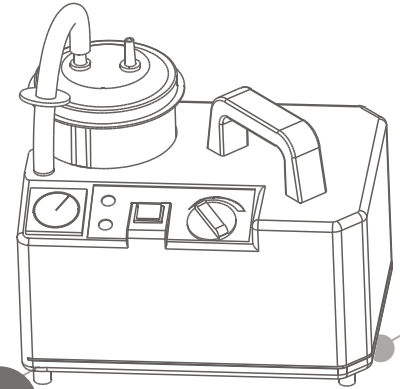


yuwell



7E-A/7E-B Portable Phlegm Suction Unit

User's Manual

JIANGSU YUYUE MEDICAL EQUIPMENT & SUPPLY CO., LTD.

Sales Center Address: Huanyuan East Road No.1, Xuzhuang Software Park,
Nanjing, Jiangsu Province, P.R. China, 210000

Manufacturing Address: YunYang Industrial Park, DanYang, Jiangsu Province,
P.R. China, 212300

<http://www.yuwell.com>

130504-0A 

Please read the user's manual closely before using!

CONTENTS

Product Features-----1

Installing and Commissioning-----2

Application and Maintenance-----4

Precautions-----7

Product Features

Application

- ▶ Portable phlegm suction unit is based on similar products at home and abroad is a new generation of oil free lubrication suction device, which is suitable to use by the patient who has difficulty in phlegm removal due to illness, coma and operation, as well as for aspirating such liquid as pus and blood during the clinical practice. It is the commonly applied medical device in the emergency room, operation room, and for nursing in sickroom and home health care.

Structure & Working Principle

- ▶ Oil free lubrication pump to keep the environment from being polluted by the oil mist.
- ▶ Low noise.
- ▶ Square negative pressure meter, and plastic cover.
- ▶ No any positive pressure to be generated during running, to ensure reliable and safe operation.
- ▶ Negative pressure regulating system can be adjusted steplessly. Small in size, light in weight and portable.
- ▶ The operating principle diagram shown as follows:

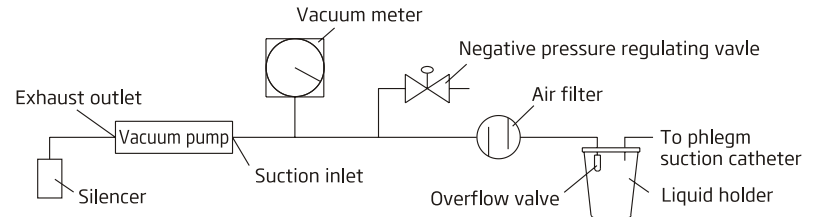


Figure 1: Operating principle diagram

Main Technical Performances

High negative pressure, low flow	
Power Supply: 220V, 50Hz	
Input power: 90VA	Limit negative pressure: $\geq 0.075\text{MPa}$
Negative pressure regulating range: 0.02MPa ~ limit negative pressure	
Suction rate: $\geq 15\text{L/min}$	Liquid storage bottle: 1000mL/pc, 1pc
Noise: $\leq 65\text{dB(A)}$	Weight: 4.4kg
Dimension: 280 × 196 × 285(mm)	

- ⊙ The suction unit is not suitable for use in the place with inflammable & explosive gas.
- ▶ Working system: short running.
- ▶ Class II device, Type B application part.

Normal Operating Conditions

Ambient temperature: +5°C~+35°C Relative humidity: 30%~80%

Atmosphere pressure: 86kPa~106kPa

- ⚠ **Note:** When storage temperature is below 5°C, please keep the equipment in normal working condition for at least 4 hours before using.

Installing and Commissioning

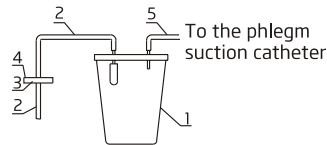
Open Package Inspection

The customer shall carefully inspect if the appearance of product is good, and the varieties & quantities of the attachments are in conformity with those as indicated in the attached list before installing and commissioning. Also, the customer shall timely notify the supplier or manufacturer of damage(s) if any.

Connecting (See Figure 2)

(with phlegm suction catheter temporarily not connected)

- ⚠ **Note:** Apply small amount of distilled water around the part (pressed into the holder mouth) of holder plug during installing, which is good for tightly pressing the holder plug and enhancing its sealing.



1. Liquid storage bottle
2. Suction tube
3. Air filter
4. "IN" mark
5. Suction conductor

Figure 2: Tube Connecting Diagram

Power line connection

Connect the plug with the power source. Turn on the power supply, and the power indicator will illuminate.

- ⚠ **Note:** The power plug is used for power shut-off, and the power socket shall be grounded reliably.

Connector inspection

- ▶ Turn tightly the negative pressure regulating valve clockwise, and block the air suction inlet with the finger or the rubber head of dropper, or fold up and hold the suction tube.
- ▶ Start the aspirator for running with no strange sound; the pointer of the vacuum meter will quickly reach up to the limit negative pressure. Release the air suction inlet, the pointer will return below 0.02 Mpa. If so, the connector can be regarded as being in good connection.
- ▶ Attach the phlegm suction catheter. The negative pressure in the negative pressure system shall be less than 0.06 MPa at the time of attaching F6 suction catheter, less than 0.04 MPa when attaching F8 suction catheter and less than 0.03 MPa when attaching F12 suction catheter. If so, the phlegm aspirator is considered as being in normal condition.

- ⚠ **Note:** Dredge the suction catheter if blocked as per the following method: Bend the suction conductor in "V" form (with no liquid in the holder), and release it to the original status when the negative pressure reaches up to the maximum value. Repeat this procedure several times till the catheter is not blocked.

Negative pressure regulating

- ▶ Block the suction inlet, open the aspirator switch and regulate the negative pressure valve, and the readings on the pressure meter shall be within 0.02 MPa ~ limit negative pressure.
- ▶ Control the negative pressure as required for suction by means of the negative pressure valve at the time of clinical practice.
- ▶ Increase the negative pressure by turning the valve clockwise.
- ▶ Reduce the negative pressure below 0.02 MPa prior to power shut-off.

Inspection & test on the overflow device

- ▶ Open the holder plug; clean up the valve mouth, and leveling the rubber valve clack on the float. The valve clack shall not be warped, bent and broken, but well connected with the float. The float shall be able to move freely in its support without any blockage, lift the holder plug with hand to make the float contact the water surface perpendicularly gradually lower the holder cover to let the float rise. Tighten the hold plug, attach the suction tube conductor at the inlet, and screw firmly the regulating valve, then, actuate the aspirator.
- ▶ Put the suction conductor into one clean water pail or attempt to simulate actual application to suction the liquid into the holder of the overflow device. As a result,

The float will rise as the liquid level ascends until the valve is closed and suction stops automatically. The final position of liquid level depends on the suction process adopted.

Release the regulating valve, set the aspirator switch off, open the holder plug and empty the liquid in the holder. The float shall be at the bottom of the support and the valve is in open status in case of re-screwing firmly the hold plug.

If so, the overflow device is considered as being in normal condition, which can be used for clinical practice.

⚠️Note:

1. The liquid level still continuously ascends after the overflow device has been shut off, possibly due to:

- (1) Residual negative pressure still in the holder;
- (2) Valve mouth not fully closed.

▶ For Item (1), the liquid level in the holder will not ascend when the suction tube conductor is placed again into the liquid as suctioned, and for Item (2), the liquid level still ascends. Thus, it is required to observe carefully, and lift immediately the conductor out of the suctioned liquid when the holder is close to full, then, switch off the aspirator to stop suction, and examine the possible reason of the valve fault.

2. The float is still adhered on the valve mouth as already closed by the float, possibly due to the negative pressure in the line. At this moment, release the regulating valve or shut off the aspirator (to release the negative pressure in the line), the float will descends from the valve mouth under the action of gravity. (It is forbidden to pull the float with hand, in order to avoid the rubber valve clack being separated from the float).

- ▶ After shut-off, release the negative pressure, then, open the holder plug;
- ⊖ Never use the aspirator under the condition of the overflow device & the conductor dismantled.

Stop running

Turn off the aspirator switch, and pull the power plug out of the socket to shut off the power supply.

Symbols

Symbols	Description	Symbols	Description
~	Alternating current	⚠️	Consult the manual

	Class II Equipment		Type BF application part
	OFF(Power disconnection from the parts)		ON(Power connection from the parts)
	KEEP UP		FRAGILE
	KEEP DRY		

Application and Maintenance

Application and maintenance

▶ Check the aspirator before using as per the installing and commissioning sequence to ensure its good performances, afterwards, start operation by connecting the suction conductor and the phlegm suction catheter already sterilized.

⚠️Note: Please refer to the instructions before attempting to use the suction catheter supplied with the aspirator.

▶ Regulate the negative pressure as required for suction through the regulating valve, open/close the switch based on the situation, and observe frequently the liquid level in the holder in the process of operation. Stop suction if the liquid level in the holder ascends to the rated capacity (still applicable if slanting the aspirator 10o), and re-use it after empty and clean-up. Otherwise, the float will rise as the liquid level ascends till the valve is closed and suction stops automatically.

⚠️Note: Adopt the procedures mentioned in "Inspection & test on the overflow device", if the liquid level still ascends after the overflow device has been shut off. Emergency measures in the process of application

▶ (1) Quickly loosen the negative pressure regulating knob to release the negative pressure if the suction catheter is blocked by strong phlegm and mucus, and start suction again after changing the suction tube.

▶ (2) Adopting the above method to loosen the negative pressure regulating knob if it is not easy to take out the suction catheter after completion of suction or the tube is adhered to human body tissue.

▶ Note 1: Bend the tube in "V" form prior to starting suction, insert the suction catheter into the location of existing phlegm on the patient when the negative pressure reaches the desired range after start-up, then, recover the tube to its original status. This will lead to quicker suction effect.

▶ Note 2: The medical personnel shall select the proper suction catheter according to

the clinical requirement.

- ▶ Note 3: The aspirator shall be operated under the medical personnel's instructions strictly according to the scope of application and the operating sequence listed in the instruction manual. Please contact the supplier or manufacturer if there is any question.

Changing air filter

It is required to change air filter with the one produced by us in case of foam or dusts fully accumulated in the air filter, which leads to gradually darkening of the color of filter diaphragm and obviously reducing or even disappearing of suction force at the inlet of tube while the negative pressure indicated on the vacuum meter climbs up to 0.04 MPa or more.

⚠Note 1: The suction force will diminish or disappear, and the negative pressure ascend if the overflow device is closed, and the tube blocked in the process of application. Please refer to "trouble Shooting".

⚠Note 2: Necessary to frequently change air filter and destroy it centrally.

Changing the fuse tube

The fuse tube is mounted at the rear of the base. Switch off the power supply, and turn it counterclockwise and open, then, start changing the tube.

Maintenance

- ▶ It is recommended to have the suction tube suctioned small amount of clean water for cleaning up the inner wall before switching off the aspirator.
- ▶ After use, empty the holder, clean up dirt on the holder and plug with soft brush or rag, flush it with water and conduct sterilization. (including the overflow device, the seal ring and various tubes. Unscrew the overflow device, and separate the float from its support for completely cleaning up, if necessary. (Note: The rubber valve clack shall not be separated from the float.)
- ▶ Use the physiological saline to clean out the residual strong phlegm and mucus in the tube after used. Replace the suction catheter if not smooth. It is recommended to adopt one-time suction catheter.
- ▶ Place the holder, cover and all tubes into the disinfectant compounded with the Kangweida disinfectant tablets (0.5 g per tablet) in 1:500 concentration for 1 hour
- ⊖ Note: Keep the glass holder away from any sharp utensils to avoid drop in the process of cleaning and application.
- ▶ Wipe the case outer surface with lightly wet rag already soaked in the disinfectant,

and prevent any liquid seeping into the pump. Never wipe the places marked with letters and patterns.

- ▶ Place the machine in dry and clean places, and periodically start running once a time (normally one time every 6 months).

⚠Note: Install the overflow device, conductor and other tubes as per the connecting mode before re-use.

Trouble shooting

	Problem	Probable reasons	Solution	Remark
1	Limit negative pressure < 0.06MPa	1)Holder mouth leakage 2)Leakage on connecting points 3)Regulating valve loose or released 4)Surrounding atmosphere is not as required.	1)Remove dirt, tighten or change the holder cover, seal ring, and connector 2)Re-tighten each connection point 3) Turn tightly the regulating valve 4)Move the machine to the required atmosphere	Change the broken suction catheter
2	Negative pressure > 0.04 MPa, with distinct reduction or disappearing of suction force at tube outlet	1)Overflow device shut-off 2)Tube blockage 3)Air filter blockage	1)After shut-off, turn the regulating valve loose counterclockwise to release negative pressure in tube, then re-screw 2)Dredge, clean or replace the tube 3)Replace it with air filter produced by us.	1)Empty the holder timely 2)The end (in blue mark) of air filter is the air inlet
3	Normal power voltage, but the indicator doesn't illuminate	1)Loose socket 2)Fuse broken 3)Indicator damaged	1)Repair or change the socket 2)Replace the fuse tube 3)Replace the indicator	Refer to attachments
4	Fuse tube broken	1)Voltage over high 2)Internal line in fault 3) Pump blocked, and current increasing	1) Adjust voltage 2)Check the circuit line, and correct 3) Check the pump body and motor	By the specialized maintenance worker(Refer to Electric Systematic Diagram)

⚠Note: The dismantling & repair on the pump body if fault shall be conducted by the specialized worker. Please contact the manufacturer if required.

Precautions

Transportation and storage conditions

Environment Temperature: - 40°C ~ +55°C Relative Humidity: 10%~93%

Atmospheric Pressure: 700hPa~1060hPa

⚠️ **Note:** It is required to store the aspirator in the well-ventilated room without corrosive gas, and avoid any violent shock while handling.

Electric systematic diagram (See Figure 3)

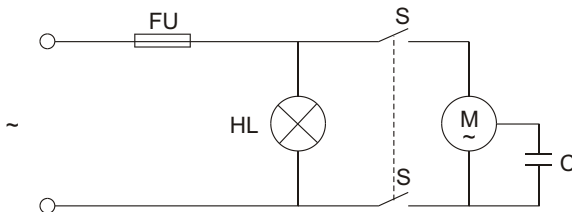


Figure 3: Electric Systematic Diagram

Electric repair to be conducted by the specialized operator.

Attachments

Suction conductor(length 2m, $\Phi 7 \times \Phi 12$)	1 pc
Suction catheter(7E-A)(F8, F12)	1 pc respectively of child & adult
Suction catheter(7E-B)(F8)	1 pc
Fuse tube(F1.5AL250V, $\Phi 5 \times 20$)	2pcs
Air filter	2 pcs
User's manual	1 pc

To dispose the castoff

The castoff should be disposed in accordance with all applicable government regulations.

All specifications and product configurations are subject to change without notification.

Electric and magnetic environment guidance in use

- ▶ The 7E Portable Phlegm Suction Unit uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
- ▶ The 7E Portable Phlegm Suction Unit is suitable for use in all establishments, including domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. Due to the fact that the Electric Suction Apparatus contains no electronic control circuitry, they are deemed to fulfill the relevant immunity requirements without testing.
- ▶ The 7E Portable Phlegm Suction Unit was not tested for immunity to electromagnetic disturbances