

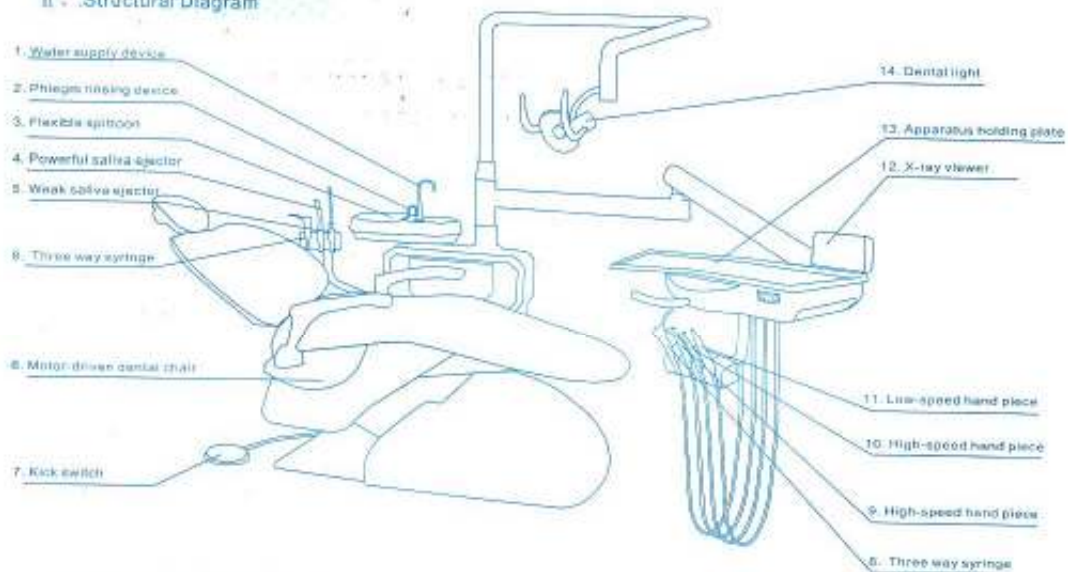
BRIEF INTRODUCTION OF PRODUCT, STRUCTURAL DIAGRAM AND SPECIFICATIONS

I. Brief Introduction of Product

KLT-6210 dental treatment machine is a reinforced dental unit integrating different advanced technologies created based on the development trend of world treatment facilities. This unit is of bright lines and outlooks. The integral apparatus plate is not only of special shaping but also easy to clean, integrating advanced theories of ergonomics, aesthetics and so on. The overall machine adopts unique techniques, featuring elegant shaping, complete functionality, ease of use, economy and practicality as well as ease of maintenance and repair. Judging from outlook and from inside quality, this machine is your ideal choice.

Dental chair uses 24V DC motor for quiet and steady operation. A newly added kick switch makes it possible to adjust chair position at will, bringing real convenience to dentists. The treatment machine uses down hanging apparatus plate for ease of placing hand pieces. It is also equipped with NSK original four-hole high-speed hand pieces and four-hole low-speed hand piece. Microcomputer processor control is more convenient, quicker and safer. The treatment machine has two four-hole high-speed hand pieces, one four-hole low-speed hand piece and one three-way syringe. There is also assistant's rack equipped with a weak saliva ejector and a powerful saliva ejector. The machine is widely used in various dental clinics.

II. Structural Diagram



III. Specifications

Rate of high-speed hand piece (no load):	$\geq 35 \times 10^4 \text{ r/min}$ at an air pressure of 0.22Mpa
Rate of low-speed hand piece (no load):	$\geq 18 \times 10^4 \text{ r/min}$ at an air pressure of 0.33Mpa
Illuminance of dental light:	10000LX-15000LX
Illuminance of X-ray viewer:	$\geq 2000\text{LX}$
Load of motor-driven dental chair:	$\geq 1323\text{N}$
Max. height of cushion:	$\geq 800\text{mm}$
Min. height of cushion:	$\leq 550\text{mm}$
Tilting angle of chair back:	$105^\circ - 170^\circ$
Extension range of head rack:	120mm

INSTRUMENT INSTALLATION

Max. tilting angle of chair cushion:
 Dimensions L x W x H (mm):
 Power:
 Overall power consumption:
 Air supply pressure:
 Water supply pressure:
 Air exhaustion:

≥10°
 1270x950x1210
 AC220V 50Hz
 800W
 0.55-0.8Mpa
 0.2-0.4Mpa
 55L/min

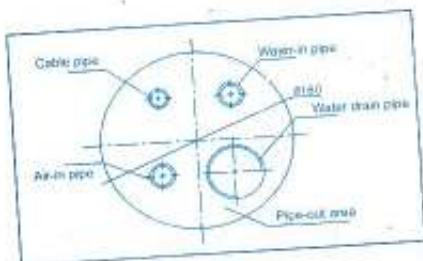
IV. Instrument installation

A) Installation conditions

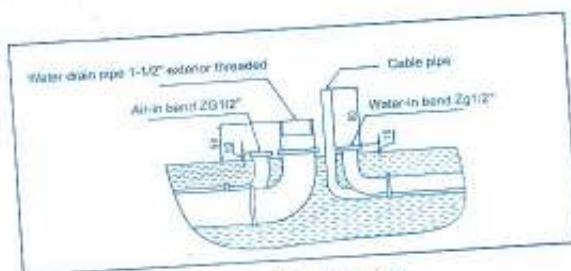
In order to guarantee normal operation of instrument, input water, air, current and environment should meet the following requirements:

Air source: 0.55-0.8Mpa	Flow rate 50L/min
Water source: 0.2-0.4Mpa	Flow rate 10L/min
Power: Single-phase 220V ± 10%	50Hz ± 2% 10A
Environment: Temperature 5-40 °C	Relative humidity not exceeding 80%

B) Installation preparation



Front cover diagram



Pipe exit diagram

1. Decide installation position of the machine according to overall clinic configuration, lighting conditions and ease of use, etc. First this instrument should be installed in a clean, dry, ventilated and cool place for an excellent working environment. Also, make sure that the floor for the motor-driven dental chair is smooth, level and solid. Then choose a proper position for the chair to make sure that there's nothing that will obstruct the operation of chair. Open the front cover and bury different pipelines under floor as indicated in the diagram.

2. Refer to "Front cover diagram" and "Pipe exit diagram" for underground pipe positions for water, air and current and fix properly. (Caution: There should be some inclination of drainage pipeline for smooth drainage.)

1) 2G 1/2" pipe (external diameter 22mm) is used for water-in pipe and air-in pipe. Use bends with threads for joints; the top of which is about 10mm above ground level.

2) External diameter of drain pipe should be 48mm (2G 1/2")

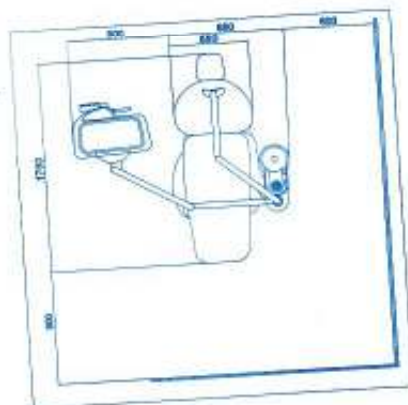
3) Cable pipe should be 80mm above ground.

3. Installation steps

1) Installation of motor-driven dental chair

Place the motor-driven chair at pre-fixed position. If the ground contacted by chair is not smooth, the six attached M12x16 hexagon-headed screws may be fixed in the six holes of the base plate of chair for full contact with ground. When adjusting, make sure the base plate has maximum contact area with ground for best stability of machine.

2) Installation of cushion



INSTRUMENT INSTALLATION AND ADJUSTMENT

First adjust the motor-driven chair to back tilting position, then fix the two bolts under cushion to the slip-in slots and then pull the cushion backward till cushion and chair rack contact smoothly. Then do left/right tuning and fasten the screws and the front positioning screw. Take off the screws at the front of the motor casing, press down the motor casing, fix the two bolts at the front and install the motor casing again.

3) Pipeline installation

Before linking pipelines, water and air inside this machine must be exhausted so that the dirt inside pipes is removed for prolonged service life. Use the attached $\varnothing 5 \times 8$ pipes to connect water and air source. Use pipe fixtures and pay attention to sealing. Besides, connect the drain pipe of the machine with house drain system. Do it securely and guarantee smooth drainage.

4) Installation of light arm and light

- a. Securely connect the socket of light arm with the socket from the casing and place the socket in the pole. Then plug the light arm in the pole and fix the light arm. Caution: Do not damage cables.
- B. Take out the light. First plug it in the connection hole of front light arm. Then use the attached inside hexagon-headed bolts to fasten it.

V. Adjustment

1. Turn on air source. Check the air pressure gauge at the air filter decompression valve under front cover. It should read 0.55-0.65Mpa. If the air pressure is too high or too low, it is necessary to adjust the pressure of decompression valve until it reads properly. (Method: open front cover, pull the button at the top of the air filter decompression valve upward. Then turn the button clockwise for increased pressure or counterclockwise for decreased pressure). Then use soap water to check if there's any leakage.
2. After properly connecting water and air source, turn on the power switch. Power indicator will illuminate to indicate normal condition. Turn on the dental light and check if the strong/weak operation of light is normal.
3. Take the connectors of the high-speed hand piece and low-speed hand piece and the three way syringe from the rack, step on the kick switch, exhaust the dirty water and air in pipelines. Then connect the hand pieces according to respective instructions. (Caution: Do not turn on hand pieces with no load or excessive load, or you will shorten their service life.)
4. Each hand piece has its respective water and air control valve buttons at apparatus holding plate. Adjust water buttons for proper water output, adjust air regulating valve buttons so that the pressure of high-speed hand piece and low-speed hand piece read 0.22-0.25Mpa and 0.3-0.35Mpa respectively (see pressure gauge on apparatus board).
5. Adjustment (see operation instructions)
 - 1) Slightly press "Water Supply" button and "Spittoon Rinsing" button and check if water output is normal.
 - 2) Follow "Operation Instructions" and set proper water supply for each mouth rinsing, then slightly press "Heating" button to check if automatic constant temperature heater operates normally.
6. Checking saliva ejector: Get a glass of water, take the saliva ejector from the rack and put it in water. Observe if it works smoothly (normally it should suck up 250ml water in 30 seconds). Caution: Disinfections of the parts contacting patients can be done by sucking 841 disinfectant.
7. Checking three way syringe: three way syringe has two buttons for air and water respectively. Pressing the left button is water flow, pressing the right button is air flow; pressing both is fog output.
8. Checking water supply system: Inside the casing there is a water storage jar, specially supplying water for the three way syringe and hand pieces. Turn the water source switch on outer casing clockwise to get water supply from water storage, turn it counterclockwise to get exterior water supply. When using running water or changing water in storage, please shut down the air switch next to water source switch to exhaust the compressed air inside.
9. Adjusting movement of motor-driven chair. (Adjust the motor-driven dental chair according to "operation instructions"). Caution: Since the motor-driven dental chair has moving parts, in operation the treatment machine will be elevated or lowered as the chair does. Therefore it must be assured that the whole instrument will not come into any objects in all possible movement range.

OPERATION INSTRUCTIONS

VI. Operation Instructions

This instrument is microcomputer controlled. The 10 press buttons are arranged on the control board for ease of use. The following diagram illustrates the buttons on control board and their functions.



- 1. Power indicator**
Once power is on, the power indicator will illuminate. It will go off when power is off.
- 2. Chair back down tilting button**
By pressing this button and holding on, the back of dental chair will move in the indicated direction. When reaching required position, stop pressing the button and the chair back will immediately stop moving. (If button pressing continues, chair back will automatically stop moving when maximum range is reached.)
- 3. Chair elevation**
By pressing this button and holding on, the dental chair will move in the indicated direction. When reaching required position, stop pressing the button and the chair will immediately stop moving. (If button pressing continues, chair will automatically stop moving when maximum range is reached.)
- 4. Chair lowering**
By pressing this button and holding on, the dental chair will move in the indicated direction. When reaching required position, stop pressing the button and the chair will immediately stop moving. (If button pressing continues, chair back will automatically stop moving when maximum range is reached.)
- 5. Chair back forward tilting button**
By pressing this button and holding on, the dental chair will move in the direction as indicated. When reaching required position, stop pressing the button and the chair will immediately stop moving. (If button pressing continues, chair back will automatically stop moving when maximum range is reached.)
- 6. Preset position button**
Press this button once and the dental chair will immediately restore to a preset position; press any key and the chair will stop this action immediately.
- 7. Reset button**
When a patient is ready for treatment or treatment is over, dentist presses this button to restore the chair to initial state: the seat will be at lowest position while chair back at maximum front tilting position for ease of patient to get on and get off. Press any button will stop this action.
- 8. Phlegm rinsing button**
Press this button once and the phlegm rinsing will begin. Another press will stop rinsing.
- 9. Water supply button**
By pressing this button, water supply begins till preset volume is reached when it automatically stops. During water supplying, another press on the button will immediately stop water supply.
- 10. Heating button**
This instrument has automatic constant temperature water heater. If warm water is needed, press this heating button, the indicator will illuminate which means heater is in working state. (Flashing of indicator means heating; flashing stops when water temperature reaches preset point. When temperature lowers, heater will restore to working state and indicator will flash.)

OPERATION INSTRUCTIONS

11. Setting button

a) Setting of water supply volume

- A. Press the Set button. The indicator will illuminate.
- B. Press the water supply button and hold on to give water until required water volume is reached.
- C. Press the Set button again and the indicator goes off and setting is over. Computer has now kept the latest memory for future use in which only one press of water supply button will result in automatic water supply to the set volume. (If pressure of running water suddenly changes dramatically or the size of glass used changes, please repeat the setting step to readjust water supply volume.)
- D. This function can store the setting at power shutdown.

b) Setting of phlegm rinsing time

- A. Press the Set button. The indicator will illuminate.
- B. Press the phlegm rinsing button as follows:
 1. Press the button once to set phlegm rinsing time as 30 minutes. The buzzer sounds once.
 2. Press the button twice to set phlegm rinsing time as 60 minutes. The buzzer sounds twice.
 3. Press the button three times to set phlegm rinsing time as infinite. The buzzer sounds three times.
 4. Press the button four times to restore factory set phlegm rinsing time which is 12 seconds. The buzzer sounds four times.
- C. After setting, press the Set button again and the indicator goes off and phlegm rinsing time has been saved (as water comes out, another press of the phlegm rinsing button will stop phlegm rinsing.) and escape from common setting.
- D. This function is not stored at power shutdown. Initial state is normal open.

Notes:

- a) The motor-driven dental chair can be stopped from automatic motion at once if required by pressing any of the operation buttons of the chair.
 - b) All set parameters are automatically saved in case of power shut down.
 - c) When power interruption is restored, no safety problem will occur except that temporary operation is interrupted. If you want to continue your work, just restart the machine.
 - d) When the overall instrument is powered on, buzzer will sound once and indicator illuminates. At the same time the instrument carries out self-examination.
12. Changing water storage jar and regulating air pressure. Turn the water storage jar counterclockwise to take it out, add clean water and turn it back properly to avoid air leakage. There is a decompressing valve inside the casing which serves to ensure certain water supply pressure. It controls water supply pressure by controlling the air pressure added on water storage jar. This decompressing valve has been factory set, therefore do not adjust this valve unless you are professional. Specific adjustment steps: open the casing (you will find the decompressing valve at the strong/weak suction rack); use a screwdriver to turn the screw on top of the valve. To decrease pressure, turn it clockwise. To increase pressure, turn it counterclockwise. Pressure is proper when shooting range of syringe is 1m.

MAINTENANCE

VII. Maintenance

In everyday use, the instrument ought to be kept clean, pipelines be kept smooth, and leakage be prevented, revolving parts be oiled, overall instrument be in excellent working conditions.

1. To keep normal operation of instrument, a water filter is equipped in the casing of the machine to filter the water and prevent the instrument from damage caused by dirt. However after a certain period of time, dirt will block the filter and influence water flow. And the filter core must be clean to restore its functionality.

1) Generally, filter core must be clean if one of the following occurs:

- Instrument has been used for more than one year.
- Loss of pressure of filter exceeds 0.1Mpa
- Filter core is polluted
- Output water gets turbid.

2) Methods of cleaning or changing filter:

- Shut down the power and water source.
- Open the front cover, take down the transparent plastic cup under the water filter by turning it counterclockwise.
- Screw out the screws which fix the core of filter, take the core out and clean or change a new one.
- Re-install it.

Warning: When installing filter core, don't treat it violently or it would be damaged. When installing transparent plastic glass, be sure to seal it.

2. To ensure steady, clean and dry air input in daily use, the instrument is equipped with an air filter decompressing valve installed at the air entrance at the front cover. This valve keeps air pressure in a preset value and filters away dust and moisture content. The moisture contents blocked will gather in the filter glass. After a certain period of time, the gathered water must be drained away to avoid influencing filter effect.

1) Generally, water must be drained from air filter decompressing valve if one of the following occurs:

- Instrument has been used for more than one week.
- Water in filter glass occupies 3/4 volume of the glass.
- There is a color change in the water in the filter glass (water not colorless and transparent)

2) Methods of water drainage from filter decompressing valve

- Shut down the power and air source.
- Open the front cover, press the three way syringe to exhaust the remaining air inside instrument. Turn open the drainage valve core at the bottom of filter decompressing valve. The water will come out. After drainage, put it back.
- To ensure clean environment, the water exit may be mated with water absorption materials like cloth, tissues and sponge, etc to absorb drained water.

3. Hand pieces are precision and valuable devices and are key devices to be maintained. Please read user's manual of hand piece carefully before use. Every day clean and oil hand pieces with the lubricant for this instrument before work. After use, please carry out high-temperature vapor disinfections and oiling as specified. (High-temperature vapor disinfections: 132°C for 15 min.)

4. Dental light maintenance should be done at normal atmospheric temperature. Rub it slightly with water wetted cotton. The back and top of light piece cannot be rubbed, only use compressed air to blow away the dust.

5. X-ray viewer is for observing X-ray image. It will get damaged after a long period of time. Then it must be changed. Methods: shut down the power first. Then take out the apparatus cover and you will find the "U" shaped energy-saving lamp. Slightly take it out and change a new one. Caution: since the light uses 220V current, be sure to shut down the power before repair work.

6. At saliva ejecting usually there is solid substance coming out with saliva which blocks the core of filter. So it is necessary to clean filter core regularly (best once a week).

7. The sitting cushion and the surface of the motor-driven dental chair should be cleaned regularly. The surface can be cleaned and disinfected with medical alcohol.

8. The motor-driven dental chair is intermittent equipment, whose continuous operation should not exceed 1 min.

TROUBLESHOOTING AND CAUTION

VII. Troubleshooting

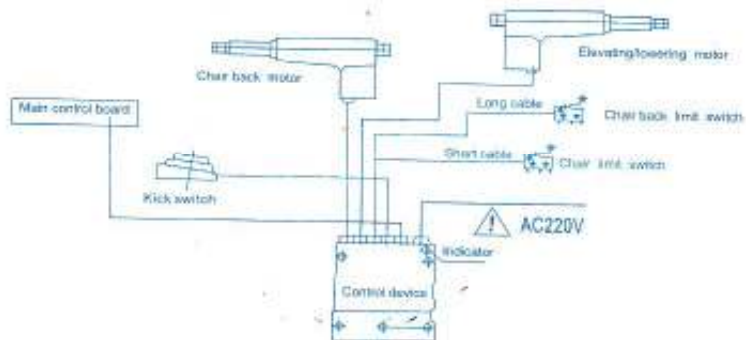
Failure	Cause(s) Analysis	Solutions	Remarks
Dental light shut down	<ol style="list-style-type: none"> 1. Bulb damaged 2. Bad contact of light pieces 3. Bad contact of connecting sockets 4. Cable broken inside joints 	<ol style="list-style-type: none"> 1. Change bulb 2. Correct it with tools 3. Correct it with tools 4. Change cable 	12V 50W
Water for mouth rinsing can't be shut	<ol style="list-style-type: none"> 1. Core of electromagnetic valve jammed 	<ol style="list-style-type: none"> 1. Remove and wash it 	
Water for mouth rinsing can't come out	<ol style="list-style-type: none"> 1. Pipe twisted or pressed flat 2. Coil of electromagnetic valve damaged 	<ol style="list-style-type: none"> 1. Straighten or change pipe 2. Change electromagnetic valve 	
Spittoon rinsing drain blocked	<ol style="list-style-type: none"> 1. Pipeline blocked by dirt 2. Plastic pipe pressed flat 	<ol style="list-style-type: none"> 1. Remove the dirt 2. Take it out and soak it in warm water to restore; or change pipe 	
Saliva suction not smooth	<ol style="list-style-type: none"> 1. Pipeline blocked by dirt 2. Filter blocked by dirt 3. Piston of dual-unit air control valve out of proper position 	<ol style="list-style-type: none"> 1. Suck clean water to clean or take it out to clean 2. Take out the filter and clean it. 3. Take out the piston and clean it with alcohol. Then apply silicone oil to "D" ring. 	
Water for phlegm rinsing can't come out	<ol style="list-style-type: none"> 1. Pipe twisted or pressed flat 2. Coil of electromagnetic valve damaged 	<ol style="list-style-type: none"> 1. Straighten or change pipe 2. Change electromagnetic valve 	

VIII. Caution

1. When operating motor-driven dental chair, it must be assured that the whole instrument will not come into any objects in all possible movement range.
2. Timely drain the gathered water from the air filter decompressing valve.
3. Timely clean or change the core of water filter.
4. When not in use, the chair should be in lowest position. Also, keep the environment clean and dry to prolong service life.
5. Make sure that the equipment is connected to a grounded outlet. Also the dental chair must be grounded to guarantee safety.
6. Power must be off when changing any electrical devices.
7. Power must be off when repairing or cleaning equipment.

**DIAGRAM OF motor-driven OPERATION OF DENTAL CHAIR
AND ELECTRICAL DIAGRAM OF TREATMENT MACHINE**

X. Diagram of motor-driven Operation of Dental Chair



XI. Electrical Diagram of Treatment Machine

