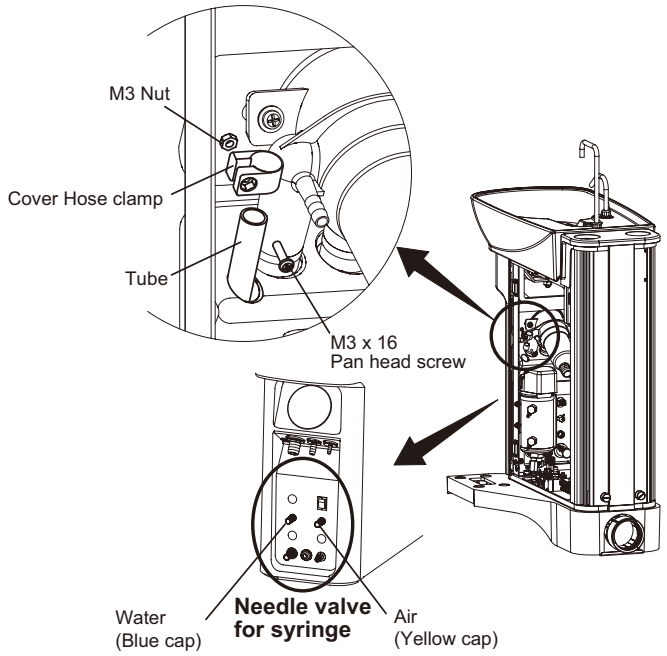
1. Unscrew the six M4 x 12 sems screws and remove the membrane panel from the doctor table.
2. Pass the syringe tubing through to the table chassis and insert the syringe tubing to the cover hose clamp.
3. Connect the syringe tubings to the needle valve (Water and Air) as shown in figure.
   * Air tubing and water tubing are both gray color. Connect the air supply to the syringe tubing to confirm which is the air line before connect the needle valve.
4. Tighten the M3 x 16 pan head screw with M3 nut of the cover hose clamp to fix the syringe hose.
5. Set the syringe into the handpiece holder.
6. Fix the membrane panel on the table with same screws.

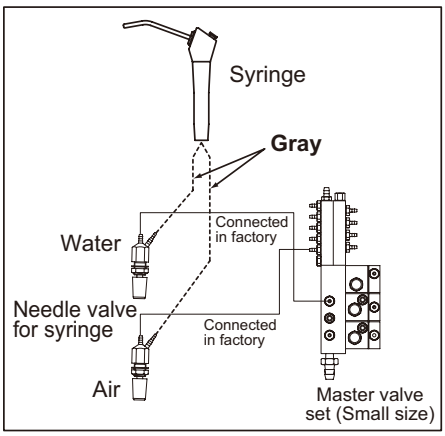




- Assistant side -

1. Pass the syringe tubings through the hole of the cuspidor front panel and fix it with cover hose clamp, M3 x 16 pan head screw and M3 nut.
2. Connect the syringe tubings to the needle valve (Water and Air) as shown in figure.
   * Air tubing and water tubing are both gray color. Connect the air supply to the syringe tubing to confirm which is the air line before connect the needle valve.
3. Tighten the M3 x 16 pan head screw with M3 nut of the cover hose clamp to fix the syringe hose.
4. Set the DCI syringe into the assistant holder.

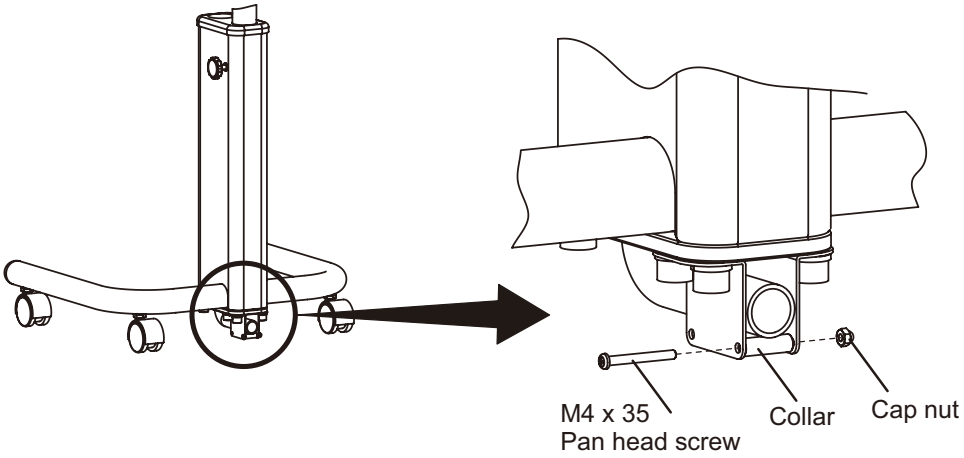




6-5. Attach the Collar to the Cart Hose Guide Bracket (Cart type)

Due to the packing, did not attach the following collar to the guide bracket at the factory.

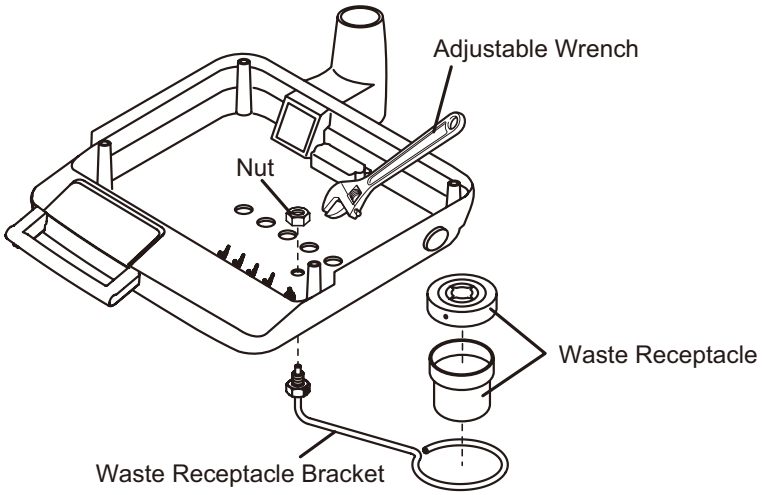
Attach the collar to the cart hose guide bracket with M4 x 35 pan head screw and cap nut using the #2 phillips head screwdriver.



6-6. Waste Receptacle (Optional)

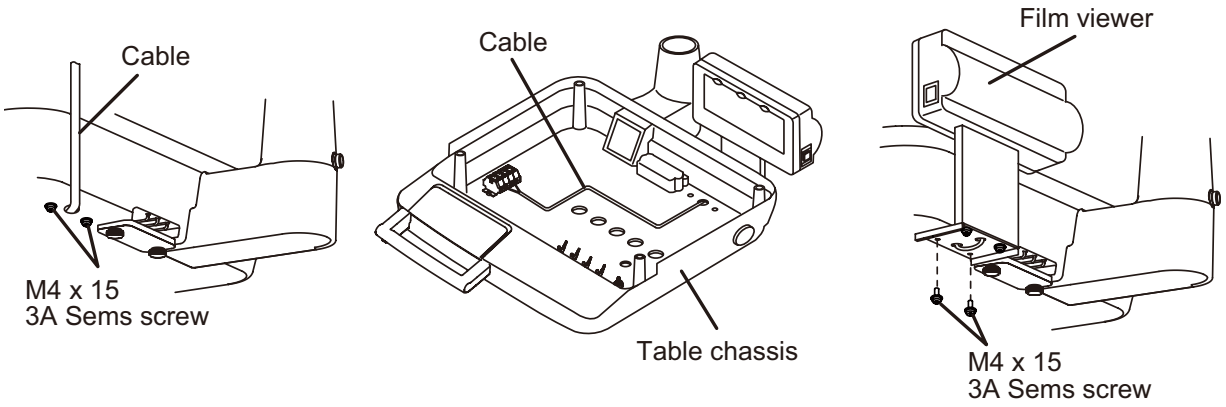
Fix the waste receptacle bracket to the doctor table with M10 nut using the adjustable wrench.

Put the waste receptacle into the waste receptacle bracket.



6-7. Film Viewer (Optional)

1. Remove the two M4 x 15 sems screws from under the table chassis using the #2 phillips head screwdriver.
2. Pass the film viewer cable through to the table chassis as shown in figure.
   Fix the film viewer to the table chassis with two M4 x 15 sems screws.
   Follow the same procedures for panorama viewer.



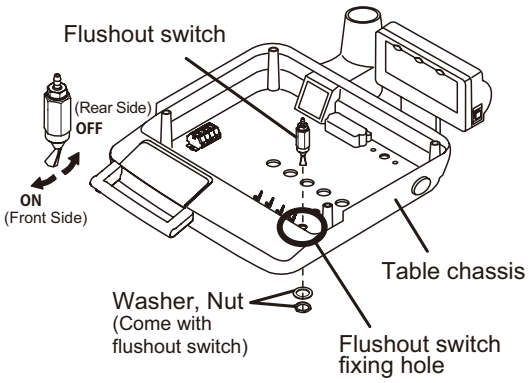
6-8. Handpiece Flushout (Optional)

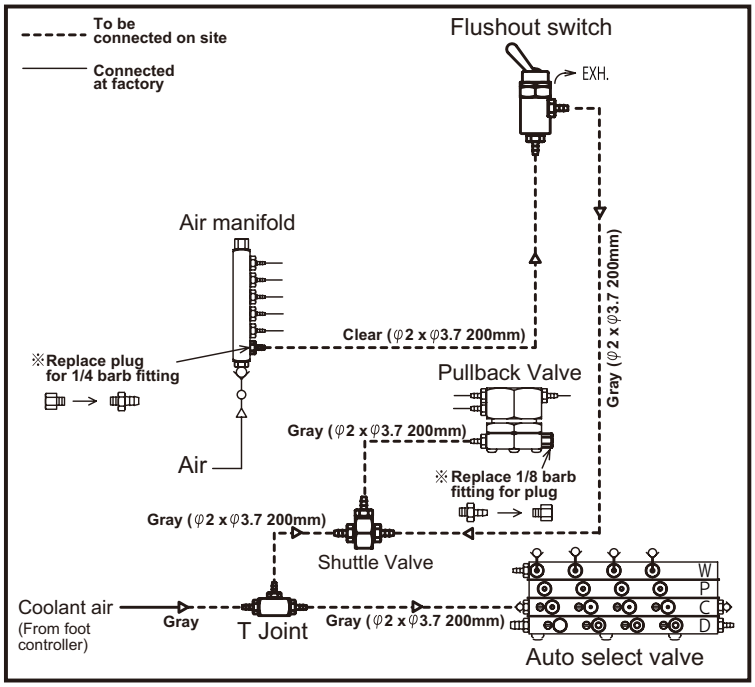
* Make sure to use the flushout assembling kit.

Fix the flushout switch to the table chassis.

Direction of the flushout switch is on direction for front side and off direction for rear side of the table chassis.(See figure)

Keep the dismounted parts after replaced from kit installation for future maintenance



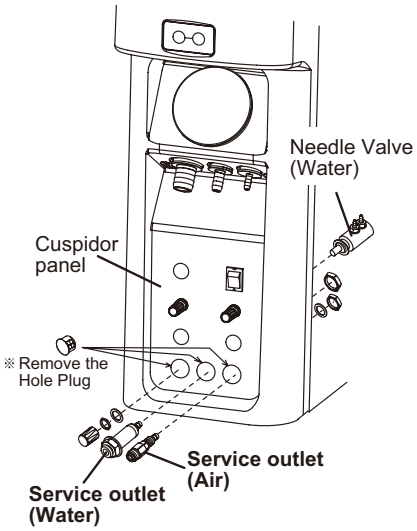


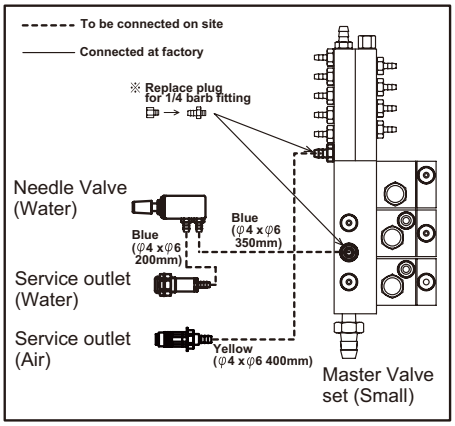
6-9. Service Outlet (Water / Air)(Optional)

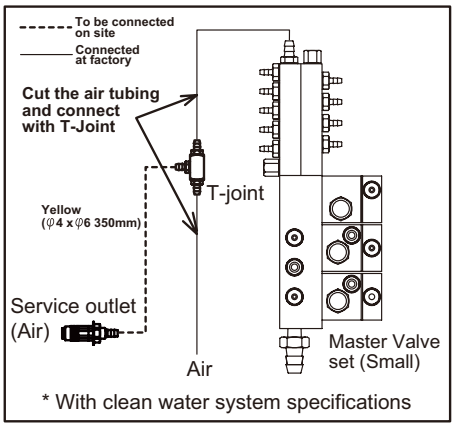
* Make sure to use the service outlet assembling kit (Water/Air).

Fix the service outlet and needle valve on the cuspidor panel and connect the tubings as shown on the following figure.

Keep the dismounted parts after replaced from kit installation for future maintenance.

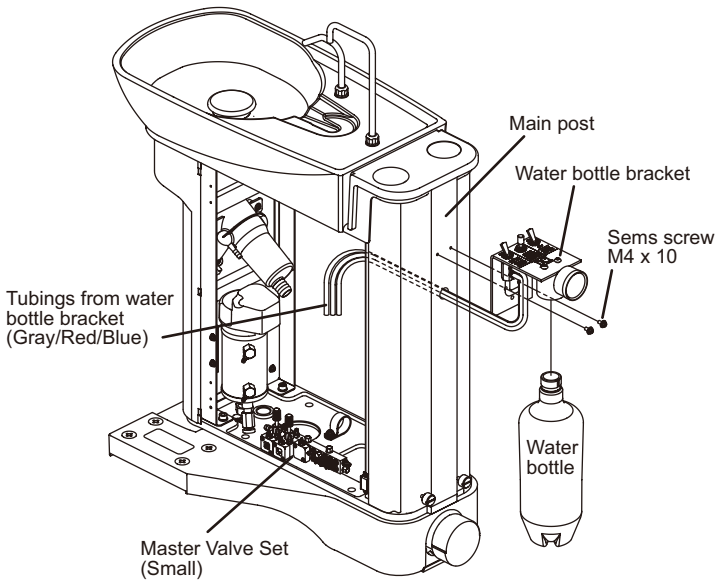


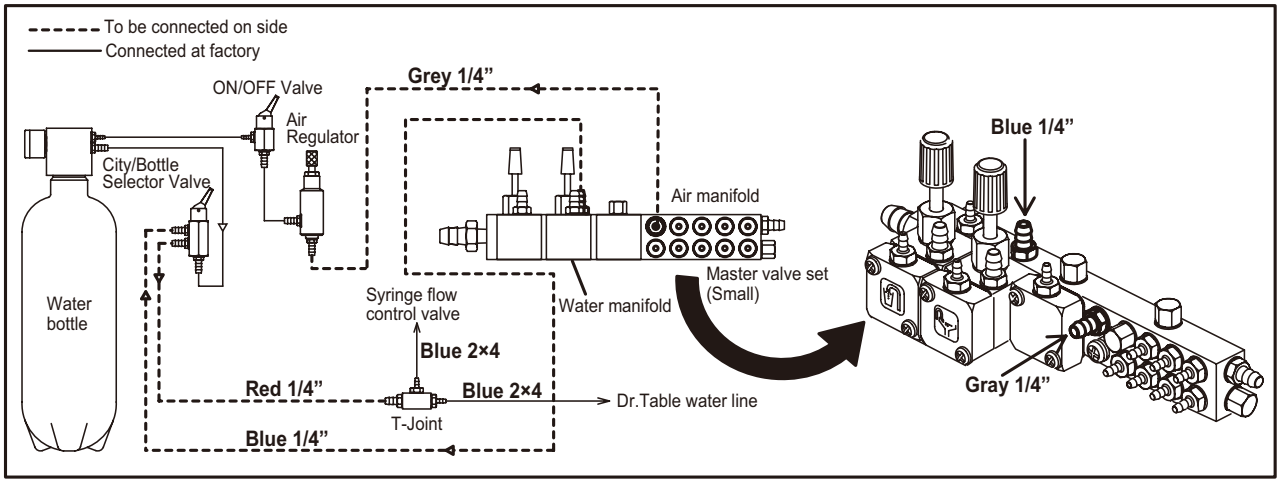




6-10. Clean Water System (DCI Water Bottle)(Optional)

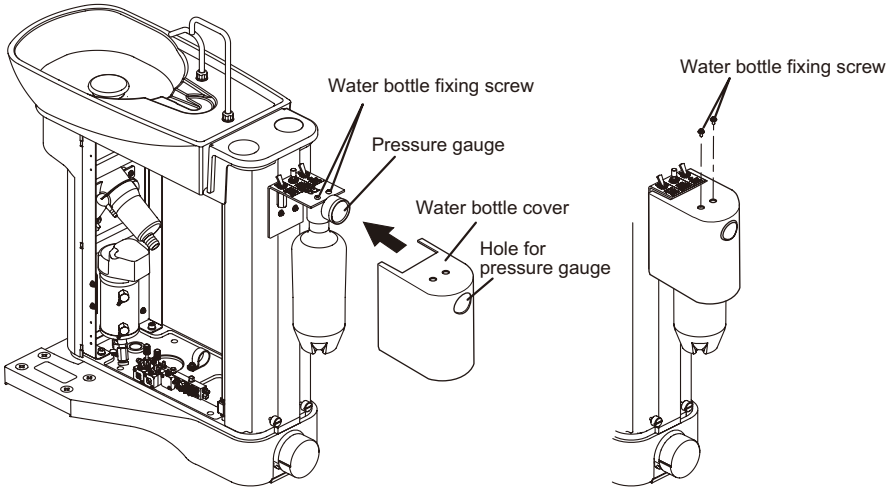
Fix the water bottle bracket on the main post with two M4 x 10 sems screws. Connect the tubings as shown on the following figure.





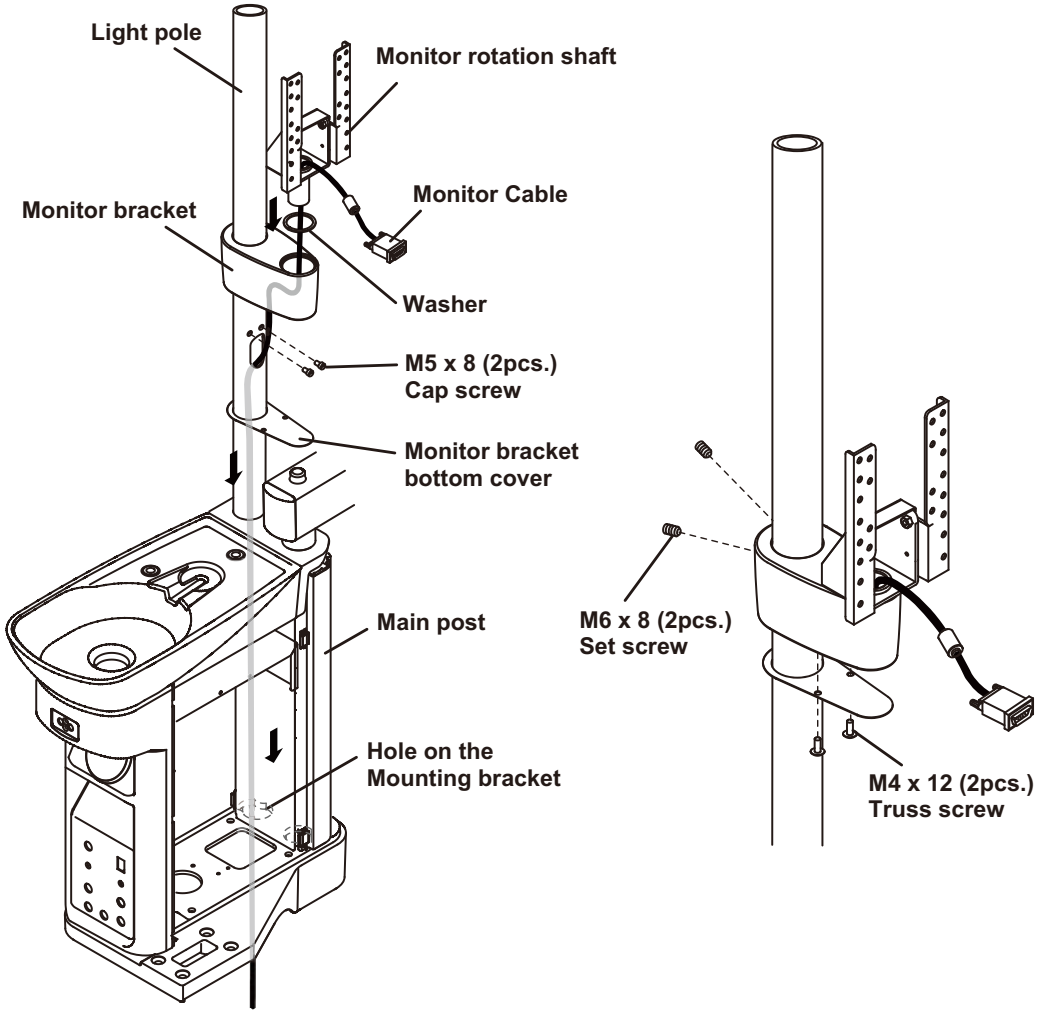
6-11. DCI Water Bottle Cover (Optional)

Remove the two water bottle fixing screws from the water bottle bracket. Attach the water bottle cover on the water bottle bracket and confirm that hole of the water bottle cover is fit to the pressure gauge. Fix the water bottle cover with two water bottle fixing screws.



6-12. Monitor Bracket (Optional)

1. Insert the monitor bracket bottom cover and fix the two M5 x 8 cap screws (stopper for monitor bracket) to the light pole, then insert the monitor bracket to the light pole.
2. Put washer on the monitor bracket. Pass the monitor cable through the monitor bracket and the light pole, then insert the monitor rotation shaft to the monitor bracket
3. Fix the monitor bracket to the light post with two M6 x 8 set screws and fix the monitor bracket bottom cover to the monitor bracket with two M4 x 12 truss screws.



7. Adjustment

7-1. Water and Air Stop Valves

Open the water stop valve and the air stop valve counterclockwise in the utility section.

Turn on the master switch and check that water and air are not leaking.

7-2. Main Air Pressure

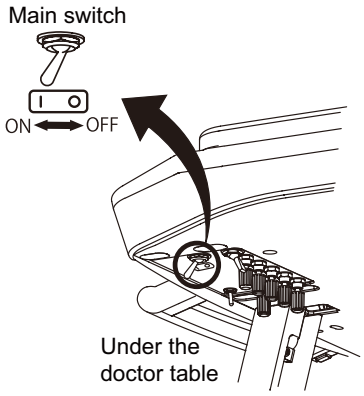
The main air pressure has been adjusted in the factory. Confirm that the main air pressure is at 0.45-0.5MPa by the main air pressure gauge.

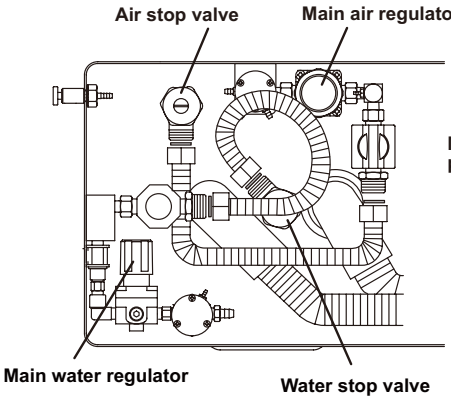
The main air pressure can be regulated by the main air regulator in the utility section.

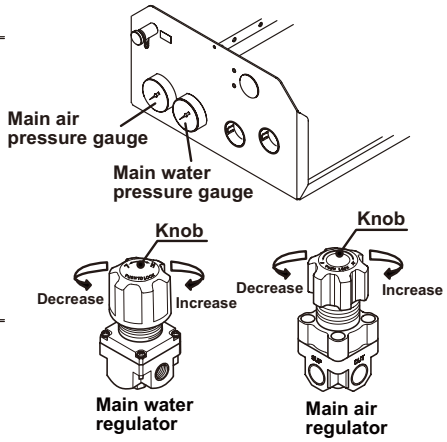
7-3. Main Water Pressure

The main water pressure has been adjusted in the factory. Confirm the main water pressure is at 0.1-0.2MPa by the main water pressure gauge.

The main water pressure can be regulated by the main water regulator in the utility section.







※ Pull the knob and adjust the pressure as shown in the drawing

7-4. Handpiece Adjustment

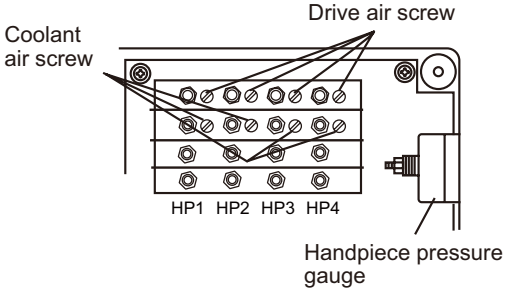
1. Handpiece Drive Air Adjustment

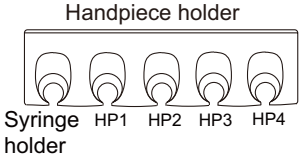
Adjustment of each handpiece drive air can be made by the screw on the auto select valve. Turning the drive air screw clockwise to decrease the flow volume and turning counterclockwise to increases the flow volume. Pick up the handpiece from holder and depress the foot controller, adjust the drive air pressure in according with the handpiece manufacture's recommendation. Drive air pressure is indicated on the handpiece pressure gauge located on the right side of the table.

2.Handpiece Coolant Air Adjustment

Handpiece coolant air adjustment screws are provided for individual adjustment of handpiece coolant air. Turning a handpiece coolant air adjustment screw counterclockwise increases flow volume and turning clockwise decreases.

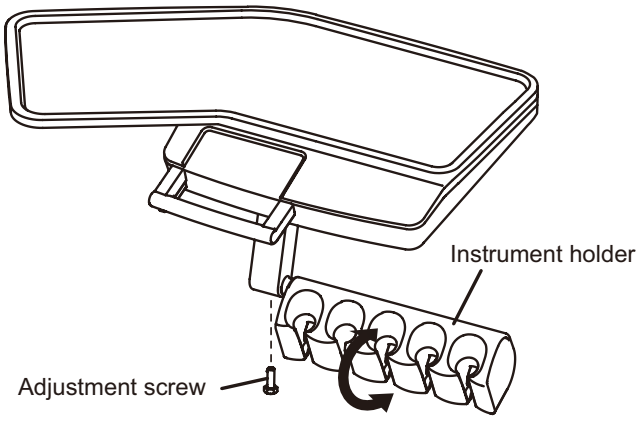
* Position of adjustment screw corresponds to the position of the handpiece holder.
* Be careful, the adjustment knob may come off if the adjustment knob turning counter clockwise excessively.
* Drive air and coolant air has been adjusted in factory. Do not change the setting under normal conditions.





7-5. Instrument Holder Angle Adjustment

Loosen the adjustment screw located on the underside of the holder support arm. Set the holder at the client's favorite position and fix by tightening the adjustment screw using the 5mm allen wrench. Holder angle can be adjusted between 20 to 30 degrees.

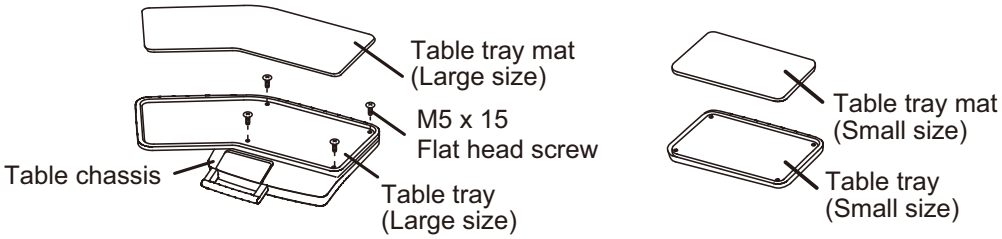


8. Attach the Cover

* After the wirings, tubings and installation of the accessary parts has been completed, attach the cover to the unit.

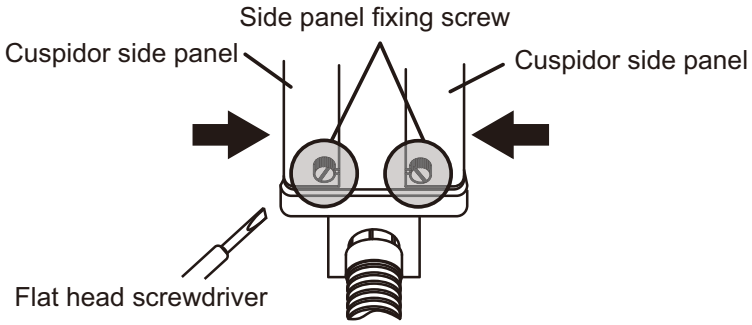
8-1. Table Tray and Table Tray Mat

Fix the table tray to the table chassis with four M5 x 15 flat head screws. Place the table tray mat on the table tray. Follow the same procedure for the small size table tray.



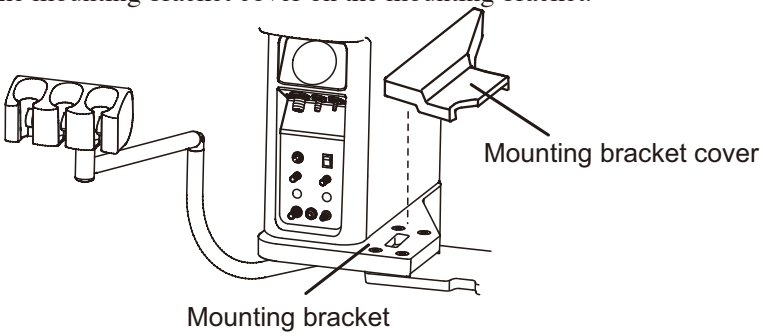
8-2. Cuspidor Side Panel

Attach the cuspidor side panel and fix it with cover fixing screws using the flat head screwdriver.

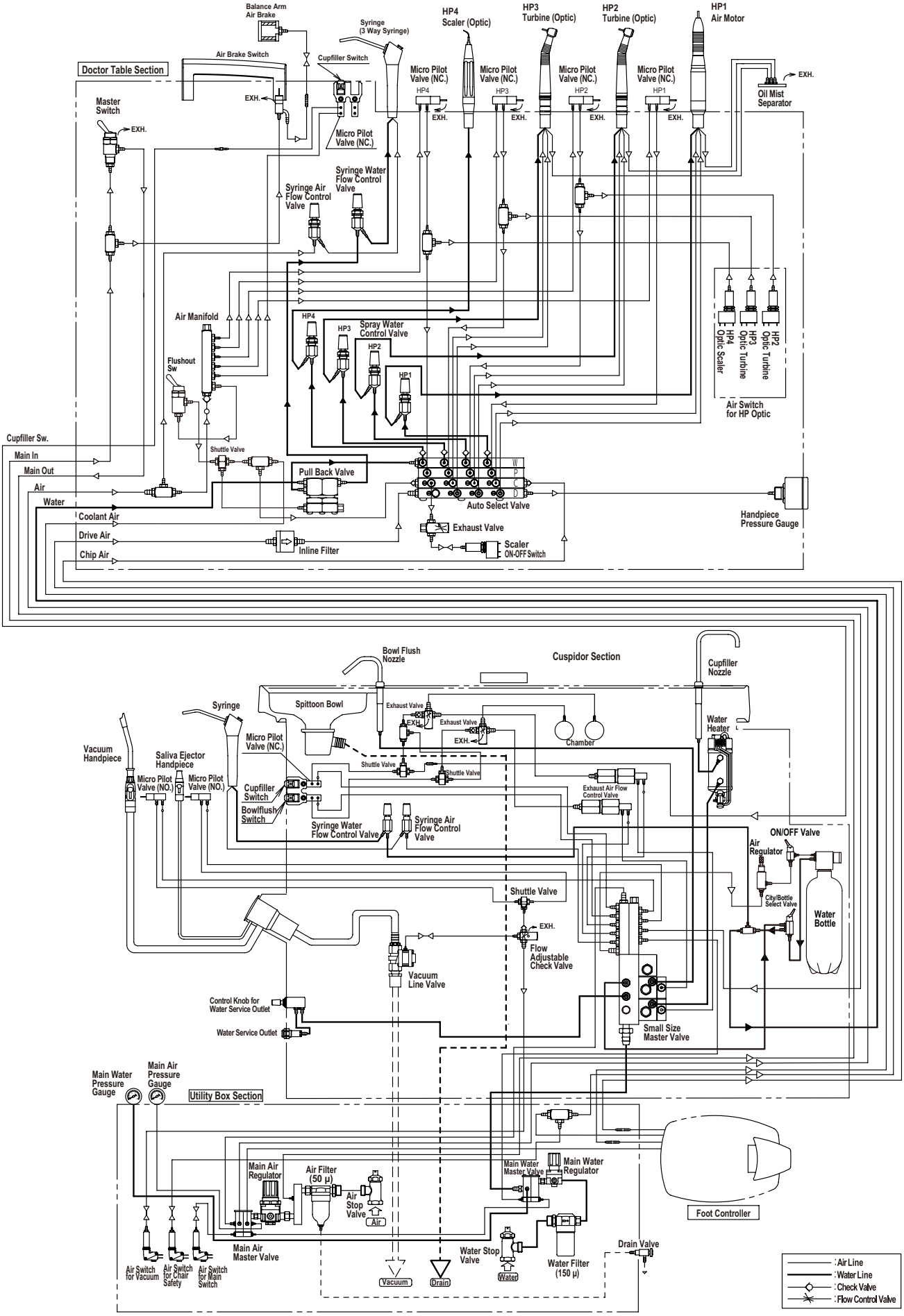


8-3. Mounting Bracket Cover

Attach the mounting bracket cover on the mounting bracket.

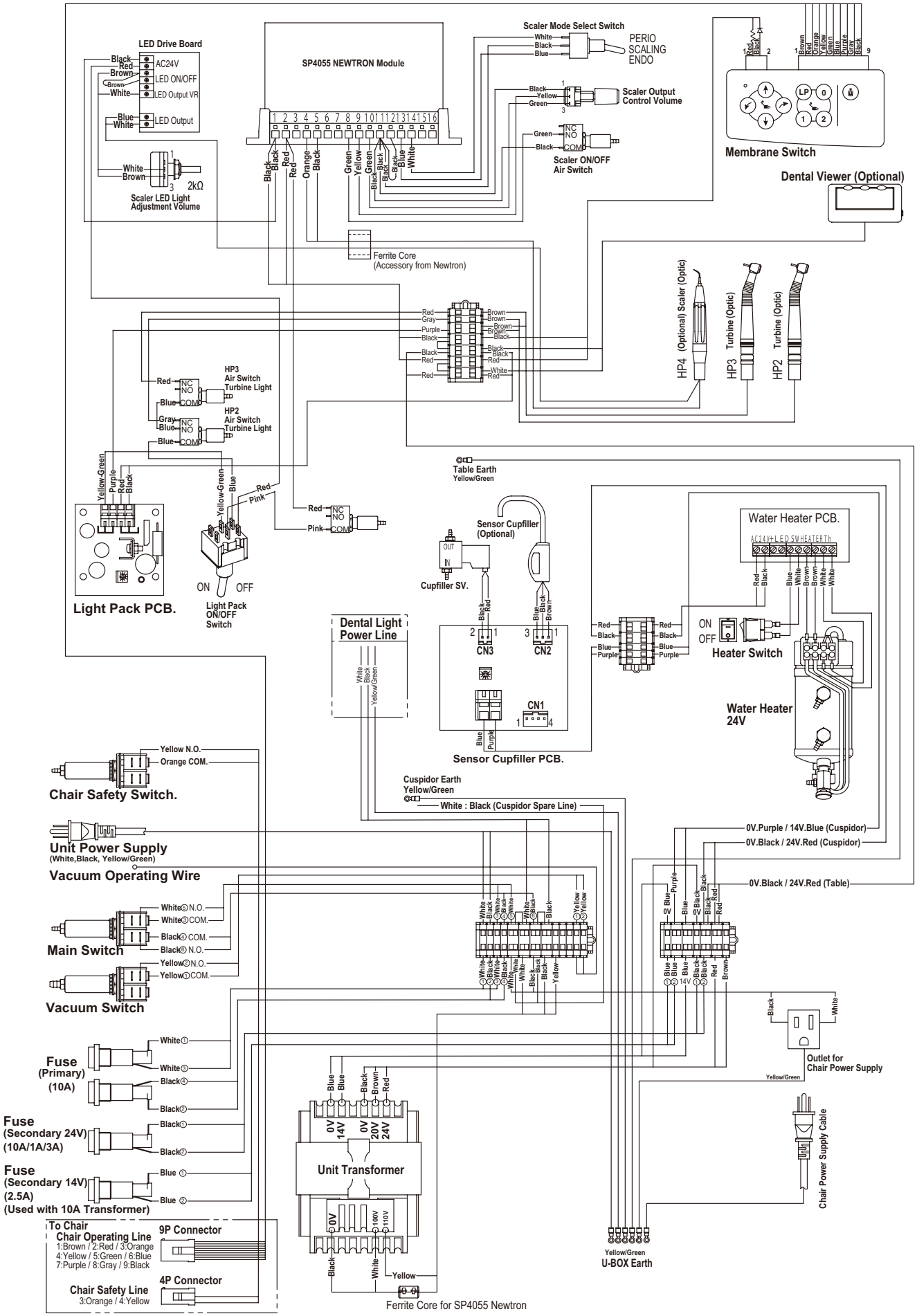


9. Unit Flow Diagram (Central Vacuum, Central Saliva Ejector, Clean Water System, Service Outlet, Flushout Switch Specifications)

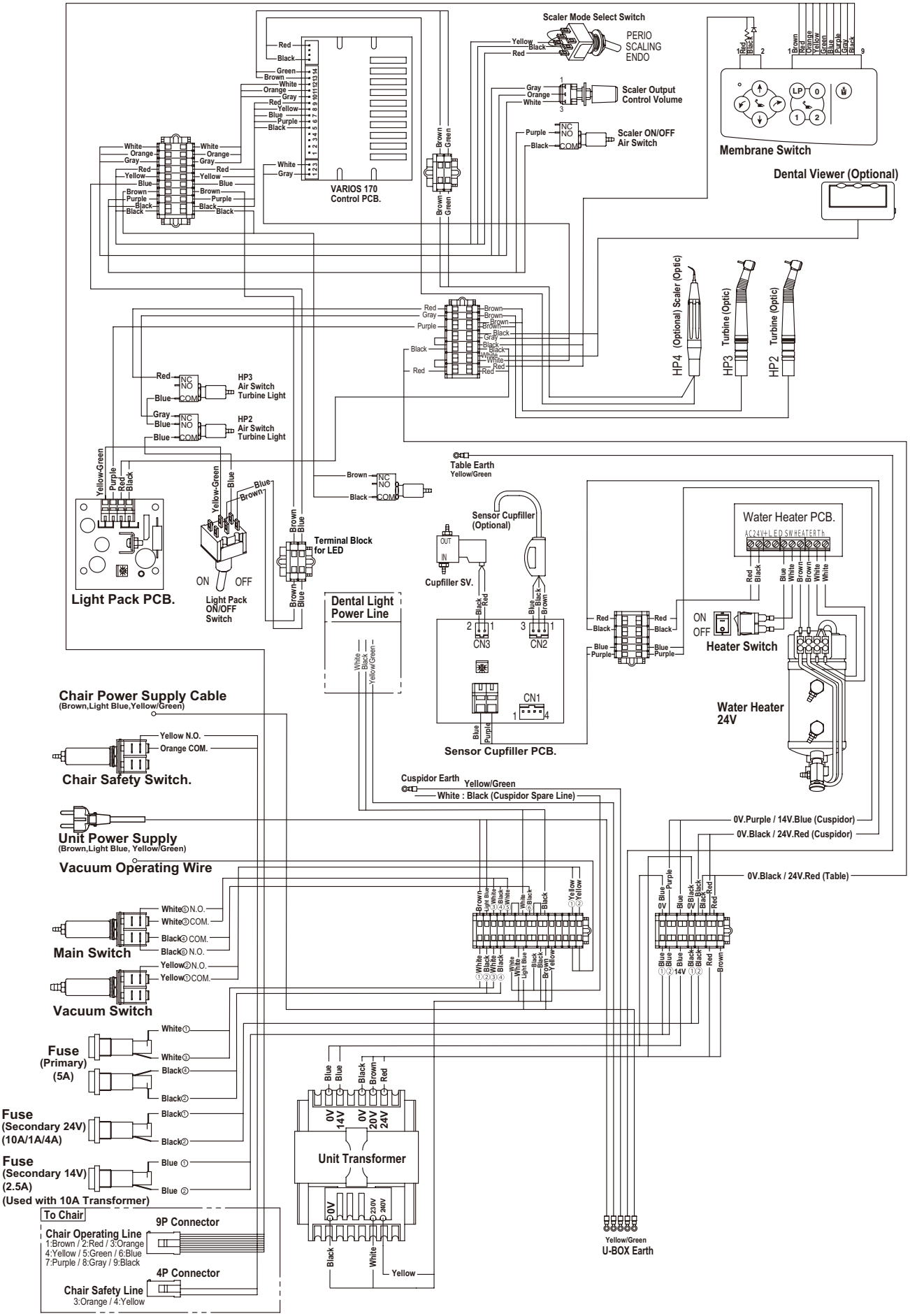


10. Unit Electrical Diagram

10-1. 100V Type (Sensor Cupfiller, Optic Turbine, Electric Scaler <SATELEC SP4055 NEWTRON> Specifications



10-2. 200V Type (Sensor Cupfiller, Optic Turbine, Electric Scaler <VARIOS 170> Specifications



NOTE

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