

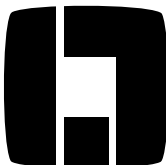
DENTAL UNIT AND CHAIR

SP-CLEO

INSTALLATION INSTRUCTIONS

IMPORTANT

This manual provides installation instruction for BELMONT SP-CLEO. The instructions contained in this booklet should be thoroughly read and understood before operating the chair and unit. After the installation is completed, file this manual and refer back to it for future maintenance.



Belmont

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INSTALLATION INSTRUCTIONS

SECTION 1. Specification for Installation

1. 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 electric power supply cables with main isolating switch and fuses, air supply piping, water supply piping, suction piping including vacuum pump and its control wires, and drain piping as noted on the installation diagrams.

2. Setting Requirements

- (1) The SP-CLEO Dental Unit Comprises a Chair section, Cuspidor unit section, Doctor unit section and Light section.
- (2) The SP-CLEO should be mounted taking the opening end of drain pipe into due consideration.
Ref. **Page 3, Fig.1-1** or **Page 4, Fig.1-2.**
- (3) The place on which the SP-CLEO (approx. 225 kg) is set must have endurance force of 250 kg/m².
- (4) The position for the SP-CLEO chair is shown in **Fig.1-1** or **Fig.1-2** as recommended example.

3. Piping and Plumbing Requirements

- (1) All pipings and conduits for cables are to be laid down under the floor and to come out from the floor.
- (2) The installation position and height from the floor of each pipe and cable conduit is shown in **Fig.1-1** or **Fig.1-2.**
- (3) The recommended sizes, materials and end pieces of pipes are shown in **Table.1-1.**

Item	Material	Size	End Piece
Compressed Air Supply Pipe	Shock Resistance P.V.C. Pipe HI-13 or Cooper Seamless Pipe	Out. Dia. 18 mm In. Dia. 13 mm	PT 1/2"
Water Supply Pipe	Shock Resistance P.V.C. Pipe HI-13 or Cooper Seamless Pipe	Out. Dia. 18 mm In. Dia. 13 mm	PT 1/2"
Suction Pipe (Ref. Note)	P.V.C. Pipe VP-20	Out. Dia. 26 mm In. Dia. 20 mm	
Drain Pipe (Ref. Note)	P.V.C. Pipe VP-50	Out. Dia. 58 mm In. Dia. 50 mm	
Power Supply Cable Conduit	P.V.C. Pipe VE-16	In. Dia. 16 mm	
Vacuum Pump Control Wire Conduit (Ref. Note)	P.V.C. Pipe VE-16	In. Dia. 16 mm	

Table.1-1 The Recommended Sizes, Materials and End Pieces of Pipes

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 need suction pipe, vacuum control wire and its conduit.

- (4) Regarding installation of the vacuum pump and its connection to main suction line, follow the specifications of central vacuum pump system manufacture's recommendation.
- (5) All piping should be arranged avoiding bend as much as possible.

4. Air Supply Requirements

- (1) Compressed air to be supplied should be filtered.
Dirty and moistured air may cause trouble in unit air systems.
- (2) Air Pressure
Regulate the outlet air pressure of the compressor to the utility section at 0.54 - 0.59 Mpa and the air pressure should be kept higher than 0.49 Mpa at any time.
- (3) Compressed Air Supply Capacity
Compressed air supply capacity is at least 55 NI/min. (Central vacuum type)
Compressed air supply capacity is at least 88 NI/min. (Air vacuum type)

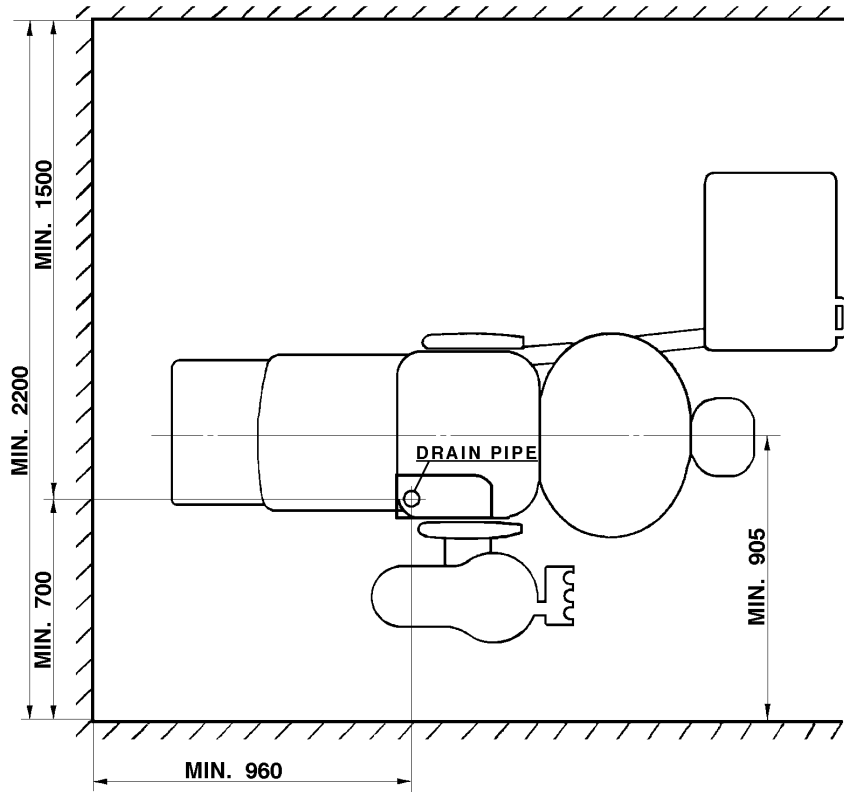
5. Water Supply Requirement

- (1) The supply water should be clean water.
Dirty water may cause trouble in unit water line.
- (2) More than 0.1 Mpa water pressure in utility section is requested for operating this unit efficiently at any time.

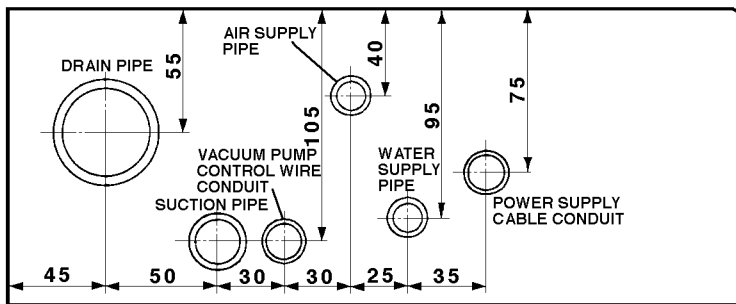
6. Electric Supply Requirement

- (1) The connection of power supply cable is to be carried out in accordance with the local electric regulation.
- (2) The rating of supply voltage and power consumption :

115V, 50/60Hz	7.2A/5.6A
220V, 50/60Hz	3.7A/3.1A
230V, 50Hz	3.7A
240V, 50Hz	3.6A
- (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 provided in the utility section.
- (5) All cables should have at least 500mm surplus from the floor so that they are long enough to be connected with the terminal in the utility section.

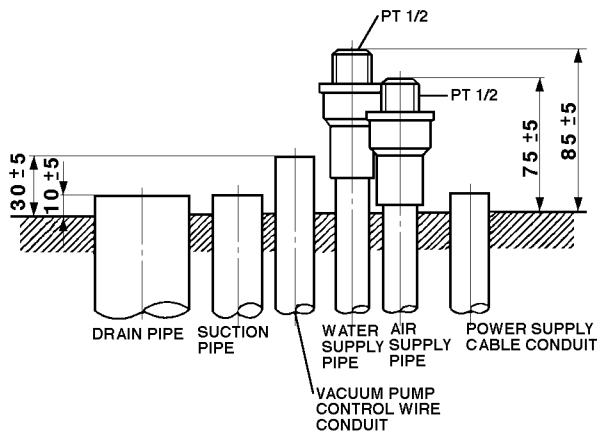


Sitting Position (Built-in Type)



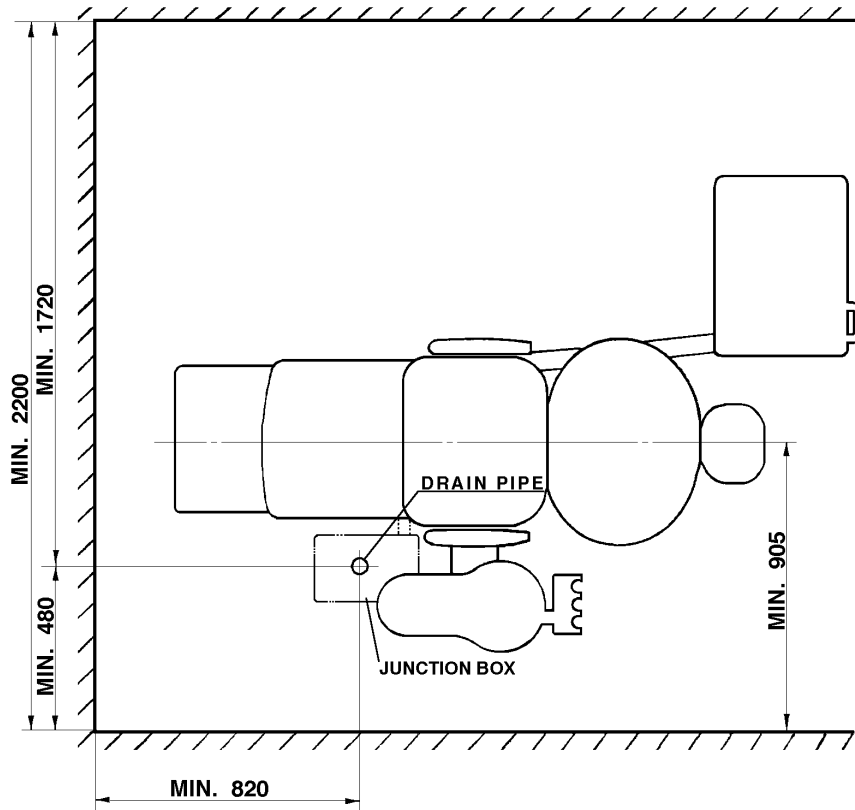
Note ;

Air vacuum type does not need suction pipe, vacuum pump control wire and its conduit.

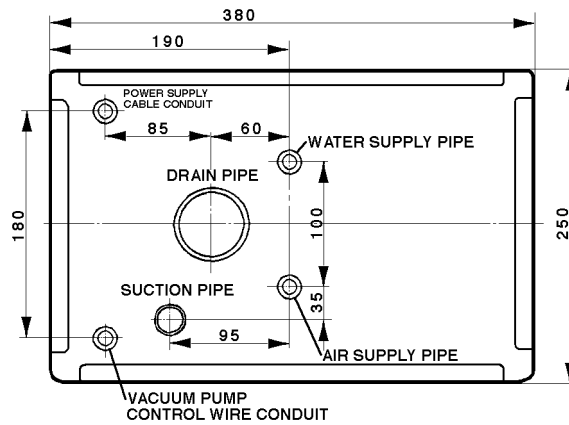


Plumbing Layout for Built-in Type

Fig.1-1 Sitting Position & Plumbing Layout for Built-in Type

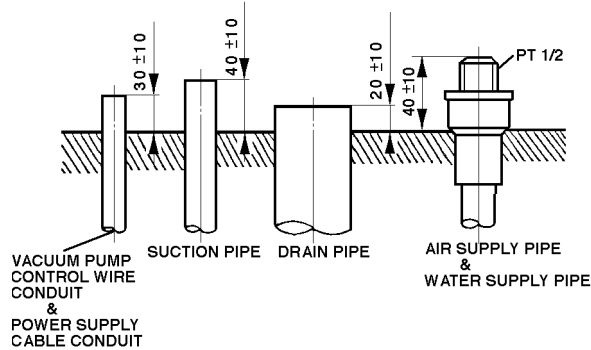


Sitting Position (Junction Box Type)



Note ;

Air vacuum type does not need suction pipe, vacuum pump control wire and its conduit.



Plumbing Layout for Junction Box Type

Fig.1-2 Sitting Position & Plumbing Layout for Junction Box Type

SECTION 2. Unpacking

1. Checking The Package and Unpacking

- (1) The unit are to be delivered divided into 2 packages, for chair and unit in case of Base Mount Type and 3 packages for chair, cuspidor unit and doctor cart in case of Cart Type.
- (2) Remove lower screws and lift up the upper portion of the crate.

2. Checking The Contents

Check the contents of package with the following list.

(1) Package for Chair

1. SP-CLEO Chair Assembly.....1 set
2. Base Cover (Right & Left)1 set
3. Seat Cushion1 set
4. Backrest assembly.....1 set
5. Headrest Assembly.....1 set
6. Screw Kit1 set
M5 X 10mm Screw for Base cover---4, M4 x 10mm Tapping Screw for Base Cover---4,
Lag Bolt for Chair Base ---2, M 9 Flat Square Washer for Lag Bolt---2,
M8 X 20mm Cap Bolt with Spring Washer for Backrest---4
M6 Nut and Waher for Fixing Seat Cushion---4

(2) Package for Unit (Base Mount Type)

1. Cuspidor Unit Assembly1 set
2. Doctor Unit Assembly.....1 set
3. Stop Valve (Water & Air) with Packing.....2 sets
4. Cupfiller Nozzle1 pce.
5. Vacuum Tip (Straight & Bent) with Silicon Tip1 set
6. Saliva Ejector Tip.....1 pce.
7. Basket Strainer1 pce.
8. Drain Cap1 pce.
9. Waste Receptacle1 set
10. Stainless Steel Tray1 pce.
11. Touch Up Paint (RAL-9002).....1 can
12. M10 X 35mm Cap Bolt for Cuspidor Unit with Spring Washer4 sets
13. Nylon Sleeve Kit.....1 set
14. Light Post and Light Pole1 set

(2)-A. Central Vacuum Type

1. Vacuum Plastic Elbow1 pce.
2. Drain Plastic Elbow1 pce.

(2)-B. Air Vacuum Type

1. Drain Joint.....1 pce.

(2)-C. Junction Box Type

1. Junction Box Assembly with Lid.....1 set
2. Stainless Flexible Pipe2 pcs.
3. Packing for Stainless Flexible Pipe.....4 pcs.
4. Hose Bracket.....1 pce.
5. Nylon Sleeve Kit.....1 set
6. Barb Connector & Fitting Kit1 set
7. Utility Section Modification Kit1 set

SECTION 3 Installation of Chair

1. Removing the chair from the pallet

Move the chair with the shipping pallet to bring near to the fixing place of the chair.

Remove chair fixing metal from pallet shown as (1) in Fig.3-3, then the chair is free from the pallet.

2. Connection of the water and air stop valves to the water and air supply pipes

(1) Confirm that the piping and plumbing have perfectly been laid out in accordance with Fig.1-1 or Fig.1-2.

(2) Fix the water and air stop valves to the water and air supply pipes by using a seal tape or a liquid seal. The direction of water and air valves are shown in Fig.3-1.

(3) After connection of the water and air valves, once open the water and air valves and flush out dust and chips in the water and air supply lines.

Note ; The direction of water and air valves are important for installation.

In case the actual piping is not correct to the recommended piping layout of Belmont, it may be out of the Belmont guarantee.

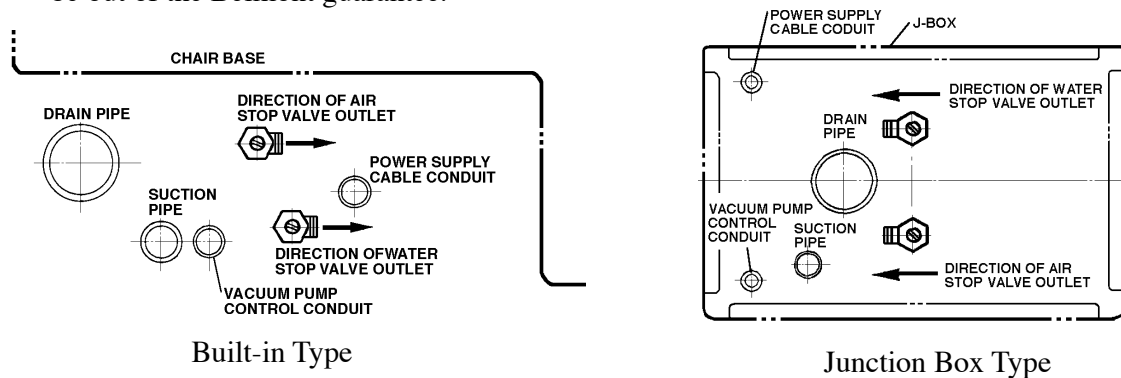


Fig.3-1 Direction of Outlet for Water and Air Stop Valves

3. Lift up the chair carefully and remove the shipping pallet.

Carefully put the chair in the position especially taking care not to damage the pipings and cables extrude from the floor. Also the chair should be put in flat position, not in a uneven position, in order not to damage the components in the utility room.

Caution ; When lift chair, hold armrest bracket and seat plate, **do not lift chair by armrest and legrest.**

4. After putting the chair on the fixing place of the chair, proceed to preparation of installation of the chair as follows.

(1) Loosen and remove **the red tagged bolt (carriage bolt)** from centre of the seat plate. (Fig.3-2)

Caution ; After removing the red tagged bolt, **do not lift the chair by upper structure.**

(2) Remove **the red tagged rubber plug** from oil reservoir on the base.

(3) Connect the power supply cable to the power supply line and turn on the chair main switch located on sitting right hand side of chair base.

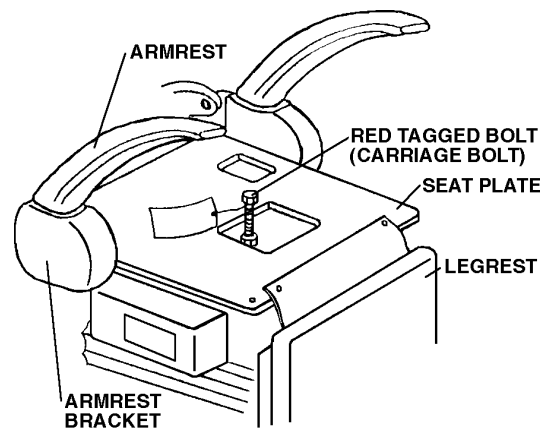
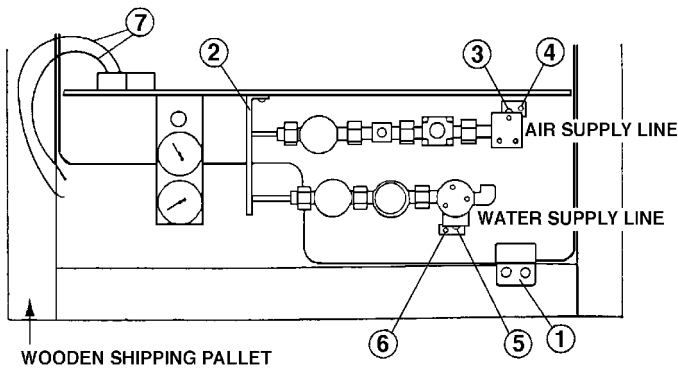


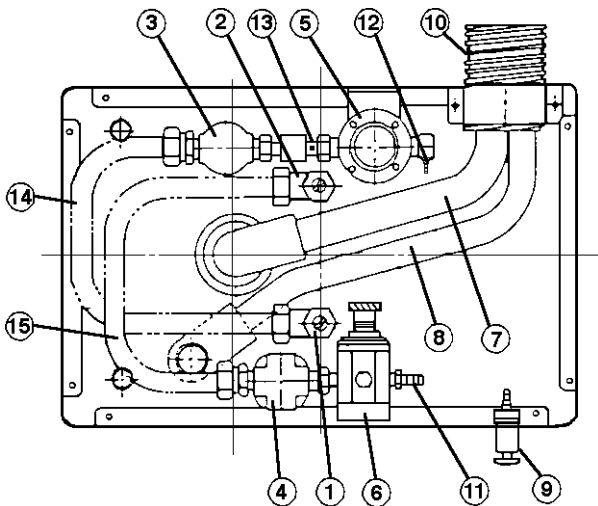
Fig.3-2 Removing The Red Tagged Bolt

- (4) Move the seat to upper limit position for installation by moving up the stick switch shaft.
- (5) Turn off the chair main switch and disconnect the power supply cable, now ready to connect the utility section.



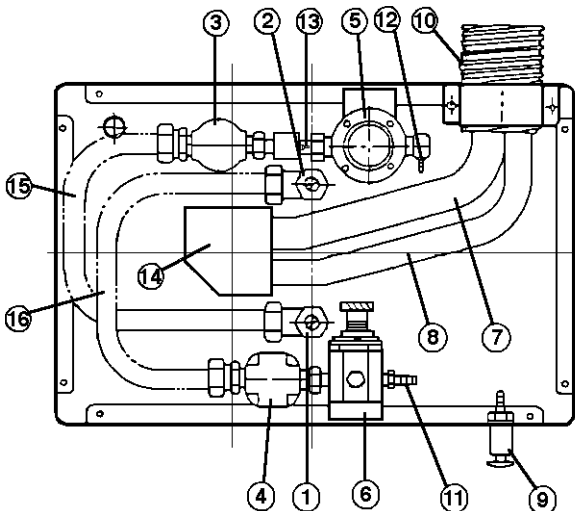
- (1) Chair Fixing Metal
- (2) Temporary Supporting Bracket
- (3) Screw for Height Adjustment of Air Supply Line
- (4) Screw for Horizontal Adjustment of Air Supply Line
- (5) Screw for Height Adjustment of Water Supply Line
- (6) Screw for Horizontal Adjustment of Water Supply Line
- (7) Vacuum Switch Line Wires (Central Vacuum Type Only)

Fig.3-3 Utility Section (Built-in Type)



- (1) Air Stop Valve
- (2) Water Stop Valve
- (3) Main Air Filter
- (4) Main Water Filter
- (5) Main Air Regulator
- (6) Main Water Regulator
- (7) Drain Hose
- (8) Suction Hose
- (9) Drain Valve
- (10) Umbilical Hose
- (11) Water Line
- (12) Air Line
- (13) Pilot Air Supply Line
- (14) Flexible Pipe for Air Line
- (15) Flexible Pipe for Water Line

Fig.3-4 Junction Box (Central Vacuum Type)



- (1) Air Stop Valve
- (2) Water Stop Valve
- (3) Main Air Filter
- (4) Main Water Filter
- (5) Main Air Regulator
- (6) Main Water Regulator
- (7) Drain Hose
- (8) Suction Hose
- (9) Drain Valve
- (10) Umbilical Hose
- (11) Water Line
- (12) Air Line
- (13) Pilot Air Supply Line
- (14) Drain Joint
- (15) Flexible Pipe for Air Line
- (16) Flexible Pipe for Water Line

Fig.3-5 Junction Box (Air Vacuum Type)

SECTION 4. Mounting of Unit

1. Mounting the Cuspidor Unit (Fig.4-1)

- (1) Remove the cuspidor unit from the shipping pallet.
- (2) Mount the cuspidor unit to under the chair flange of the left hand side of chair with 4 cap bolts of M10 X 35 mm and spring washers.
- (3) Pass the cables and hoses from cuspidor unit through the hose support under the flange extruding from the chair.
- (4) Fix the drain and suction hoses with the clamp on the chair base plate.
- (5) Bundle all hoses and cables together with cable ties.

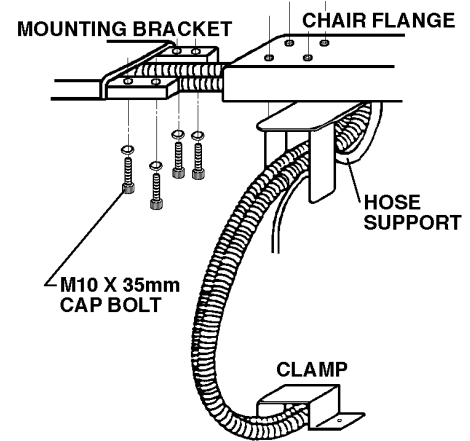


Fig.4-1 Mounting Cuspidor Unit

2. Mounting the Doctor Unit (Base Mount Type Fig.4-2)

- (1) Remove the power supply panel to prevent from damage.
- (2) Remove the doctor unit from the shipping pallet.
- (3) Mount the doctor unit on the sitting right hand side of chair base with 4 cap bolt of M10 X 30 mm and washers.
- (4) Fix the power supply panel.

Note; Do not pinch wires and hoses between the doctor unit fixing flange and base plate.
4 cap bolts and washers for doctor table are provided on the base plate.

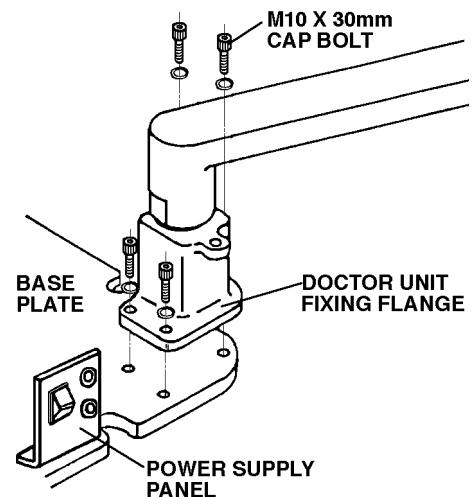


Fig.4-2 Mounting Doctor Unit

3. Mounting the Operating Light (Chair Mount Type Light Fig.4-3)

- (1) Fix light post bracket and light post to cuspidor unit with cap bolts and run through light cable.
- (2) Holding 6P connector on the top of light pole, then attach the ring washer on the top of light pole. Connect the 6P connector with the other one from operating light and fasten the connector with cable tie then mount dental light to light pole.
- (3) Connect 6P connector on the bottom of light pole to 6P connector on the top of light post. Then mount the light pole to light post and fix 2 set screws on light post. Confirm the direction of light pole that is shown in Fig.4-3.

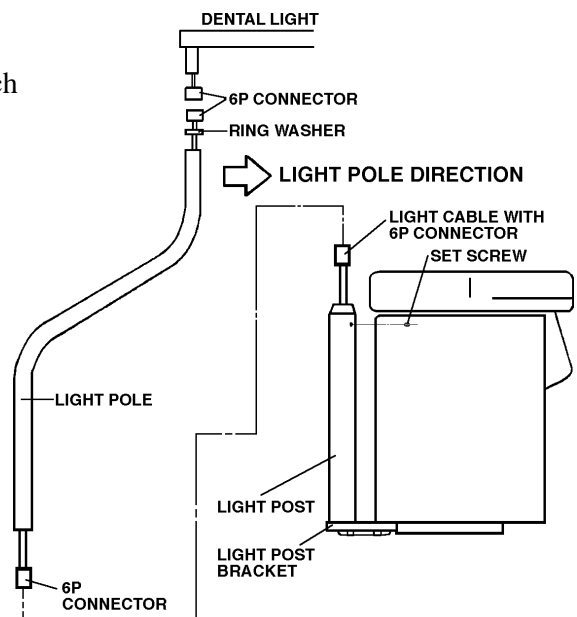


Fig.4-3 Mounting Operating Light

SECTION 5. Connection of Air and Water Supply Lines

1. Built-in Type

(1) Remove the temporary supporting bracket for water and air lines. (Fig.3-3 (2))

Adjust the position of chair carefully so it can be placed in a position where connecting points of water and air stop valves are most conveniently accessible to the water supply line connector and the air supply line connector of chair respectively.

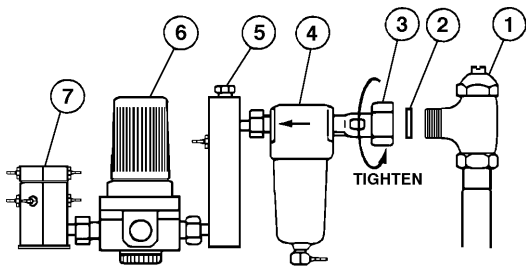
Note ; After connecting water and air supply lines to the stop valves, temporary supporting bracket does not use.

(2) Loosen the adjustment screws then adjust height and distance of air and water supply line connectors to align the water and air stop valves respectively. (Fig.3-3 (3),(4),(5),(6))

(3) Connect the water supply line connector to the water stop valve with packing. (Fig.5-1)

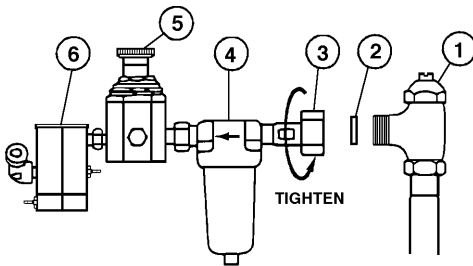
Connect the air supply line connector to the air stop valve with packing. (Fig.5-1)

(4) After connection of air and water supply lines, retighten the adjustment screws.



- (1) Air Stop Valve
- (2) Packing
- (3) Air Supply Line Connector
- (4) Main Air Filter
- (5) Pilot Air Manifold
- (6) Main Air Regulator
- (7) Main Air Master Valve

Air Supply Line



- (1) Water Stop Valve
- (2) Packing
- (3) Water Supply Line Connector
- (4) Main Water Filter
- (5) Main Water Regulator
- (6) Main Water Master Valve

Water Supply Line

Fig.5-1 Connection of Air and Water Supply Lines (Built-in Type)

2. Junction Box Type (Fig 3-4 or Fig 3-5 & Fig.5-2)

(1) Bent the stainless flexible pipes as shown in Fig.5-2. Connect the water and air supply lines connector to each stop valve by using the stainless flexible pipes and the packings.

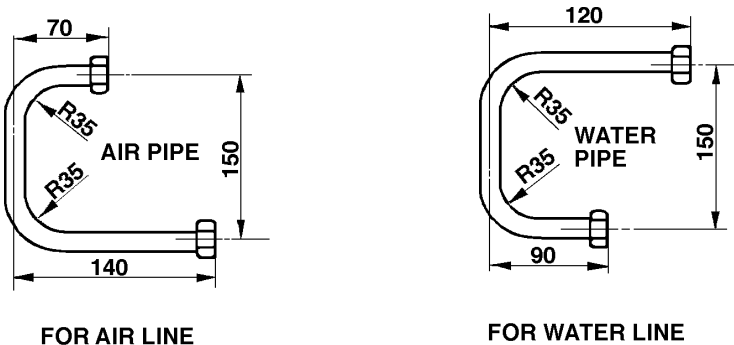


Fig.5-2 Flexible Pipe (Junction Box Type)

SECTION 6. Connection of Tubings and Wires

1. Installation of the Junction Box (Junction Box Type only) (Fig.3-4 or Fig.3-5 and Fig.6-1, Table.6-1)

(1) Run the cables and the hoses from the chair and cuspidor unit through the umbilical hose.

Fix the hose bracket to the chair base with screws. Place the junction box on the floor so the drain and suction pipes extrude inside the junction box then fix the junction box on the floor.

(2) Connect the tubings to the barb fittings in the junction box as following Table.6-1.

Cut the tubing suitable length for connection to each barb fitting, if the tubing is too long.

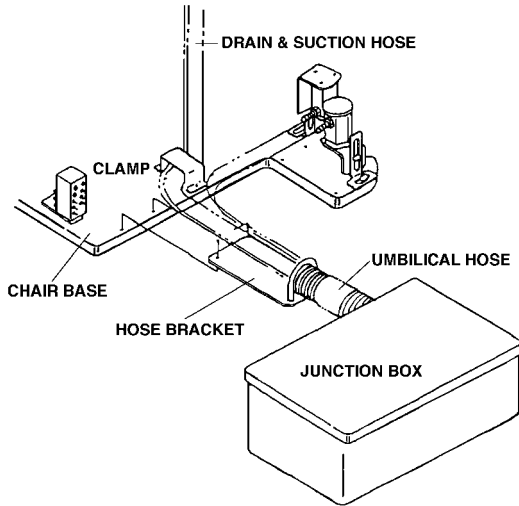


Fig.6-1 Installation of Junction Box

Tubing Size & Colour O.D. x I.D. (mm)	Barb Fitting NO. , Size and Description in Junction Box (Ref. Fig.3-4 or Fig.3-5)
10.0 x 6.5 Blue	(11) Water Line (PT1/8)
6.0 x 4.0 Yellow	(12) Air Line (1/4)
3.7 x 2.0 Brown	(13) Pilot Air Supply Line (1/8)

O.D. ; Outer Diameter, I.D. ; Inner Diameter

Table.6-1 Connection of Tubings in Junction Box

2. Connection of Drain Pipe and Suction Pipe

(1) Central vacuum type (Fig.6-2)

Cut the drain and vacuum hoses from the cuspidor unit at suitable length for connection, and connect them to each elbow with plastic glue. Insert the drain elbow to the drain pipe. Insert the suction pipe to the vacuum elbow firmly.

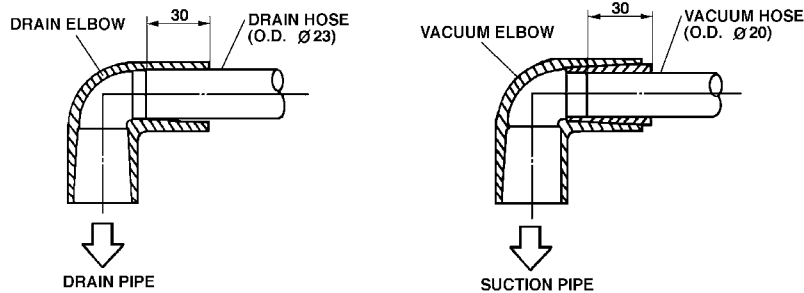


Fig.6-2 Connection of Drain and Vacuum Hoses for Central Vacuum Type

(2) Air vacuum type (Fig.6-3)

Cut the drain and suction hoses from the cuspidor unit at suitable length for connection, insert and connect them to the drain joint with plastic glue. Insert the drain joint to the drain pipe.

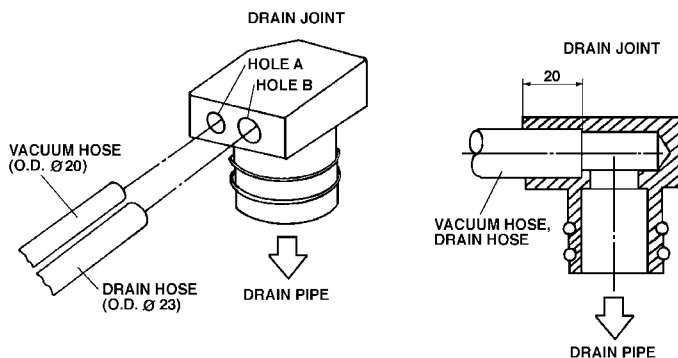
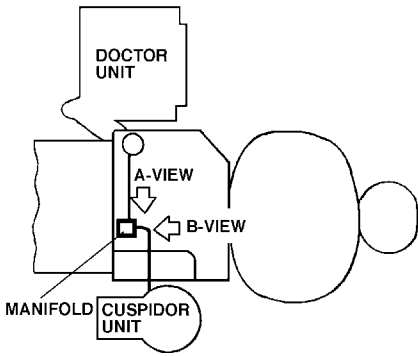


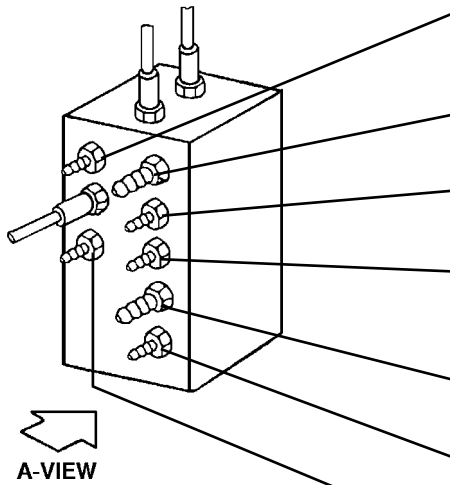
Fig.6-3 Connection of Drain and Vacuum Hoses for Air Vacuum Type

3. Connection of Tubings (Fig.6-4)

Connect the tubings from doctor unit and cuspidor unit to barb fittings on manifold as following Fig.6-4. The manifold is located on front side of the chair base.



Location of Manifold



Manifold (A-View)

Note ; Connect each tubing to barb fitting on manifold firmly with sleeve.

Connection of Doctor Unit Tubings to Manifold

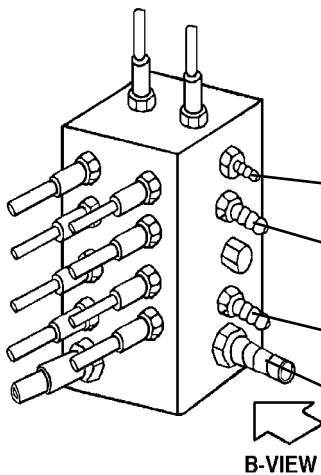
Barb Fitting Size, Tubing Size, Colour and Descriptions (A-View)

Barb Fitting Size	Tubing Size O.D. x I.D. (mm)	Tubing Colour	Description
1/8	3.7 x 2.0	Orange	From Doctor Unit Pilot Air Return Line (Master Switch)
1/4	6.0 x 4.0	Clear	From Doctor Unit Drive Air Line
1/8	3.7 x 2.0	Yellow	From Doctor Unit Coolant Air Line
1/8	3.7 x 2.0	Clear	From Doctor Unit Coolant Water Control Line
1/4	6.0 x 4.0	Yellow	From Doctor Unit Supply Air Line
1/8	3.7 x 2.0	Blue	From Doctor Unit Supply Water Line
1/8	3.7 x 2.0	Brown	From Doctor Unit Pilot Air Supply Line

O.D. ; Outer Diameter, I.D. ; Inner Diameter

Connection of Cuspidor Tubings to Manifold

Barb Fitting Size, Tubing Size, Colour and Descriptions (B-View)



Manifold (B-View)

Barb Fitting Size	Tubing Size O.D. x I.D. (mm)	Tubing Colour	Description
1/8	3.7 x 2.0	Orange	From Cuspidor Unit Vacuum Pilot Air Line
1/4	6.0 x 4.0	Yellow	From Cuspidor Unit Supply Air Line
1/8	3.7 x 2.0	Clear	From Cuspidor Unit Vacuum Pilot Air Line
PT 1/8	10.0 x 6.5	Blue	From Cuspidor Unit Supply Water Line

O.D. ; Outer Diameter, I.D. ; Inner Diameter

Fig.6-4 Connection of Tubings to Manifold

4. Connection of Electric Wire Connectors (**Table.6-4**)

7 pairs of electric wire connectors (normal type) should be connected.

Connect the electric wire connectors as following **Table.6-4**.

Connector Housing	Connector NO.	Connection	Description
9P	6	Doctor Unit (male) and Chair (female)	Doctor Unit Side Chair Control
6P	7	Doctor Unit (male) and Cuspidor Unit (female)	Solenoid Valve for Cupfiller & Bowlflush
	8	Doctor Unit (male) and Cuspidor Unit (female)	Connection of Doctor Unit & Cuspidor Unit
	Without Numbering	Cuspidor Unit (male) and Chair (female)	Assistant Side Chair Control
	Without Numbering	Cuspidor Unit (female) and Chair Transformer (male)	Dental Light Power Supply
3P	Without Numbering	Doctor Unit (male) and Chair (female)	Power Supply for Main P.C.B.
	Without Numbering	Doctor Unit Arm (male) and Chair (female)	Doctor Unit Arm Safety Lock
	Without Numbering (Option)	Doctor Unit (male) to Chair (female) (large pin connector)	Optional A.C. 24V Power Supply

Table.6-4 Connection of Electric Wire Connectors

Note ; Optional A.C. 24V power supply wire is provided for Electric Scaler, Electric Motor and 6-way Syringe, etc.

5. Connection of Vacuum Pump Control Wire

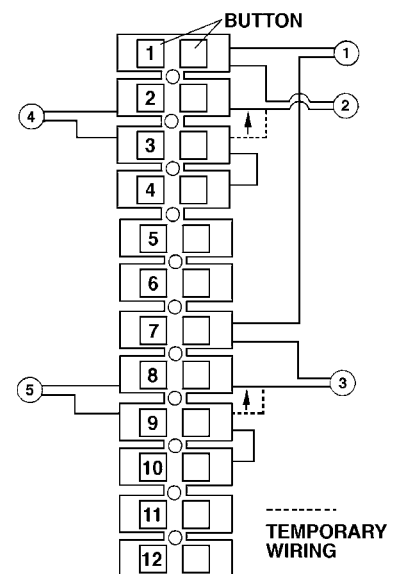
(Central Vacuum Type Only)

Connect the vacuum pump control wire with the vacuum switch line wire (wire colour ; Pink) to operate vacuum pump from assistant side vacuum switch. (**Fig.3-3** (7))

6. Exchange of Terminal Block wirings (**Fig.6-5**)

Exchange the terminal block wirings to permanent connection from temporary connection for installation as following (1),(2),(3). The terminal block is located rear side of the chair base.

- (1) Pressing the button on terminal block to disconnect or connect wire, and pull out or insert wire .
- (2) Disconnect the main switch and fuse line wire from terminal NO.3, and connect to terminal NO.2 .
- (3) Disconnect the main switch and fuse line wire from terminal NO.9, and connect to terminal NO.8 .



- (1) Power Supply
- (2) Main Switch & Fuse
- (3) Main Switch & Fuse
- (4) Main Air Switch
- (5) Main Air Switch

Fig.6-5 Terminal Block

SECTION 7. Assembling Chair and Unit

1. Fixing Chair on The Floor

When all connections are completed, fix the chair base on the floor with bolts.

Chair base fixing points are shown in **Fig.7-1**.

In case of wood floor, fix chair base with attached lag bolts and washers.

In case of concrete floor, fix chair base with M6 or M8 anchor bolts.

Caution ; Chair must be fixed to the floor with bolts to prevent from falling down.
When fixing chair to the floor, be careful not to damage tubings and wirings in utility section, and pipings under the floor.

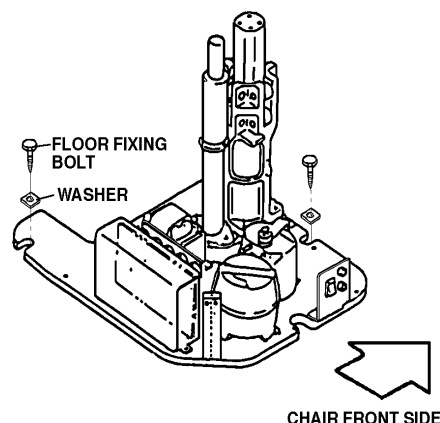


Fig.7-1 Fixing Chair on Floor

2. Assembling Backrest and Headrest (**Fig.7-2**)

- (1) Remove backrest rear cover from backrest assembly and fix backrest frame to backrest support with 4 pieces of M8 X 20 cap bolts and spring washers.
- (2) Reattach backrest rear cover.
- (3) Attach headrest assembly to backrest.

3. Assembling seat cushion

Through 2 front side bolts of seat cushion into legrest flapper holes, fix seat cushion with 4 pieces of M6 nuts and washers.

4. Attachment parts

Attach unit part as following **UNIT ATTACHMENT PARTS LIST**.

UNIT ATTACHMENT PARTS LIST

- (1) Cupfiller Nozzle
- (2) Waste Receptacle
- (3) Basket Strainer & Drain Cap
- (4) Vacuum Tip & Saliva Ejector Tip
- (5) Stainless Steel Tray
- (6) Handpieces

Note ; Before connection of handpieces, flush out air and water to clean up handpieces tubings.

5. Assembling base covers

After Test and Adjustment (**Section 8.**), assemble base covers.

Turn off the master switch and assemble base covers (right & Left) with 8 phillips head screws. Then fix the rubber stick to stick switch shaft and tighten lock nuts.

Caution ; Do not pinch wires and tubings by base covers.

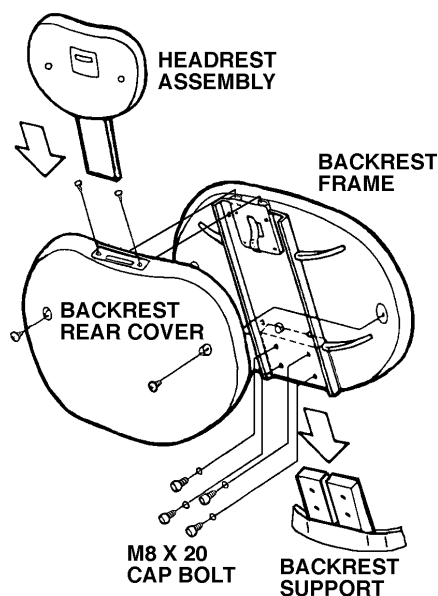


Fig.7-2 Assembling Backrest and Headrest

SECTION 8. Test and Adjustment of Chair and Unit

Open air stop valve and water stop valve, connect power supply cable, turn on master switch on doctor table and turn on chair main switch on sitting right side chair base. Confirm power indicator lamp and chair power lamp illuminate in green.

1. Adjustment of Main Air Pressure and Main Water Pressure

(Fig.8-1)

(1) Main air

Confirm or adjust main air regulator in utility section or junction box at 0.49 - 0.54 Mpa.

(2) Main water

Confirm or adjust main water regulator in utility section or junction box at 0.1 - 0.19 Mpa.

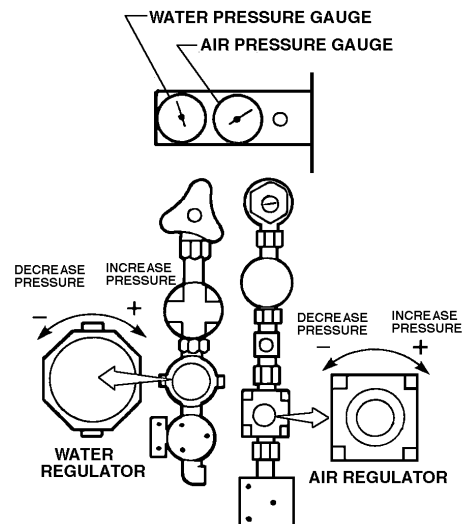


Fig.8-1 Main Air and Water Regulator in Utility Section

Caution ; Do not exceed air and water pressure at 0.59 Mpa at any time.

2. Test of chair and unit

Now ready to operate, test chair and unit as following **CHECK LIST** and **OPERATING MANUAL**.

CHECK LIST

A. Chair Section

- (1) Chair operation (Doctor side control panel, Assistant side control panel and Stick switch)
- (2) Chair safety lock system (Handpiece, Doctor table first arm rotation and Doctor table lift safety lock system)
- (3) Headrest operation
- (4) Armrest operation

B. Unit Section

- (1) Syringes (Doctor side and Assistant side)
- (2) Cupfiller and bowl flush water
- (3) Assistant side instrument holder switching (Saliva ejector and High volume evacuator)
- (4) Cupfiller water heater
- (5) Film viewer
- (6) Handpiece coolant water, coolant air and drive air
Adjust handpiece drive air pressure as following each handpiece manufacture manual.
- (7) Arms and doctor unit level and friction of rotation

C. Light Section as following **DENTAL LIGHT MANUAL**.

- (1) Light operation
- (2) Angle and spring tension of arm

Caution ; Confirm water and air is not leaking from joints and connectors in utility section or junction box.

Confirm tubings and wires are not hard kinking or bending in utility section on any chair position.

SECTION 9. Adjustment Arms

1. Adjustment of Doctor Table Level (**Fig.9-1**)

Level of the doctor table can be adjusted by four level adjustment screws located inside doctor table. Remove the table top cover and adjust the level by screwing/unscrewing level adjustment screws.

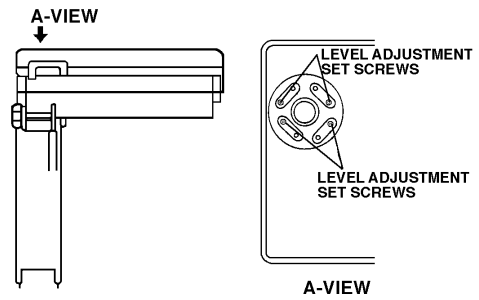


Fig.9-1 Adjustment of Doctor Table Level

2. Adjustment of Doctor Table Rotation Friction (**Fig.9-2**)

Friction of doctor table rotation can be adjusted by the set screw located in table rotation flange under the table.

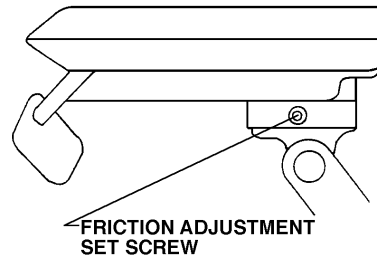


Fig.9-2 Adjustment of Doctor Table Rotation Friction

3. Adjustment of Doctor Table Horizontal Arm Friction (**Fig.9-3**)

Friction of doctor table horizontal arm can be adjusted by turning the nut located at the end of horizontal arms joint.

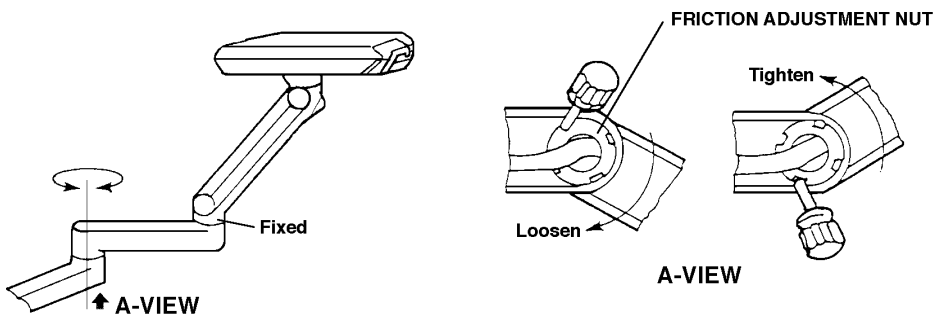


Fig.9-3 Adjustment of Doctor Table Horizontal Arm Friction

5. Adjustment of Assistant Side Balance Arm Balance Friction (**Fig.9-4**)

Loosen M6 cap nut and adjust balance arm friction by adjustment screw. Tighten M6 cap nut after adjustment.

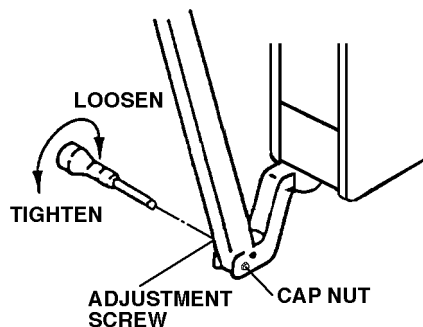


Fig.9-4 Adjustment of Assistant Side Balance Arm Balance Friction

SECTION 10.

1. Preset Position Adjustment

SP-CLEO can be set two preset positions.(Fig.10-1)

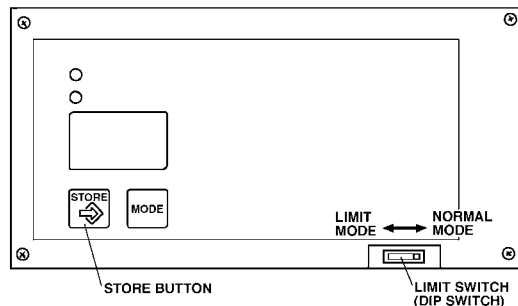


Fig.10-1 Chair Preset panel (Preset Panel Cover is Removed)

1. Set seat and backrest in the desired position by manual control switches.
2. Keep depressing (1) button on doctor table or assistant side control panel until buzzer sounds so that the position is memorized to PRESET 1, then the buzzer sound ceases.
3. PRESET 2 is memorized by pressing (2) button as following 1 to 2.

2. Mouth Rinsing Backrest Position Adjustment (Fig.10-1)

The desired mouth rinsing backrest position can be programmed as last position memory operation.

1. Set backrest in the desired position by manual control switches.
2. Keep depressing (LP) button on doctor table or assistant side control panel until buzzer sounds so that the position is memorized to mouth rinsing position, then the buzzer sound ceases.

Note ; Only backrest position can be adjusted in last position memory operation.

3. Reprogram of Limit Positions (Fig.10-1)

Seat height can be operated between base lower limit position and base upper limit position and backrest angle can be operated between backrest lower limit position and backrest upper limit position. In case of change limit positions, as following (1) to (6).

1. Remove chair preset panel cover located on sitting right hand side of chair.
2. Slide limit switch to limit mode (slide to left side).
3. Change of base upper limit position
Move up or down base to suitable base upper limit position by manual control switch then momentarily press **store button** and momentarily press **base up** switch.
4. Change of base lower limit position
Move up or down base to suitable base lower limit position by manual control switch then momentarily press **store button** and press momentarily **base down** switch.
When return mode switch to normal mode.this position is memorized as **base lower limit** position.

5. Change of backrest upper limit position

Move up or down backrest to suitable backrest upper limit position by manual control switch then momentarily press **store button** and momentarily press **backrest up** switch.

When return mode switch to normal mode, this position is memorized as **backrest upper limit** position.

6. Change of backrest lower limit position

Move up or down backrest to suitable backrest lower limit position by manual control switch then momentarily press **store button** and momentarily press **backrest down** switch.

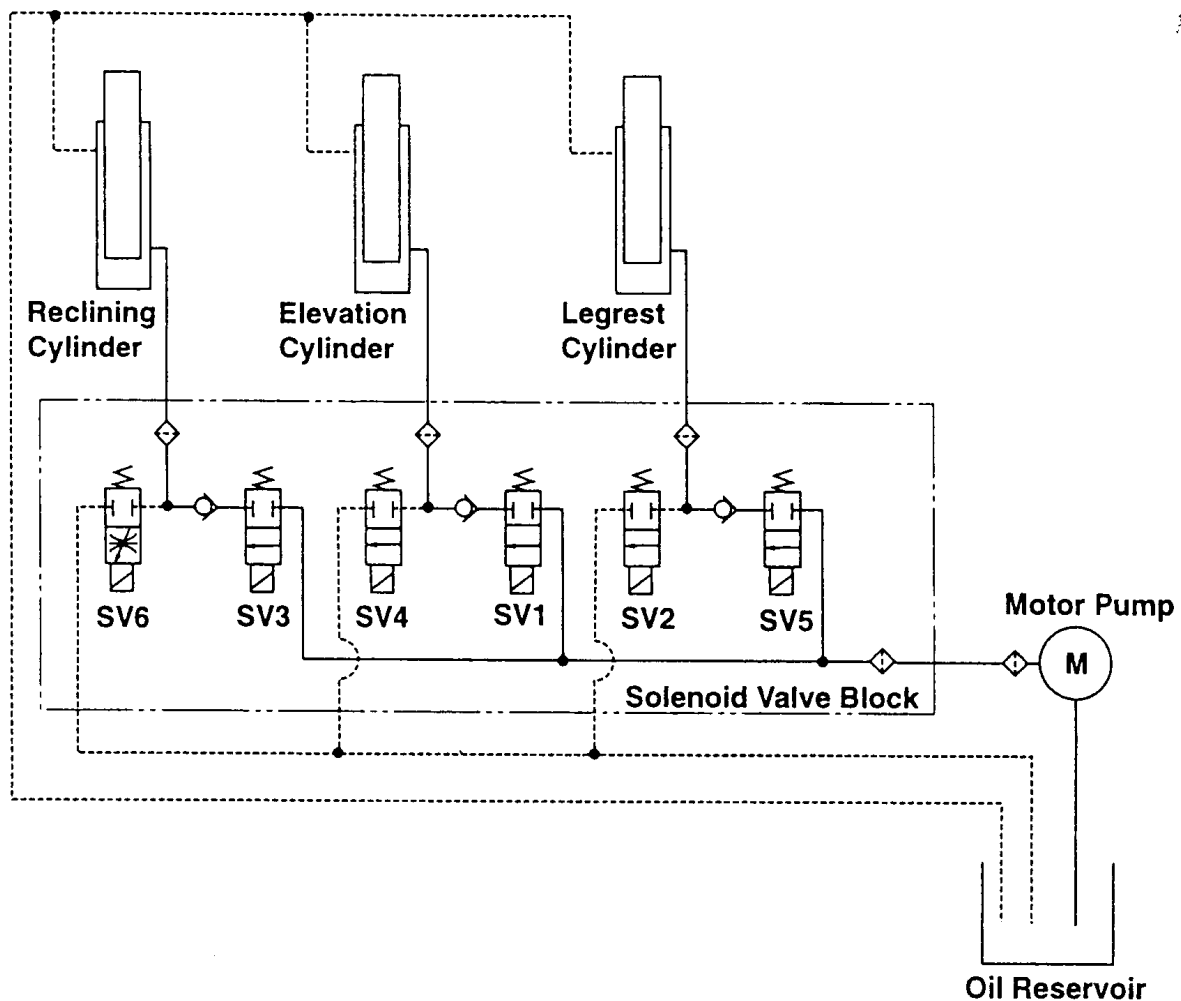
When return mode switch to normal mode, this position is memorized as **backrest lower limit** position.

Note ; Chair should be operated in normal mode (Limit switch is normal mode position).

Limit positions were already set up most effiecent positions at the factory.

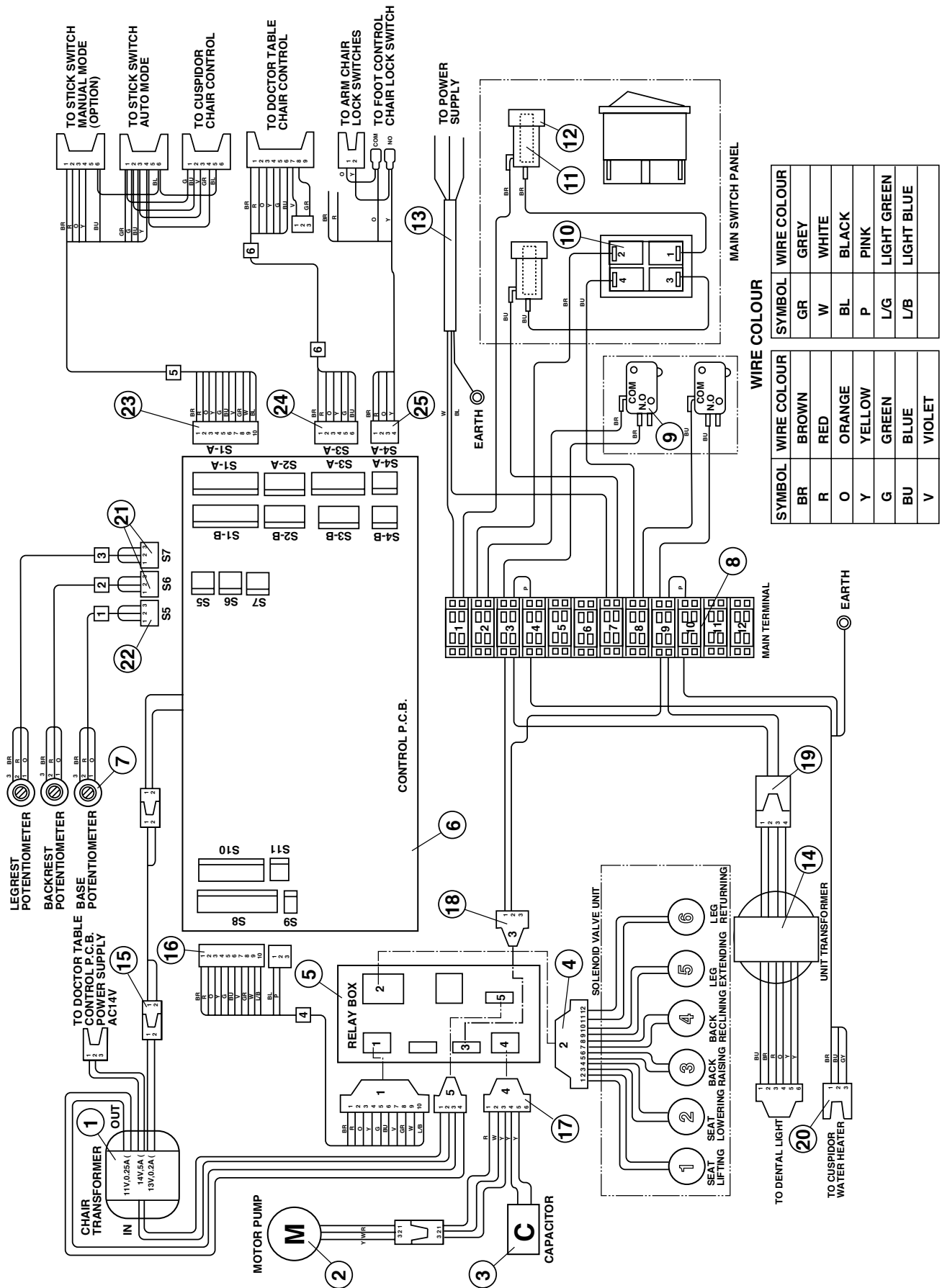
If mistake to set up limit position, slide limit switch to limit mode and set up limit position again.

SECTION 11. Hydraulic Diagram for CHAIR



SECTION 12. Electric Diagram

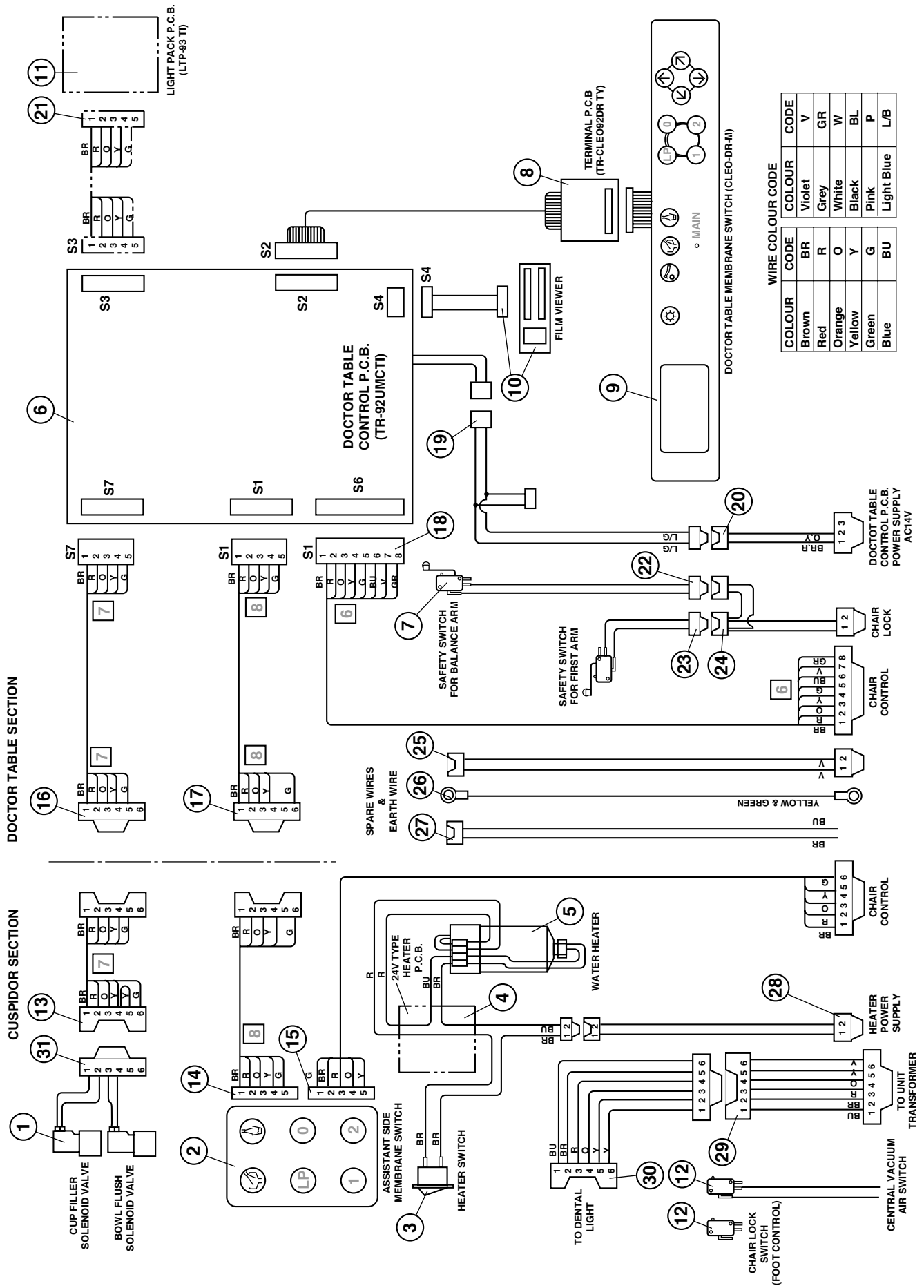
1. Chair Section.



SYMBOL	WIRE COLOUR
GR	GREY
W	WHITE
BL	BLACK
P	PINK
L/G	LIGHT GREEN
L/B	LIGHT BLUE

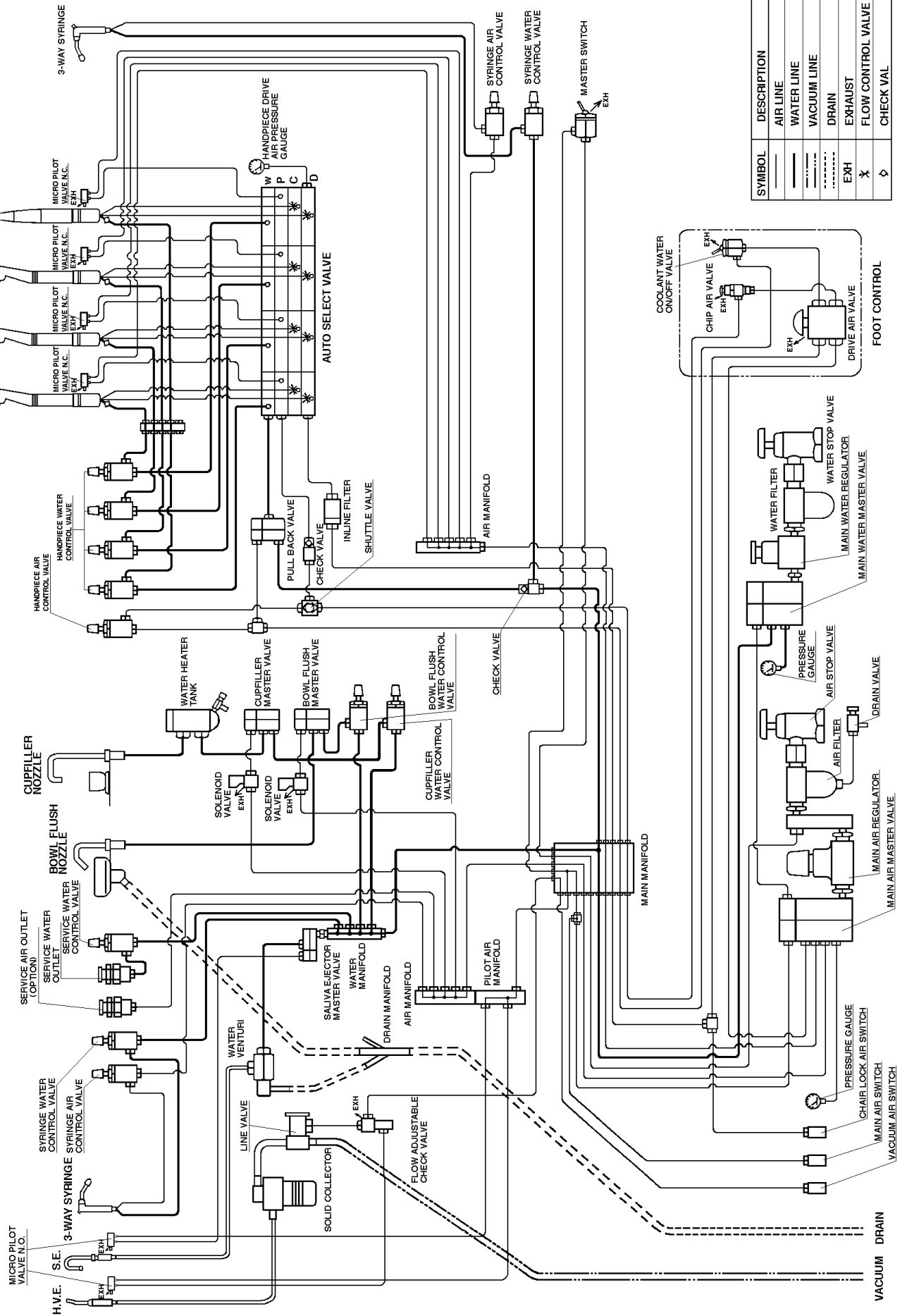
SYMBOL	WIRE COLOUR
BR	BROWN
R	RED
O	ORANGE
Y	YELLOW
G	GREEN
BU	BLUE
V	VIOLET

SECTION 12. Electric Diagram
2. Unit Section.



SECTION 13. Flow Diagram

SP-CLEO FLOW DIAGRAM (CENTRAL VACUUM, WATER SALIVA EJECTOR TYPE)



NOTE

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