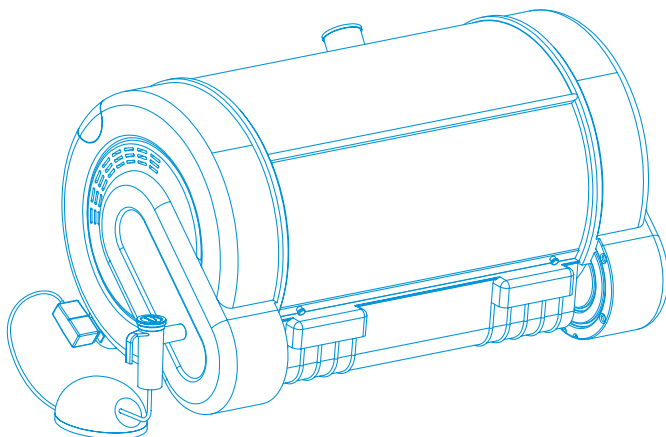




JORVET NEW GENERATION INTENSIVE CARE UNIT

J1550 | USER MANUAL





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Thank you for using our JorVet J1550 ICU Unit.

We want you to get the most out of the machine and to have your experience in using it proceed with ease. Detailed instructions are provided along with the product's introduction, usage and to correctly use it and take full advantage of all operations and functions.

OVERVIEW

The Instruction Manual is used for JorVet J1550 ICU Unit. Installation, use, cleaning, maintenance and repair of the ICU, as well as principles and functions of the product, caution and warnings, common fault analysis and troubleshooting and after-sales services etc. are all in the Overview. Users should operate the product in accordance with requirements as stated in the Instruction Manual. All staff who use the equipment shall read the Instruction Manual carefully before turning on the equipment. If you have difficulty in understanding the Manual, please contact a local JorVet product distributor or the company for more detailed information.

JorVet ICU Unit is a newly developed pet ICU developed to serve an enormous need and fill a vacancy in the domestic pet care industry. This moderately sized piece of pet medical equipment will easily fit into most veterinarians' practices and pet hospitals. Its characteristics and compact structural design function perfectly to serve its purpose. The mechanism adopts "dual duct and double circulation convective thermal regulation" to create an excellent and bacteria-free therapeutic environment and young pet incubation environment similar to that provided by pet parent (accompanied by purified air and proper temperature and humidity control).

The machine is equipped with an intelligent alarm device for five faults (extreme temperature, excessive moisture, indoor oxygen concentration, lack-of-water in the tank and power supply Interruption). This alarm system is tested and proven to be safe and reliable. Furthermore, it is equipped with a unique cabinet structure and double-layer thermostat cover, which can prevent loss of heat and radiant heat when nursing the pets. In addition, a temperature and humidity display device is provided, measuring current temperature with the set temperature clearly visible. The heating control adopts dual duct and double circulation convection heating technology. This prevents rapid change in temperature minimizing the shock that can be caused. It ensures that temperature of the ICU can rise evenly and gently. The Thermostat System adopts PID control technology, which can solve the problem of inertia temperature error comprehensively, thus the temperature control is more accurate and more energy efficient.

SUMMARY OF IMPORTANT NOTES

- ▶ Please read the Instruction Manual carefully before using the machine. Nurses (and other pet care workers) should be trained to operate the machine under the guidance of qualified medical care personnel who are familiar with the functions and understand the risks and advantages of the machine.
- ▶ Please count the parts and spare parts when unpacking, and read the Instruction Manual carefully.
- ▶ The equipment shall be placed in a clean place with limited changes in temperature and humidity, protected from direct sunlight and away from heat radiation.
- ▶ To ensure the proper operation of the Pet ICU, please fill the bottle with distilled water or purified water. **Do not use tap water.**
- ▶ After the machine is turned on, please preset the temperature value, and warm it up for 3-5 minutes before use.
- ▶ **Please do not load weight on top of the machine.** The maximum load capacity of the machine housing is 1-2 kilograms (2.2 to 4.45 lbs).
- ▶ The machine is equipped with an intelligent alarm system sensor for five faults; extreme temperature, excessive moisture, indoor oxygen concentration, lack-of-water in the tank, and power supply interruption. This alarm system is tested and proven to be safe and reliable. If the machine fails, please inspect the systems immediately to find out reasons and eliminate the faults. If the faults cannot be eliminated in a short time, please stop medical treatment or the care for pets, and ask for professionals or personnel from JorVet to repair the machine.
- ▶ Allow for the machine to have proper ventilation. **Do not block the air outlet and return air inlet.**
- ▶ After being powered on, if the machine is not used, in order to ensure safety and energy-saving, please turn switch to the Off position and allow for sufficient power down before turning switch back to On position.
- ▶ **Do not use alcohol or other organic solvents** to wipe the thermostat cover of the tank. Keep it moisture free.
- ▶ The nebulizer should be unplugged as soon as the nebulization is over.
- ▶ When the LAC alarm can be seen on the humidity display panel, the tank inside should be filled to the maximum level even if the tank has water half of the maximum level.

PRODUCT USE

- ▶ Provides bacteria free and thermostatic incubation cocoon for young pets.
- ▶ Allows for body temperature recovery, fluid infusion, atomization treatment, incubation, health improving, and a comfortable stable stay in the hospital (for observation for sick, weak and dying pets).

PRODUCT INSTALLATION

Built-in humidifier bottle: some parts of medical atomizer and the tank are separately packed. Please pay attention not to damage or miss any parts or spare parts when unpacking.

1.0 Installation Checklist of the Whole Machine

- ▶ JorVet J1550 ICU Unit Cabinet
- ▶ Nebulizer
- ▶ Power Cord
- ▶ Water Tray
- ▶ Water purification filter material (Phosphorus-Silicon Crystal)
- ▶ External Humidifier (Optional)
- ▶ User Manual

2.0 Installation of Humidifier Vessel

As shown in **Figure 4.2.1**, the Humidifier Vessel is installed in the right control chamber of the JorVet J1550 ICU Unit. As shown in **Figure 4.2.2**, open the outlet cover, take out the built-in Water Vessel, fill the built-in Water Vessel with water, (using distilled water or purified water) as shown in **Figure 4.2.2**. And then put back the vessel and place the cover in the proper position.

Note

- ▶ The Humidifier and Water Level Sensor should be placed securely onto the vessel to prevent the spill of water.
- ▶ **Do not fill the vessel with tap water**, which may cause the malfunction of the Water Level Control of the water tank and may eventually cause water to spill or leak.
- ▶ The water level should not be above the Highest Level of Vessel line (HLV).
- ▶ The purpose of the water purification filter material is to remove hard water scale and improve the water quality. The validity period of each placement is 10-12 months. Colorless, tasteless and non-toxic, the filter material meets the National Sanitary Standard for Drinking Water & GB1499-1988 and can effectively improve water quality.

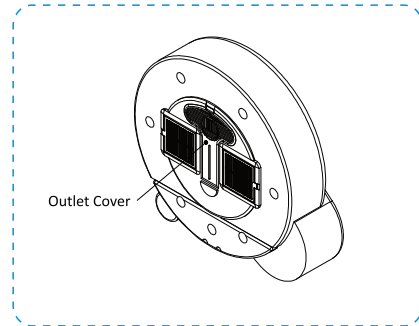


Figure 4.2.1

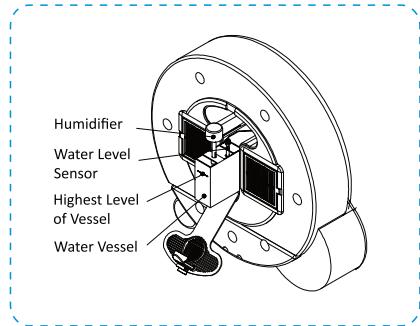


Figure 4.2.2

3.0 Nebulizer Installation

The external Nebulizer can be installed on the left side of the JorVet J1550 ICU Unit. Insert the power plug into the socket on ICU; insert the nozzle of Nebulizer into the port on the left side as showed in **Figure 9.1.1**.

Before nebulization, switch on the nebulizer by pressing the switch on the nebulizer and then turn to the operation panel of ICU.

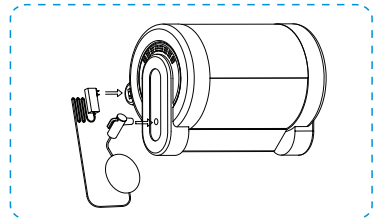
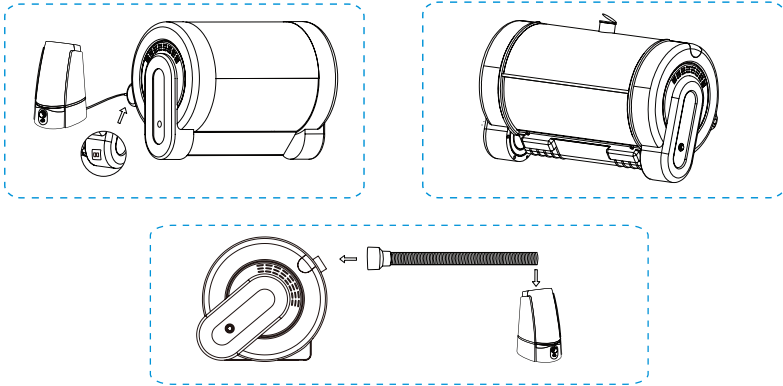


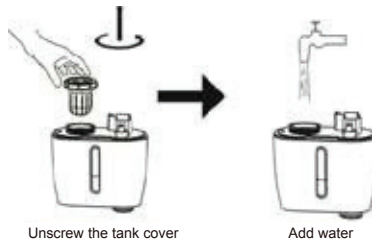
Figure 9.1.1

4.0 External Humidifier Installation (Optional J1550D1)

This External humidifier is helping the internal humidifier in our ICU to reach desired RH level more easily, especially in extremely dry environment or under high temperature. The power plug should be plugged into two flat pins receptacle at the rear left corner on the back of the ICU unit, it will be regulated by the ICU motherboard with special programs installed. (Note: Do not confuse this socket with another socket for nebulizer, which is next to this socket for humidifier.) Remove the lid of the air inlet at the back of the ICU, expose the portal, and connect the flexible hose from this humidifier to the ICU air inlet. The end with large diameter is to the back portal of ICU and the end with small diameter it to the top portal of the humidifier.



Take the water tank out of the base, take away the Valve-cup, and fill the water tank with purified or distilled water. Close the Valve-cup, and put the water tank on to the base carefully.



After the unit is plugged into either ICU power supply outlet or wall mains, you can start the machine. Rotate clockwise the controller to switch on the unit and the blue indicator lamp will be on. The unit starts working. Rotate the controller knob to adjust the volume of the vapor. Fog can be seen from the outlet port. If a warm vapor is needed, press the button below the power button to switch between the default cool mist mode and warm mist mode.

Remarks

The “warm mist mode” will be needed when the ICU unit is set at “high temperature + high humidity”, like greater than 28°C + 60% RH, the warm mist will definitely help humidifying more quickly.

Note

When LAC alarm can be seen on the humidity display panel, the external and internal humidifiers will both stop working. Fill water in the internal water tank to the maximum level and both of the humidifiers will start to work.

In certain cases, such as avian or other exotics, a desired environment of higher humidity and temperature is preferred. In order to achieve these levels, you must have increased temperature and increased humidity. For instance, at 100°F the humidity can not go beyond 50% relative humidity without the external humidifier.

The external humidifier is not necessary when using the unit on standard mammalian patient like canine and feline.

Nebulization

NOTE: NEVER RUN THE UNIT WHEN THERE IS NO WATER IN WATER BASIN.

USAGE WARNING

- ▶ The treatment process should not exceed 20 minutes for every nebulizing, misuse would possibly cause Pulmonary edema.
- ▶ To prevent superinfection, please pay close attention to the sterilization of nebulizer, ambient air, and all the related equipment.

Mechanism of Action

Animal respiratory system is an open system, where alveolus is the main air-exchanging place. The object sprayed out of the nebulizer is mainly the mixture of oxygen and medicine – oxygen-medicine aerosol. This kind of aerosol could improve oxygen metabolism and anoxic metabolism significantly; increase the oxygen reserve in organisms. The cavitation effect of compressed air could disperse the liquid medicine into gas phase and turn the liquid into fog form. The suspended particles will get deep into animal respiratory system and treat the focus of infection directly. The feature of air compressing nebulization technique is generating Big Fog Volume with Ultra Small Particle Size (0.5 -5 μ m); the even fog could go very deep into bronchus and the particles could settle down in deep respiratory system, achieves painless cure effect.

Tips

- ▶ The smaller the particles are, the better curative effect the nebulization could achieve.
- ▶ Normally the fog with bigger particles generated from traditional ultrasonic nebulizer would be easier to be observed, as the fog seems to be thicker.

Specialized Medical Nebulizer for Animal – Better Curative Effect

Air Compressor Nebulizer uses high pressure gas jet to convert the medicine solution into tiny particles and carry them into deep respiratory system. The size of droplet will affect the settlement site of medical fog.

DROPLET SIZE	SETTLEMENT SITE
1-5 μ m	Fine Bronchus, Alveolus
5-20 μ m	Bronchus
20-40 μ m	Upper Respiratory Tract mainly, Nose, Throat, etc.

The patented Energy Saving Low Noise Compressor (less than 25 decibels) generates high speed air jet from filtered clean air (by anti-bacterial cotton), the air stream disperses the medicine solution from liquid cup into tiny particles and forms a medicine aerosol. The average size of droplet could reach 2.5 μ m minus, which could reach deep respiratory system like alveolus and fine bronchus. The medicine is nebulized evenly, no diluted needed, so there is no residues left almost and could achieve very high medicine utilization rate. This device is precisely made medical equipment with very low faulty rate and very good durability, could serve for 1000-1500 hours as minimum lifespan.

Operation Instructions

The nebulizer is easy to operate, please follow the simple steps as follows.

- ▶ Install the nebulizer on the left side of ICU. Insert the power plug into the socket on the ICU.
- ▶ Screw off the cup lid and nozzle; pour medicine liquid into the nebulizer cup.
- ▶ Screw on the cup lid and nozzle, and put the nebulizer back.
- ▶ Insert the nozzle of Nebulizer into the port. Turn on the nebulizer by pressing the switch on the nebulizer. And then press Nebulize button on control panel of ICU to switch on nebulization, the medical fog will be sprayed through grid and get into the ICU chamber. There are two stages of nebulization treatment timing, in which the basic time is 10 minutes. Once the nebulization process is started, the 10 minutes countdown mode starts automatically; pressing the “-” button on the nebulize adjustment button will turn it into 20 minutes mode, pressing the “+” will turn back to 10 minutes mode. Pressing Nebulize button again, on the main control panel when the nebulizing process is running, will switch the nebulizer off.

Tips

- ▶ There is a hissing noise when nebulization starts, that's generated from the high speed air flow. The patented low noise air compressing technology ensures no vibration and no electronic noise when nebulizer runs. The noise is much lower than the normal level of most air compressor nebulizers, which is around 85 decibels normally.
- ▶ When nebulization is ON, the ventilation fans will be turned off to ensure good nebulizing effects, and humidity and temperature control will be turned off too. The humidity alarm will not be triggered in nebulization mode, which will reset in 3 minutes after nebulization function turned off.

PRODUCT PRINCIPLES AND FUNCTIONS

1.1 External Humidifier Installation (Optional J1550D1)

The air circulation system is shown in **Figure 5.1.1**. After being filtered by the purifier, the air from the outside enters into the ICU, and “dual duct and double circulation convection heating technology” is adopted to create an excellent and bacteria-free ICU therapeutic environment and young pet incubation environment. It provides clean air, proper temperature, and humidity.

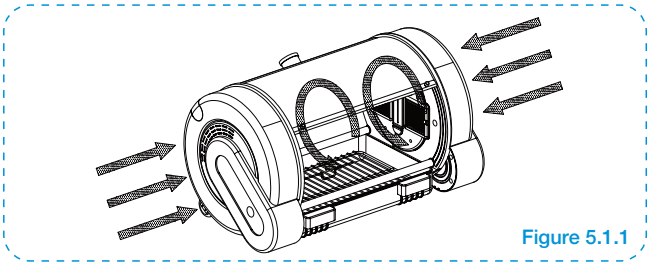


Figure 5.1.1

2.1 Main Technical Indicators

Power Supply Voltage	110V/60Hz
Input Power	≤400VA
Ambient Temperature	10°C ~ 35°C
Temperature Control Range (Cabinet Temperature)	15°C ~ 38°C (can be up to 39°C by special operations)
Temperature Fluctuation	≤0.8°C
Average Temperature of Monitoring Chamber	≤1.0°C
Cabinet Temperature Control Accuracy	≤ ± 0.5°C
Temperature Rise Time	5min ~ 20min
Noises in Monitoring Room	≤30dB
Whole Machine Earth Leakage Current	≤0.5 mA (Normal State) ≤1.0 mA (Single Fault State)
Withstand Voltage	1500V/50Hz Lasted one minute without breakdown and flashover
Ambient Conditions:	
Transportation & Storage:	
Ambient Temperature	-10°C ~ 40°C
Relative Humidity	≤95%
Operating Conditions:	
Ambient Temperature	18°C ~ 30°C
Relative Humidity	40% ~ 65%

FUNCTIONS OF THE PRODUCT

1.2 Accurate Temperature Control – Being Equal Everywhere

Heating control adopts “dual duct and double circulation convection heating technology” to allow temperature to rise quickly, and temperature shock is small to ensure the temperature of the ICU can raise evenly.

2.2 Accurate Humidity Control – Healthy and Balanced

Without being heated, high-frequency oscillation technology is adopted to produce mist. Compared to heating atomization, it can save 90% of energy. During atomization, large amounts of negative ions are released, and have static electricity reaction with smoke and dust in the air, and cause precipitation.

3.2 Negative Ion Generation – Truly Auxiliary Medical Effect

According to the data released by World Health Organization, negative-ion is called “air vitamin”, and an animal needs about 10 billion ecological negative-ions every day; our living environment can only provide about 0.1-2 billion ones. When the negative-ion concentration in the air is up to 400 ones/cm³, it can satisfy our basic needs for survival; when the negative-ion concentration in the air is up to 1000-2000 ones/cm³, it can satisfy our basic needs of health; when the negative-ion concentration in the air is up to 5000-10,000 ones/cm³, it can Improve our immunity and antibacterial ability; and when the negative-ion concentration in the air is up to 300,000-500,000 ones/cm³, it can improve our natural healing ability, and many diseases can be healed without medication. Negative-ions play a significant role in improving the air quality of a treatment room while improving and maintaining the health of animals.

The JorVet ICU Unit provides a high concentration of negative-ion generator, and the following is the negative-ion test report:

MODEL NO	PROJECT NO	APPLICABLE SPECIFICATION AND MODEL
DC9-12V	1403140013	JorVet J1550 ICU Unit

ELECTRICAL PARAMETERS	
Input Voltage/Frequency	DC 12V
Output Voltage	At DC12V: -0.5--4.5KVd.c.(-3.5KV DC \pm 0.5KV DC)
Anion Concentration	At DC12V: $\geq 6 \times 10^6$ PCS/cm ³ $\pm 10\%$
Insulation Resistance	Power line external box: $\geq 20M \Omega$ (500V DC)
Dielectric Strength	Power line external box: AC/1800V 60HZ 5mA 3S, No breakdown

Rated Power	< 1W
Input Current	<80mA
Operating Temperature	-10°C ~ +40°C
Operating Humidity Range	40% ~ 80%
Storage Temperature	-20°C ~ +70°C
Humidity Resistance	In case of no electricity, no abnormalities occur after being placed for 72 hours at ambient temperature of +25°C and relative humidity of 95%
High-Temperature Characteristics	In case of no electricity, no abnormalities occur after being placed for 72 hours at ambient temperature of +70°C
Low-Temperature Characteristics	In case of no electricity, no abnormalities occur after being placed for 72 hours at ambient temperature of -20°C
Drop Test	Starting at 100cm (39.37") from the ground free fall onto the board, it will still function properly

II Principle of Operation

The negative ion generator boosts low voltage to negative high voltage DC through the voltage booster circuit. DC high voltage from the tip of carbon brush is used to produce high corona and lots of high-speed electrons are released. Since electrons cannot exist in the air for a long time (the life of existing electrons is "ns level"), they will be captured by oxygen molecules (O₂) in the air immediately, and then negative ions are formed; the working principle of which is the same as natural phenomenon (negative ions are produced when there is thunder and lightning).

III Inspection Report Attached	Test Voltage/Frequency	DC12V	Temperature	20°C	Humidity	62%
Item Template	Output Voltage (KV DC)	Anion Concentration (x 10 ⁶ PCS/cm ³)	Insulation Resistance MΩ	Dielectric Strength		
❶	-4.45	6.66	OK	OK		
❷	-4.56	6.03	OK	OK		
❸	-4.35	6.21	OK	OK		
❹	-4.36	6.11	OK	OK		
❺	-4.13	6.24	OK	OK		
❻	-4.23	6.54	OK	OK		
❼	-4.09	6.33	OK	OK		
❽	-4.15	6.83	OK	OK		
❾	-4.36	6.31	OK	OK		
❿	-4.21	6.61	OK	OK		
Test equipment: KEC-990 air ion concentration tester, HG3830 high voltage test bench						

The above test report shows that:

- ▶ The nearby negative-ion concentration of the JorVet J1550 ICU Unit is up to 6 million ones/cm³ standard, which has reached the medical-level negative-ion emission standard. It is truly air purifying, and is effectively helpful for the rehabilitation and recovery of pets.

4.2 Sterilization Function – Free form Cross-Contamination

A UVC ultraviolet ray is the one that truly has germicidal effect, and C ultraviolet of which is easily absorbed by DNA of organisms, especially ultraviolet ray of 253.7nm, is the best. UV sterilizer mode is a purely physical method of disinfection, which is characterized by simple and convenient operation, high efficiency, no secondary pollution, easy for management and automation, etc.

The JorVet ICU Unit uses ultraviolet sterilizer, which is characterized by strong radiation intensity, high stability, and high transmittance to quartz glass tube. The transmittance is of $\geq 87\%$ and the radiation intensity is at 253.7-254nm and remains stable. Furthermore, high brightness mirror sterilization reaction chamber design is adopted. Compared with similar products from abroad, the sterilization strength increases by 18%-27%.

- ▶ Generally, the bactericidal action of ultraviolet ray on bacteria and viruses can achieve a sterilization rate of 99%-99.9% in one to two seconds.
- ▶ The broad-spectrum of ultraviolet sterilization is considered the highest, and it can efficiently kill almost all bacteria and viruses.
- ▶ The ultraviolet sterilizer has no secondary pollution. No chemicals will be added in ultraviolet sterilization, thus, water and its surrounding environment will not be polluted secondly. Furthermore, it will not change any ingredients in the water.
- ▶ The operation of the ultraviolet sterilizer mode is safe and reliable: traditional disinfection technologies such as chloride or ozone, the disinfectants themselves are highly toxic and flammable substances, while there is no such potential safety hazard in ultraviolet sterilization system.

5.2 Nebulizer Treatment Function – Making the Treatment More Convenient

The JorVet ICU Unit is equipped with an external silent medical atomizer, and biomedical engineering research shows: when the atomized particles are about 10 microns, medicines can only deposit in the mouth and throat, when the atomized particles are about 3-6 microns, medicines can enter into the bronchus, and when the atomized particles are less than 2 microns, medicines can enter into the finest bronchus and alveoli. The JorVet J1550 ICU Unit can produce 0.5-4 micron atomized particles of medicine. Meanwhile, intelligent control quantity of atomization is provided for your selection, and the maximum atomizing volume is up to 0.5ml/min. The atomization in the ICU is even, and the inhalation effect of atomized medicines is obvious. The medical atomizer is characterized by low noise, which complies with pet ICU noise standard.

6.2 Oxygen Concentration Monitoring Systems – A Defense Line to Guard Life

An increase in carbon dioxide concentration is accompanied by a decrease in oxygen concentration. Being anoxic under low oxygen and high concentration of carbon dioxide for a long time will cause pulmonary edema, cerebral edema, metabolic acidosis, electrolyte imbalance, shock, hypoxic encephalopathy, etc. When the carbon dioxide concentration reaches 1000PPM, it will cause dizziness, drowsiness and reduced resistance to pets; when the carbon dioxide concentration reaches 2000-5000PPM, it will cause mild nausea, poor breathing, rapid heartbeat and electrolyte imbalance to pets, and seriously affect the health of pets and their postoperative rehabilitation; and when the carbon dioxide concentration is over 5000PPM, it will cause severe hypoxia, coma and even death.

The JorVet ICU Unit is equipped with a precise oxygen concentration monitor, which can monitor changes in oxygen concentration in the ICU. When the oxygen concentration falls below the set value, and cannot achieve the set value in three minutes, it will trigger the alarm system and start the intelligent ventilation system at the same time, being ventilated with the outside air and thus improve the air quality of ICU, which becomes the most important life line of defense for pets.

7.2 ICU Illumination Function – Creating Comfortable Therapeutic Environment

The JorVet ICU Unit uses ten-level LED lights adjustment, which can simulate various scenes similar to a warm home, dawn, dusk, twilight, etc., providing a cozy and comfortable therapeutic environment for pets.

8.2 Setting of Security Mechanism – No Worries in Use

The JorVet ICU Unit incorporates an intelligent alarm system, and is equipped with a corresponding fault display function, such as extreme temperature and excessive moisture alarm, lack-of-water alarm and main components fault warning lights.

The JorVet ICU Unit is equipped with intelligent switch power keys, dividing into three controls, i.e. Power-on, Start, and Power-off. This design is energy saving and safer to use.

9.2 Human Oriented Structural Design – Reasonable Operation, Clean and Convenient

All equipment components of the JorVet J1550 ICU Unit adopt integrated design. All components are integrated in control frame and completely separated from the control circuit. Only by disassembling the control rack, the whole machine can be disassembled to clean various components including fan, medical devices, heat sink, filter, etc. The operation is extremely convenient, easy for troubleshooting, maintenance and equipment cleaning.

The JorVet J1550 ICU Unit is equipped with two medical device import interface channels, thus external medical equipment (such as oxygen machine) can be connected into the ICU, meanwhile, the side access port adopts medical valve importing design, being convenient for providing IV fluid therapy.

PRODUCT OPERATION INSTRUCTIONS

1.3 Start-Up and Shutdown

- ▶ One end of the power cord is plugged into the terminal board at the bottom support of the right side of the machine, and the other end into the socket of 1100V/60Hz with reliable grounding. See Figure 7.1.2.
- ▶ The power switch is located at the batter brace of the right side of the machine. See Figure 7.1.2. It is the on/off switch of the JorVet ICU Unit. When it is locked, all other keys are void; when it is unlocked, all other keys are valid.
- ▶ The lock indicator lamp is at the on/off switch. When it is on, it means unlocked; when it is off, it means locked.

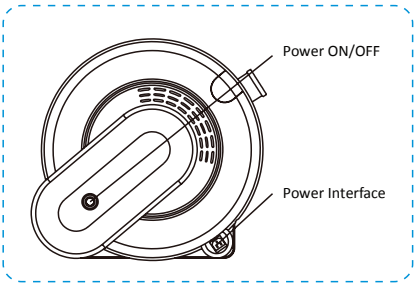


Figure 7.1.2

2.3 Temperature Display

Fahrenheit/Celcius can be switched and displayed with a toggle key. The default temperature is shown in Fahrenheit and in two-digit integer and one decimal place after which is a letter showing special indication at the time of setting the temperature parameter. Switch the Fahrenheit/Celcius indicator lamp. When the indicator lamp displays “C”, it means Celcius; when it displays “F”, it means Fahrenheit. See Figure 7.2.1.

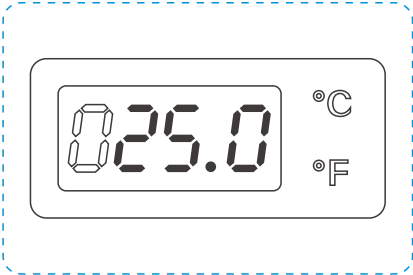


Figure 7.2.1

3.3 Humidity/O₂ Concentration Display

Humidity/O₂ concentration display can be switched with the humidity/O₂ concentration key. The default is humidity display in two-digit integer and one decimal place. O₂ concentration is displayed in four-digit integer. Switch the humidity/O₂ concentration indicator lamp. When the indicator lamp is “HU”, it means humidity; when the indicator lamp is “O₂”, it means the O₂ concentration. See Figure 7.3.1.



Figure 7.3.1

4.3 Temperature Control Part

Key Control

Press “SET” key plus temperature “+ / -” key at the same time to adjust the temperature set point, and regulate it by ± 0.1 stepping. See Figure 7.4.1. The factory setting is the set point of 68°F. It can be adjusted down to 59°F and up to 104°F.

Smart Alarm Function:

Alarm Beyond the Maximum Set Point

The temperature and the upper dash are displayed alternately every three seconds with alarm and flashing temperature indicator lamp.

Alarm Beyond the Minimum Set Point

The temperature and the lower dash are displayed alternately every three seconds with alarm and flashing temperature indicator lamp.

Damaged Temperature Indicator Lamp

Flashing “ERR” display and flashing temperature indicator lamp in the temperature display.

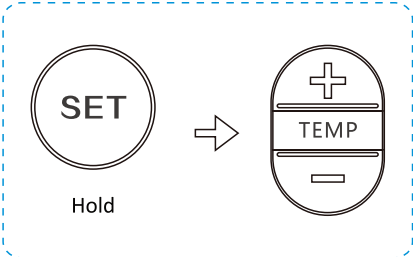


Figure 7.4.1

Control Program

- ▶ When the setting temperature is higher than the measured temperature, start the PID precise heating system and the left/right fans. When the measured temperature is higher than the setting temperature, stop heating step by step.
- ▶ When the measured temperature is higher than the setting temperature, start the PID precise cooling system (need additionally purchased cooler) and the left fan to realize ventilation and air exchange inside and outside. When the measured temperature is lower than the setting temperature, stop cooling step by step and shut down fans after one-minute delay.
- ▶ When there is no additionally connected cooler, try to place an ice tube inside the atomizing chamber or at the sink as auxiliary cooling. The system will start the right fan and the left fan to realize ventilation and cooling.

Indicator Lamp Control

- ▶ Heating – The temperature indicator lamp is Red
- ▶ Cooling – The temperature indicator lamp is Blue
- ▶ Delay – The temperature indicator lamp is Yellow

5.3 Humidity Control Part

Before humidification, check if there is enough water in the internal water tank.

If you have an external humidifier and need high humidity in a high temperature or dry environment, just install the external humidifier and start it before setting.

Key Control

Press “SET” key plus humidity “+/-” key at the same time to adjust the humidity set point, and regulate it by ± 0.1 stepping. See Figure 7.4.1. The factory setting is the humidity set point of 55%. It can be adjusted down to 40% and up to 85%.

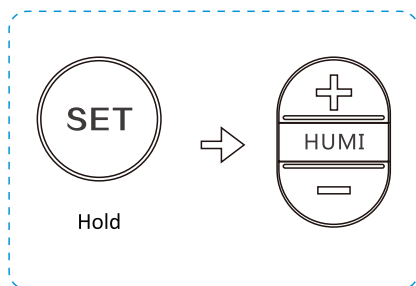


Figure 7.5.1

Alarm Function

- ▶ **Alarm for Beyond the Maximum Set Point:** The humidity and the upper dash are displayed alternately every three seconds with alarm and flashing temperature indicator lamp.
- ▶ **Alarm for Beyond the Minimum Set Point:** The humidity and the lower dash are displayed alternately every three seconds with alarm and flashing temperature indicator lamp.
- ▶ **Damaged Humidity Sensor:** Flashing “ERR” display and flashing humidity indicator lamp in the humidity display.
- ▶ **Internal Humidifier Water Shortage Alarm – The Water Level Sensor of the Humidifier is Disconnected:** In this case, if the humidifier is started, the humidity indicator lamp is off with water shortage alarm, and the humidity display shows “LAC”. Meanwhile, it starts the smart water shortage protection system.

Control Program

- ▶ When the “setting humidity” is higher than the “measured humidity”, start the humidifier and the right fan.
- ▶ When the “measured humidity” reaches the “setting humidity”, stop humidifying.
- ▶ When the “measured humidity” is higher than the “setting humidity”, start dehumidifying and start the left fan; reversely start the right fan for air exhaust as auxiliary dehumidifying. If an additionally purchased cooler is connected, start the cooling function for dehumidifying.

Indicator Lamp Control

- ▶ The humidity indicator lamp is always on at the time of humidifying.
- ▶ The humidity indicator lamp is flashing at the time of dehumidifying.

6.3 Anion Control Part

Press “ANION” key to switch it ON; and press it again to switch it OFF.

When the anion is open, the anion indicator lamp is ON; when the anion is closed, the anion indicator lamp is OFF. See Figure 7.6.1.

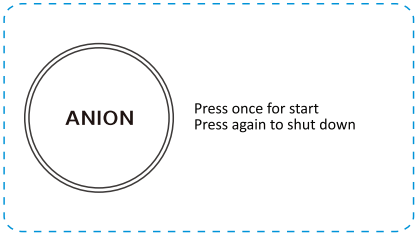


Figure 7.6.1

7.3 Medical Atomization Control

The atomizing volume of the medical atomizer has two grades, measuring by time and quantity. Press “medical atomization” key to start the atomizing function (it is the higher grade with the atomizing volume of 0.375ml/min and the auto-timing of 10 minutes). Press “atomizing volume regulation” key to switch between the higher grade and the lower grade of atomizing volume. The lower grade is 0.5ml/min with the auto-timing of 20 minutes. When the medical atomization is started, the atomization indicator lamp is flashing quickly (correspondent to the higher grade). Press “regulation” key to adjust it to the lower grade at the time of which the indicator lamp is slowly flashing. Press “medical atomization” key again to stop atomization, and the atomization indicator lamp is off.

- ▶ Press “atomization” key to start the higher grade; press atomizing volume regulation key “+”. To adjust it to the lower grade, press atomizing volume regulation key “-”. See Figure 7.7.1.
- ▶ Press “atomization” key and get into the medical atomization status (higher grade) during which the humidity display and control are shielded. The humidity display shows accumulated atomization time counting (in seconds). After atomization and 10 second delay, it automatically exits the atomization mode and reverts to the humidity control mode.
- ▶ During atomization, press “atomization” key to manually stop the atomization mode and revert to the humidity control mode.
- ▶ In the atomization mode, the humidity control is not effective. Therefore, when the humidity exceeds the maximum set point, there is no alarm. If the humidity still exceeds the maximum set point in three minutes after it exits (closes) the medical atomization mode, the alarm is started.

Atomizer Water Shortage Alarm

When the water tank or the medicine cup of the atomizer is short of water, stop atomization. The humidity display shows “ELAC” and the atomization lamp is off with water shortage alarm. Press “atomization” key again to enter the “atomizer off” status and recover humidity display.

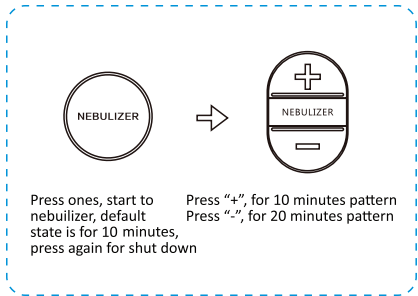


Figure 7.7.1

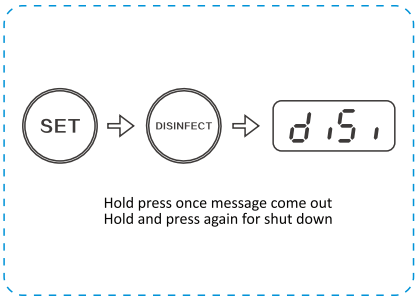


Figure 7.8.1

8.3 Disinfection and Sterilization Control Part

On

Before starting the sterilization function, make sure that there is no pet in the ICU and the ICU door is closed. Meanwhile, press “SET” key plus “sterilization” key to enter the disinfection mode. See Figure 7.8.1.

Operation

Under this mode, all other function keys are void except “SET” key and “sterilization” key. Both temperature display and humidity display show “DISI” (abbreviated disinfection); under the disinfection mode, switch on the UV disinfection lamp. There is ultraviolet light inside the ICU (with weak acrid scent). Meanwhile, start the left fan and the right fan to effect ventilation inside.

Off

Press “SET” key plus “disinfection” key at the same time again to switch off the UV disinfection lamp, the disinfection indication lamp and the left fan to exit the disinfection mode and recover the normal work mode. At this time all function keys are valid except the disinfection key.

Note: When the ICU is under the normal work mode, it is invalid to press “disinfection” key individually.

9.3 Illumination Intensity Control

Press illumination adjustment key “+/-” to adjust ten grades of illumination intensity. See Figure 7.9.1. The highest is grade nine and the lowest is closed. Under the initial start-up status, it is closed.

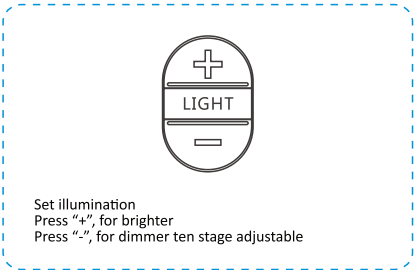


Figure 7.9.1

10.3 O₂ Concentration Monitoring

Key Control

Press “SET” key for five seconds, see Figure 7.10.1, to enter the parameters setting status. The humidity/O₂ display shows flashing digits of O₂ concentration set value. When the indicator lamp “P” (O₂ concentration) is flashing, it is able to adjust the set value of O₂ concentration alarm. Now press humidity “+/-” key to adjust O₂ set value by ± 1 stepping. The default factory setting is the alarm set point of 21%.

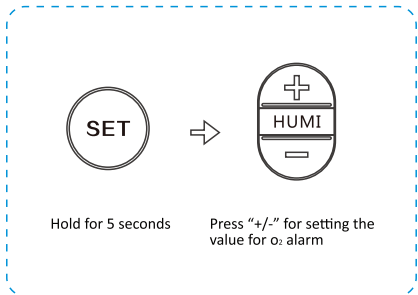


Figure 7.10.1



Figure 7.11.1

Alarm and Processing Control

When the O₂ concentration is higher than the set point and remains constant for some time (to avoid false alarm for an abrupt increase of partial concentration), the O₂ Concentration Indicator Lamp is flashing with the alarm. Start both the left fan and the right fan to enhance ventilation inside and outside. If the O₂ concentration remains unchanged, open the ICU door to enhance ventilation. When the O₂ concentration is equal to or lower than the set point, switch off the O₂ indicator lamp and close the alarm. If fans are not needed when other functions are working, the fans automatically stop.

11.3 Alarm Removal Key

Press “SET” key to remove disengage alarms. See Figure 7.11.1.

CLEANING AND MAINTENANCE

Disinfection & Sterilization

After a pet finishes treatment and care, it is suggested to disinfect and sterilize this machine. Do this once every week when not in use.

Separate Cleaning of the Humidifier

If the Humidifier fails to produce moisture, or the water spills out, take the following measures:

- ▶ As shown in Figure 8.2.1-a, open the cover plate of the right Control Rack.
- ▶ As shown in Figure 8.2.1-b and Figure 8.2.1-c, remove Water Level Sensors and Humidifier from the Water Vessel. Take out the Water Vessel.
- ▶ As shown in Figure 8.2.1-d, empty the Vessel. Brush off the mineral substance such as water scale or verdigris on the Vessel, Water Level Sensors, and Humidifier. If the filter of the Humidifier fails to work, replace with a new filter.
- ▶ Install Water Level Sensor and Humidifier, place the water vessel back and secure the cover plate.

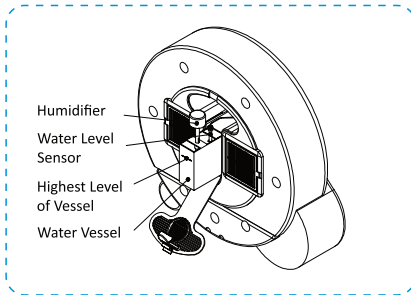


Figure 8.2.1-a

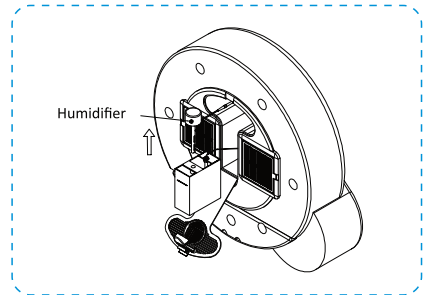


Figure 8.2.1-b

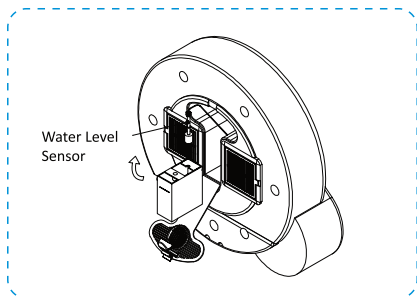


Figure 8.2.1-c

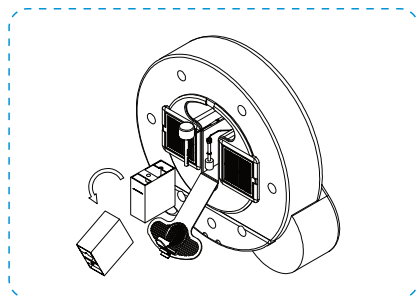


Figure 8.2.1-d

Complete Cleaning and Maintenance

Remove and clean parts and assemblies periodically. Desired results are achieved only by cleaning after removal.

Steps for Disassembling Components

- ▶ Remove four screws from the master control rack on the right to take down the right master control rack, (remove the left master control rack in the same way). See Figure 8.3.1.
- ▶ Remove power connection plugs on power cords on one side of the master control rack one by one. Note that plugs have different colors for each electrical component.

Warning: Do not remove control racks or electrical components from control racks immediately after shut down; give it some time to cool down. The heaters in control racks reach high temperature.

- ▶ Remove control racks or contact heaters after a 30 minutes respite after shutdown.

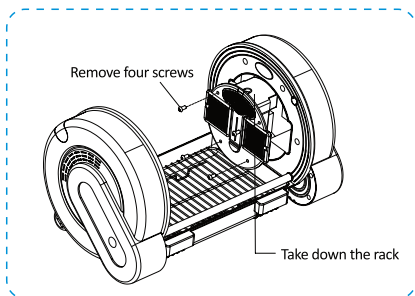


Figure 8.3.1-a

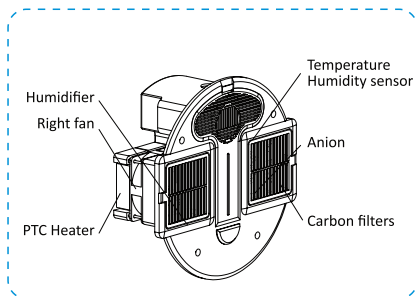


Figure 8.3.1-b

- ▶ Remove four screws in the fan box and take out the whole heater. Clean the fan. Try not to remove heat sinks from the fan, especially PTC heater bands that cannot be removed from heat sinks. See Figure 8.3.2.
- ▶ Remove power connection plugs on power cords on one side of the master control rack one by one. Note that plugs have different colors for each electrical component.
- ▶ Remove and clean filters behind the square plastic section inside the chamber. Take out the humidifier. If it is working normally, it is not necessary to clean the humidifier. For separate cleaning of the humidifier, it is not necessary to remove control racks. See the chapter of separate cleaning of the humidifier above. If the humidifier is definitely damaged or does not work after separate cleaning, remove the humidifier for cleaning and maintenance. See Figure 8.3.3.

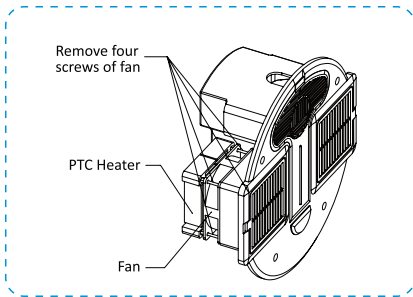


Figure 8.3.2-a

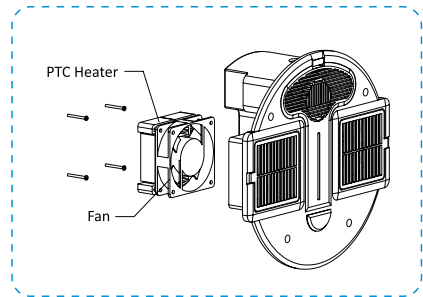


Figure 8.3.2-b

- ▶ As shown in **Figure 8.3.3-a**, open the cover plate of the Water Vessel of the humidifier, on the control rack.
- ▶ As shown in **Figure 8.3.3-b**, remove Humidifier from the Water Vessel and as shown in **Figure 8.3.3-c**, remove Water Level Sensors.
- ▶ Take out the Water Vessel of the humidifier as shown in **Figure 8.3.3-d**.

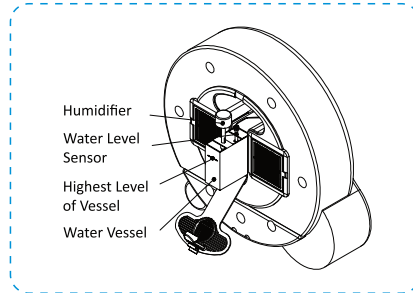


Figure 8.3.3-a

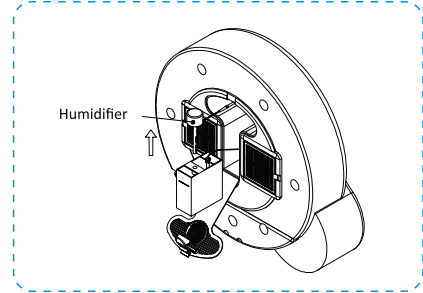


Figure 8.3.3-b

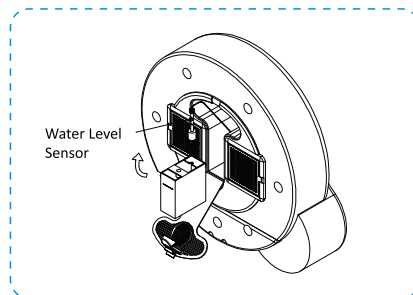


Figure 8.3.3-c

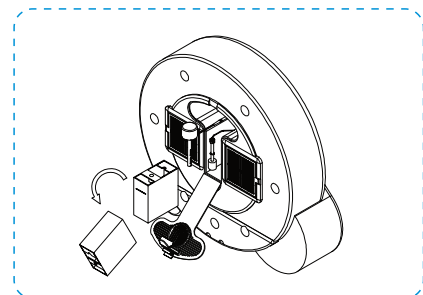


Figure 8.3.3-d

Cleaning

The ICU must be empty at the time of cleaning. Cleaning is feasible only after removal of the patient.

Maintenance

It is suggested to maintain the machine every two months during normal operation, which shall be carried out in accordance with removal, installation and maintenance procedures above.

TROUBLESHOOTING

PHENOMENON	CAUSE ANALYSIS	SOLUTION
AFTER THE POWER SWITCH IS PRESSED, THERE IS NO REACTION OR THE POWER INDICATOR LAMP IS STILL OFF	<ol style="list-style-type: none"> 1. Bad power connection and plug connection 2. Damaged switch 	<ol style="list-style-type: none"> 1. Check power connection 2. Replace the power switch
LITTLE ATOMIZING VOLUME FROM THE MEDICAL ATOMIZER	<ol style="list-style-type: none"> 1. Too big atomizing particles of solution causes little atomizing volume 2. Solution contains syrup or colloform 3. Tablets are used for dissolution 4. Oily impurities on the surface of solution 	<ol style="list-style-type: none"> 1. Too big particles are not suitable for operation of this atomizer 2. When solution contains syrup or colloform, it requires dry filter paper 3. When tablets are used for dissolution, dissolve sediments to remove impurities first 4. Remove oily impurities on the surface of solution with clean tissue first
NO ATOMIZING FROM THE ATOMIZER	<ol style="list-style-type: none"> 1. Water shortage in the water tank of the atomizer 2. Damaged ultrasonic chip of the atomizer 3. Water scale in the tank of the atomizer 	<ol style="list-style-type: none"> 1. Add water into the water tank until it is at the same level of the cup bottom 2. Replace the ultrasonic chip 3. Gently scrub the inside of the tank with lint cloth
REMAINING SOLUTION NOT ATOMIZED IN THE CUP AFTER ATOMIZATION OF THE MEDICAL ATOMIZER	Atomizing time and volume depend on concentration of atomizing liquid	Repeat the atomization operation procedure if not completely atomized once
THE HUMIDITY IS NOT INCREASED AFTER RAISING THE SET POINT OF HUMIDITY	<ol style="list-style-type: none"> 1. Water shortage in the bottle of the humidifier 2. Damaged chip of the humidifier 3. Water scale in the metal water level sensor inside the humidifier tank 	<ol style="list-style-type: none"> 1. Add water into the bottle 2. Replace the humidifier 3. Remove water scale inside according to the chapter of “separate cleaning of the humidifier”, or try to dip some vinegar into the water bottle of the humidifier

PHENOMENON	CAUSE ANALYSIS	SOLUTION
OPERATIONAL KEYS ON THE PANEL DO NOT WORK	<ol style="list-style-type: none"> 1. Bad contact of panel plugins 2. Damaged panel keys 	<ol style="list-style-type: none"> 1. Install plugins properly 2. Replace the panel
NO HEATING	<ol style="list-style-type: none"> 1. Failed or damaged fan 2. Heater (heat sink) with bad contact or damaged 3. ICU door opened 	<ol style="list-style-type: none"> 1. Check and replace fan 2. Replace heater band or heat sink 3. Close ICU door
NO COOLING	<ol style="list-style-type: none"> 1. No external cooler connected 2. Cooling pipe of the cooler not connected to the tank 3. Signal line of the cooler not connected to the machine 	<ol style="list-style-type: none"> 1. Connect it to an externally purchased cooler 2. Check the cooling pipe 3. Plug the signal line into the cooling socket of the tank
CONTINUOUS ALARM FOR O ₂ CONCENTRATION	<ol style="list-style-type: none"> 1. Failed or damaged fan 2. Not enough instant ventilation inside the chamber 3. Damaged O₂ sensor 	<ol style="list-style-type: none"> 1. Check fans 2. Open the ICU door 3. Replace the O₂ concentration sensor

JORVET ICU UNIT MAINTENANCE INSTRUCTIONS

Dear User

Thank you for using the JorVet ICU Unit. We provide the following services as dictated in this warranty manual (and the invoice or other certificates of product purchase) according to “Law of the People’s Republic of China on Protection of Consumers’ Rights and Interests”, as well as “Provisions on the Liability for the Repair, Replacement and Return of Some Commodities” issued by the CSBTS and the Bureau of Finance.

- ▶ One-year warranty for the whole machine.
- ▶ Two-year warranty for key components (including medical atomizer, humidifier, anion generator, ultrasonic sterilizer, fan, tank, door, master control panel, PTC heating chip).
- ▶ Six-month warranty (from date of purchase) for replacement of key integral parts (including medical atomizer, humidifier).
- ▶ Warranty services are not provided under the following situations, (but paid repair services are available for the life time of the equipment).
 - ▶ No warranty card or any other certificate of product purchase presented
 - ▶ Altered certificate of product purchase
 - ▶ Damage caused by accident, abuse or misuse
 - ▶ Repair privately without authorization of our company
 - ▶ Products can be used after repair beyond the valid period of the three warranties
- ▶ The valid period of the three warranties is from the date of product purchase, not including time of repair and waiting for components if out of stock. During the valid period of three warranties, consumers can have products repaired, replaced or returned with invoice or certificates of product purchase.
- ▶ Within 15 days after purchase, consumers can return, replace or repair products if there is any performance failure found.
- ▶ Within 30 days after purchase, consumers can replace or repair products if there is any performance failure found.
- ▶ “Performance failure” indicates that products cannot meet safety and hygiene requirements with unreasonable danger threatening safety of human body or properties; or products do not have complete functional performance as required, or cannot meet explicitly expressed quality conditions.

Advance Replacement Warranty Service

Your warranty service may involve advance replacement warranty service. If the hardware is found to be defective after diagnosis, we will send replacement parts directly to you. After receiving the replacement, you must return the defective part to us within the specified period (normally five days). The transportation and insurance fees rising from return of the defective part needs to be paid by you. If you cannot return the defective part, we will ask you for replacement fees. We provide replacement services during normal working hours, 8:00 a.m. to 5:00 p.m. Monday to Friday. The office time may be different according to local time zones.

MAIL WARRANTY SERVICE

Your warranty service may involve mail or courier services. According to mail service provisions, you must send defective hardware to an authorized maintenance facility via freight collect. We will repair and return it to you.

Door-To-Door Pickup and Return Warranty Service

Your warranty service may involve door-to-door pickup and return services. The company or a designated repair point will send technical employees to pick up defective hardware at your location and send it back after repair. For such services, the company pays all maintenance, transportation and insurance fees.

User Instructions

For products beyond the warranty period, either the company sends service employees to pick up or you can mail the defective part to the maintenance point. We provide our repair or replacement services and parts (fees for maintenance after warranty) covering shipment costs, labor costs for repair and component cost. Users can refuse to pay if maintainers cannot comply with unified charging standards of the company.

Contact Customer Support and Service

If information provided in these user instructions cannot solve your problem, contact the customer support of JorVet at www.jorvet.com.

Here you can:

- ▶ Communicate with our technical employees online
- ▶ Use English if technical support is not available in some specific language
- ▶ Send an email to the customer support of JorVet
- ▶ Find the global/domestic customer support telephone number of JorVet
- ▶ Find JorVet service center



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