OPERATION MANUAL

PORTABLE DENTAL UNIT

TM-118

Thank you very much purchasing our company's products.

- **Before operating the unit, please read the manual carefully and preserve it for future reference.**
- **Please operate and maintain the unit strictly in accordance with the operational instructions.**
- **Symbol "⚠" denotes that the user should read the instructions supplied with the dental unit carefully.**
- **Symbol "Attention" denotes that before using the device, read the operating manual carefully and carry out all the instructions to avoid any damage or injury.**
- **Please contact the local agent or the manufacturer if the unit needs repairs. We will supply a high quality of service and assistance for you.**

Warning:

1 The power switch should be turned off when the machine stopped working, the transformer and solenoid valves will heat to burn if long-term power or no stop the power.

2. Please drain off the water when the water on 75% of Sewage bottle, the water will come to motor if the water is higher than 75% , the air motor will leakage of electricity or burn if the water come to air motor.

Our guarantee: when dealing with the trouble, we guarantee to supply the necessary detailed technical information for the user if needed.

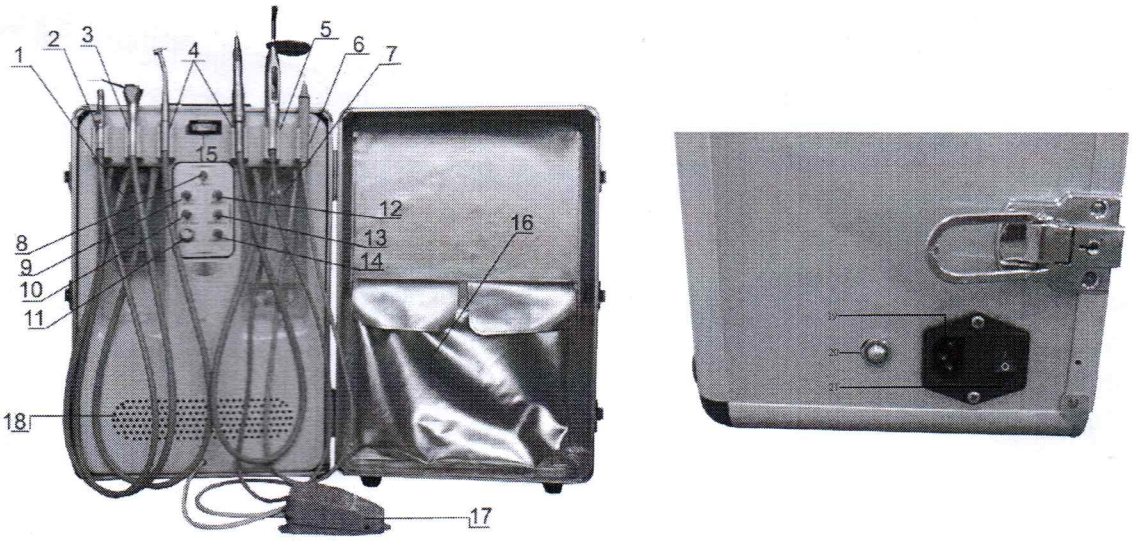
1. Brief Introduction

Portable Dental Unit, is a portable/mobile dental equipment newly developed by our company. Its main applications are for oral health and treatment in community clinics and hospitals. With its compressor, gas tank, pressure release filter valve, clean water bottle, saliva gathering bottle, it provides a high level of steady, dry and non-polluted air power available for high-speed turbine handpiece. The unit is portable, simply operated, easy to maintain and welcomed by the dentists and doctors

1.1 The Equipment Structure

1. Saliva Bottle	2. Saliva Ejector
3. 3-way Syringe	4. High & Low Speed Handpiece
5. LED Light Curing Unit	6.Built in Ultrasonic Scaler
7. Water bottle	8.Air switch Adjustor
9.Left Handpiece Air Adjustor	10. Left Handpiece Water Adjustor
11. Scaler Current Adjustor	12. Right Handpiece Air Adjustor
13. Right Handpiece Water Adjustor	14. Scaler Water Adjustor

15. Pressure Gauge	16. Bag for Dental Instrument
17. Foot Control	18. Cooler for Air Motor
19.Power Plug	20.Water Drain Valve
21.Power Switch	



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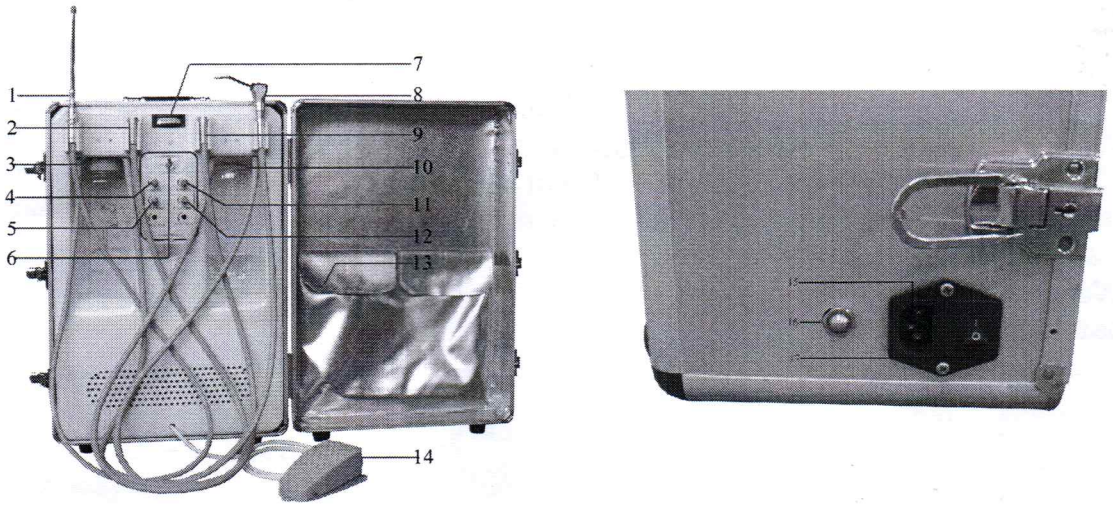

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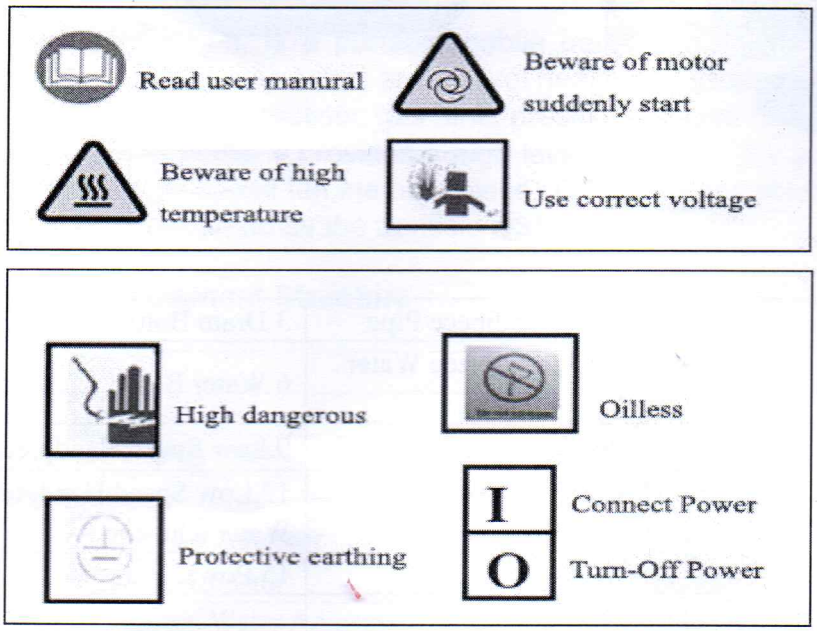
1.High Suction	2.High Speed Handipece Pipe	3.Drain Bottle
4.High Speed Handpiece Adjustor	5 High Speed Handpiece Water Adjustor	6.Water Bottle Air Switch
7.Air Pressure Gauge	8.3-ways Syringe	9.Low Speed Handpiece Pipe
10.Water Bottle	11.Low Speed Handpiece Pressure Adjustor	12.Low Speed Handpiece Water adjustor
13.Bag for instrumen	14.Foot Switch	15.Power Plug
16.Water Drain Valve	17.Power Switch	

1.2 Configuration

BD-406	BD-406A
A:Standard Configuration:	**A:Standard Configuration**:
Oiless Air Compressor Motor 1pc	Oiless Air Compressor Motor 1pc
3 Way-Springe 1pc	3 Way-Springe 1pc
High Speed Handpiece Pipe 1pc	High Speed Handpiece Pipe 1pc
Low Speed Handpiece Pipe 1pc	Low Speed Handpiece Pipe 1pc
High Suction(Ajust) 1pc	High Suction(Ajust) 1pc
6L Air Tank 1pc	6L Air Tank 1pc
Water Bottle 1pc	Water Bottle 1pc
Drain Bottle 1pc	Drain Bottle 1pc
Foot Control 1pc	Foot Control 1pc
Built in Ultrasonic scaler 1pc	**B: Optional:**
Built in LED light curing unit 1pc	Portable Dental Chair
B: Optional:	High Speed Handpiece(Standard,LED or Fiber Optic)
Portable Dental Chair	Low Speed Handpiece
High Speed Handpiece(Standard,LED or Fiber Optic)	Portable Dental Light
Low Speed Handpiece	
Portable Dental Light	

2. Technical data

A: Working condition: Power supply: 550W 110V/60Hz ,220V /50Hz ,
Air supply: 60L/min at 4Bar
B: Instruments control method: Air foot controller
C: Packing Dimension: 48×35.5×71(cm)
D: Weight: 36kgs
F:Installation for Unit:



3. Installation and maintenance

Ensure that every component of the machine is intact after opening the box and check that spare parts are intact according to packing list. In case of doubt, please contact our company. After checking, install the machine in a dry, ventilated and cool place with a flat floor and sterile surroundings.

a. Installation

a1. Handpiece

The process of installation and maintenance of the handpiece is shown in the operating manual in the handpiece package. Please read it carefully.

When use the high speed handpiece, please open high and low handpiece switch to "high-speed" station,adjust the working pressure of the handpiece is between 0.18MPa ～ 0.22MPa , the high speed handpiece standard speed is （≥300×103r/min）.The low speed handpiece working pressure between 0.28Mpa～ 0.32Mpa, the low speed hnadpiece standard speed is （≥14000r/min）.

(1) The screw thread of handpiece is excessively thin. Aim the connector carefully to avoid damaging the screw thread interface.

(2) The handpiece must not be started without the bur or testing bar inserted into the chuck.

a2. 3-way syringe

(1) Press down the ring nut and insert the nozzle, then lock the nozzle by resetting the ring nut.

(2) Turn 9 (see the illustration) to adjust the 3-way syringe water volume

a3. The Saliva ejector

Took out the suction , regulate the weak suction valve control suction salivary device pipetting, saliva the bottle to bottle liquid 75% of the place will be timely discharge (counterclockwise took down the bottle)

Note: Suck a cup of purified water, eliminate the water in the tube and clean the saliva bottle each day after use.

a4 . Water bottles

The distilled water in the water bottle is a source of water for high and low speed handpieces and three-way syringe. Distilled water is used to prevent handpieces and three way syringe from being attacked by particles in poor quality water. When adding water, turn off the water bottle gas switch, remove the bottle clockwise, add distilled water, and tighten the bottle counterclockwise to avoid air leakage.

Note: Before adding water, you must first turn off the water bottle gas switch. The water level of the water bottle should not be higher than 75%, otherwise there is a potential safety hazard!

a5. Sewage bottle

Sewage bottles must be cleaned daily after use. When cleaning, turn it clockwise, rinse it with clean water, and disinfect it with disinfectant. Then tighten the bottle counterclockwise. Sewage bottle water level not higher than 75%, if exceeded, please clean the sewer, and then continue to work.

a6. Clean Water Bottle

The water in the clean water bottle is used as the water supply of the handpiece and syringe. Purified water or distilled water must be used to protect the handpiece and

3-way syringe from being damaged by the particles in poor quality water. Screw it off in an anticlockwise direction to add purified water, exert properly to avoid air leakage.
Note: please turn off the air switch for water bottle before add the water, otherwise have security hidden danger

a7. Saliva bottle
The Saliva bottle must be cleaned each day after use. When cleaning, screw it off in an anticlockwise direction then add a small quantity of purified water.

a8. Air Supply System
The oilless compressor has been tested before packaged. When using, open the power switch, then the compressor runs at once.,supply the air to the air tank,.The air pressure is shown in the pressure gauge on the compressor, it rises from 0Mpa to 0.6Mpa, then the compressor will automatically stop working. Once the pressure in the air tank is under 0.4Mpa， the compressor begins to work until the pressure rise to 0.6Mpa. The device runs in above cycle.

Never regulate or disassemble the device by any laypeople to avoid any accident.

b. Maintenance
Note:
The machine employs oilless air compressor, while using the machine, please pay attention to frequent maintenance and good care so as to prolong its life span.

b1. Gas Tank
Gas tank can stabilize gas pressure, bleed water. To ensure the normal state of the machine, remaining condensate water in tank must be drained periodically, normally twice a week.

b2. Handpiece
Note:
Before use, please follow the instructions in the handpiece box.
The handpiece must not be started without the bur or testing bar inserted into the chuck.

b2.1. Operating pressure of handpiece
Operating air pressure of high speed handpiece：0.18MPa～0.22Mpa
Operating air pressure of low speed handpiece：0.28MPa～0.32MPa

b2.2. Cleaning and Lubrication of handpiece
Spray the cleaning spray into the drive air hole twice every day. Run the turbine for several seconds outside mouth after lubricating.

b2.3. Cleaning nozzle
It is recommended to clean the water hole and air hole once every week to avoid any blockage.

b.2.4. Sterilization
Before autoclaving, clean the turbine surface with purified water or alcohol-soaked cloth. Spray the outside of turbine or wipe it with damp cloth permeating disinfector, then use the water to clean it.
Spray the cleaning spray into the drive air hole, insert the turbine into a sterilization bag and seal it. Autoclave the packet . (2 Bar, 134°C， 4 minutes; or 1 Bar, 121°C,18 minutes)
Note: Any components operating in the patient's oral cavity must be autoclaved after the treatment of each patient.

c1 Disinfection of 3-way syringe

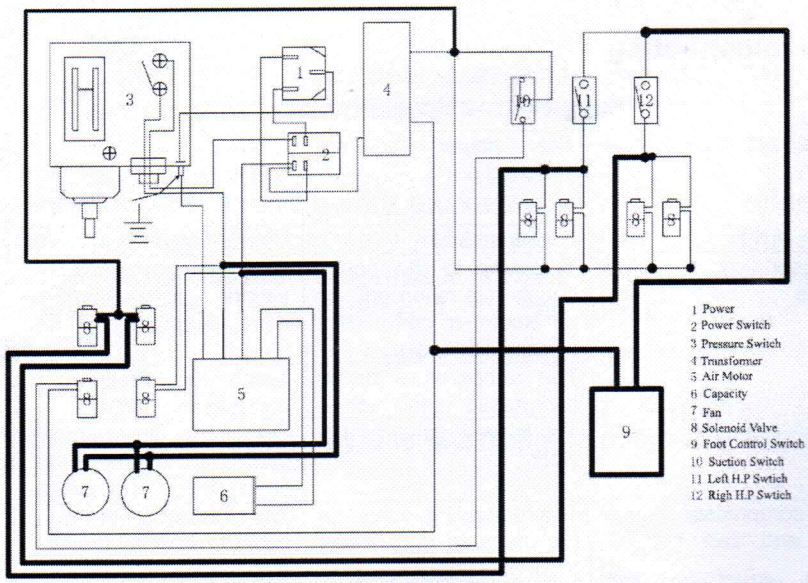
Remove the spray tip of 3-way syringe then autoclave the tip in the autoclave

Note: Any components operating in the patient's oral cavity must be autoclaved after the treatment of each patient.

c 2:Troubleshooting

	Problem	Reason	Check	Tips
1	The power switch can not be turned on	The power is not switched on	Check if the power supply is connected correctly	Connect the power supply correctly
		A fuse is blown	Check if the fuse is broken	Replace the fuse
2	Compressor can not be started up.	The wire to the power supply has fallen off or an electronic component is loose.	Check the patch board and the electric connection of the compressor	Connect the wire according to circuit diagram
		The temperature of air compressor is too high	Touch the shell of the air compressor by hand.	Cool the air compressor, use it until it is cooling.
		The forward valve fails to work	Take off the tube which connects the inlet of the valve, check if there is air leakage	Clean the valve
3	The air compressor keeps working and can not be stopped	The unloading valve on the pressure switch fails to function.	The unloading valve is exhausting when the air compressor is working.	Remove the unloading valve, exchange O ring, clean tube.
		Leakage in the tube.	Watch and listen to the flow, or check it with suds.	Avoid leaking air.
		Air leakage in automatic drainage of filter valve	Check if there is air leakage in automatic drainage of filter valve	Avoid leaking air
4	The compressor stops working, air pressure decrease immediately, compressor starts up again.	Lots of leakage in the tube.	Watch and listen to the flow, or check it with suds.	Avoid leaking air
		The leakage in the forward valve connects to the gas can	No other air leakage, the pressure switch keeps working continuously	Remove the valve replace the O ring and clean the valve core
5	Electriferous shell.	The earth is not connected properly.	Check the shell with the electric pen.	Connect the earth wire properly.
		The unit has been affected with damp.	<5MΩCheck with multimeter. Insulating resistance: <5MΩ	Use the device until it is dry.
6	Can not start up the compressor with the compressor shaking and noisy	The power pressure is too low.	<198V Check the working power pressure with the multimeter. Power pressure <198V	Make the pressure rise or use manostat.
7	The handpiece can not spray water while rotating.	The water in water tank has been used up.	Check the water volume of the water tank.	Replace the tank.
		Air & water distributing valve is blocked.	If the 3-way syringe sprays water.	Regulate the Air & water distributing valve or clean the valve core.
8	The handpiece leaks water when not in operation.	Air & water distributing valve fails to function.	Remove one side of the valves in handpiece , take out faucet, spring and valve core.	replace the valve core
		The foot switch is not restored.	The pressure gauge does not decrease when foot switch is put up.	Loosen the cover of foot switch, make it act freely.
9	Air and water leakage in water and air adjustor	The valve core is screwed too far.	Remove and check the component.	Screw the valve core properly.
		O-ring is damaged.	Remove and check the valve core.	Replace O ring.
		Thread connector is loose	Check if there is leakage in the thread connector	Tighten the thread connector

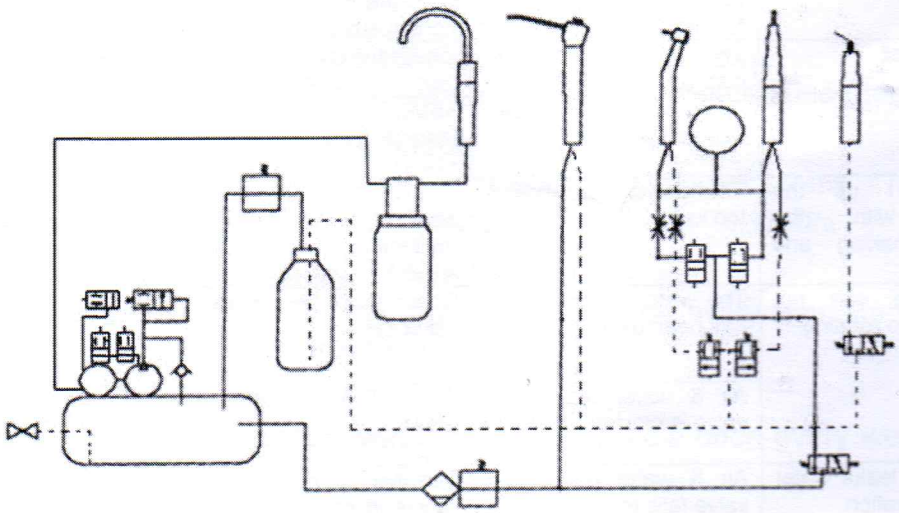
4. Circuit diagram



FU: Fuse 8A/15A SA: Power switch HL: Indicating lamp

KP: Pressure Controller DM: Exhausting solenoid PM: Compressor

5 Air and Water Connection Diagram



6. Packing List

1.	UNIT BODY	1 set
2.	Clean water bottle	1 pc
3.	Saliva Bottle	1 pc
4.	Foot switch	1 pc
5.	Electrical wire	1 pc
6.	Fuse 8A/15A	2 pcs
7.	Operating manual	1 set