

CardioVet-10
Defibrillator

User's Manual



SAFETY INSTRUCTION

Before you use the CardioVet-10 defibrillator , read the following tips carefully to get a good and safe use and to avoid possible damage to human-beings:

1. Please read the entire manual carefully to understand its proper operation before use.
2. The unit can be only applied to the specified use in the manual. No other using ways to avoid possible danger.
3. Like other defibrillators, the unit should keep away from explosive and dangerous place.
4. Any alterations or modifications to the unit should be done by the qualified and trained person from our company.
5. The unit could adapt with the parts which are approved by the legal quality department. All the original parts are checked before leaving our factory.
6. Check the unit whether in normal and safe condition before use. For example, don't use the defibrillator if the wire is damaged.
7. Special notice to the instructions in appendix A1 during operation.
8. When using the defibrillator, be sure that no instrument sensitive to the magnetic field(such as measuring one) or possible disturbance sources in the neighborhood keep distance from them.
9. The max energy charging time is less than 10 seconds. The discharge should not be over three times per minutes. The unit is OK of certain cooling time.

Besides. Our unit conforms to the requirements of general provisions for Medical Equipment

1. SPECIFICATION

Asynchronous outer defibrillation

Portable

Audible and visible reminders

Sine wave: biphasic technology

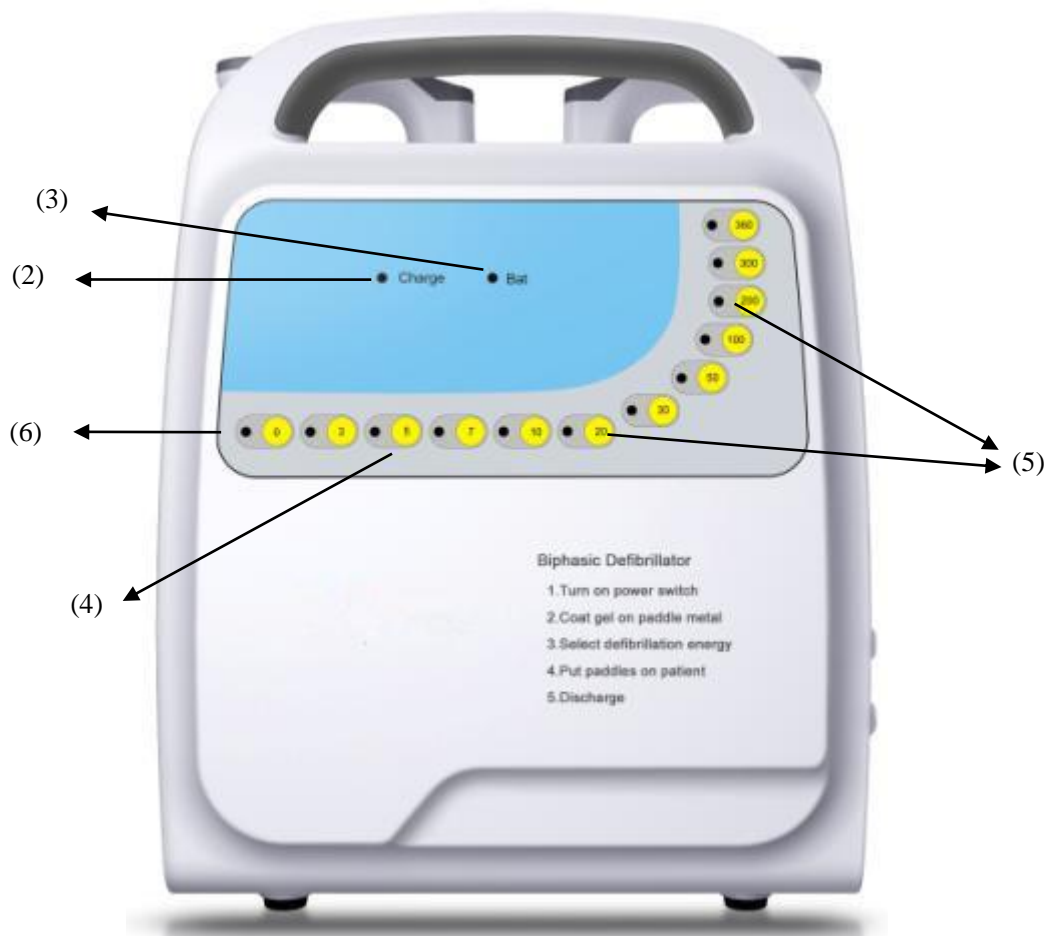
Energy: 0, 3, 5, 7, 10, 20, 30, 50, 100, 200, 300, 360 Joule

Charging time: at 360J less than 9s; at 100J less than 2s

Paddle: reusable external adult paddles(children paddles integrated)

Discharge by pressing buttons on paddles together
Power supply: mains(AC) and/or battery
Battery: charge 3.5h to full
Full charge to 35 shocks(360J)
Sealed rechargeable 12V battery

2. BOARD DISPLAY





(1) ON/OFF Open or Close the unit

(2) CHARGE To indicate charging process for the defibrillator battery. The lamp went out if full capacity.

(3) LOW BATTERY INDICATOR

The light will be on when the battery run out or under low battery.

It goes out when the battery is fully charged or no battery in machine.

(4) DEFIBRILLATING ENERGY INDICATOR

(5) ENERGY SELECTOR To select the energy of the heart defibrillating treatment.

(6) CLEAR BUTTON Clear the energy selection and discharge the energy by inside circuit.

3. OPERATION INSTRUCTION

a. First plug the power cord into the outlet well.

b. Put the ON/OFF switch to "1" place. Then the indicating lamp in top of energy selector "0" step will light.

Note: If the buzzer beeps 4 short, that is the failure warning of the batteries or power supply.

c. Energy selector: Press the switch (5) to choose a energy step. If the lamp on top of the switch lights, that is to indicate the energy of selected step is full and is ready to do defibrillating discharge. If with full energy, but no discharge or use, press "0" step selector to do inner discharge and zeroing the energy.

d. Electrode position: Hold the hand of the electrode, and get them from the block on the unit. The electrode pad should be placed along with the hear axis. APEX pad should be placed on the victim's left heart, above axillary line of apex cords. The other should be at the right chest, below the clavicle.

Note: To protect from the skin burning, it is very important to put enough conductive gel on

the pad surface.

Note: The two electrode pads should be pressed firmly with around 10 kilograms force to make the safe energy transfers and prevent from possible skin burning

Note: Make sure no connecting and transferring gel between two electrodes.

e. Energy discharge: Press the release key on two pads at the same time for discharge.

Note: The buzzer will beep 1 short once the discharge finish.

Note: Before and During the discharge, all the participants to revival treatment should keep distance, and away from the conductive objects(such as stretcher) and the ones connected with the victim. All other instrument connected with the victim should get away from the victim before discharge.

Note: Avoid the connection of two pads to discharge. This will cause short circuit.

Note: After full charge of the energy, please press "0" key for internal discharge if not use.

4. Maintenance

Put off the power plug when surely the unit is closed.

It is OK to clean with the home detergent. Please use the clean cloth then.

It is also OK to sterilize the electrode pads with common medical ethanol or disinfectant.

Note: Don't use the cloth of water dropping for cleaning. The dropping water may affect the performance of the unit. Also don't put the unit into the water.

No matter use or not of the unit, we recommend the operator to check and maintain the defibrillator and its parts. Please notice the following tips for maintain

1. Check whether the outer case is OK or damaged
2. Check the conducting wire of electrodes is OK or insulation damage
3. Clean all the conductive gel and dirty on the two pads and other electrodes, so as to make sure the good connection and avoid the electric spark.

In order to make the good function of defibrillator, the unit should equip with a charging battery that can work well. The battery of the unit can support 10 times discharge.

The operator can full charge of the electricity and then discharge to verify the times.

Note: The unit should be repaired directly damage of outer case or loss of electricity.

5. Technical features

Defibrillation

Driving terms: BIPHASIC, asynchronous, external defibrillating treatment

Energy steps: 0, 3, 5, 7, 10, 20, 30, 50, 100, 200, 300, 360 joule (50ohm) Charging time: <10 seconds (360joule)

Pad electrode: Adult type

Safety:

Series: Protect step II , type: electrocardiogram C F, Others is B F, 25th group of Medical instrument manufacture

Others:

Working power: AC/DC: AC 100V~240V/50/60Hz; 12Vchargable battery for DC

Battery capacity: +30timesreserve (360joule)

Normal working condition:

Working temperature: 5~40°C

Relative temperature: ≤80%

Atmospheric pressure: 86kpa~106kpa

6. Warranty terms

Our company will support one-year warranty against the purchasing date(consumables and attached excluded). During the warranty, our company will free remove all the problems and defects caused by the materials or manufacture. We will repair or change one for the fault machine. The implement of responsibility will not prolong the original warranty time.

The requirements of all other contracts terms or beyond this contract will be excluded. Otherwise these terms are specified, oversights, or subject to the obligatory legal regulations or laws.

Regarding the damage caused by the wrong operation not according to the instruction, violent action, illegal repairing not done by the authorized person, our company will be not responsible. The warranty requirements from distributors(agents) to purchaser is beyond this regulation.

If warranty is needed, please contact with your distributors(agents). Or Deliver all the purchasing documents of our machine, such as invoice, your name, address to our technical department. Even beyond the warranty time, our company will try our best to serve you.

1 Appendix

A1 General instructions and regulation of operating the defibrillator.

What is cardiac defibrillation?

Cardiac defibrillation is to release the current to the electrical muscle, so as to cause contracting, and the myocardial depolarization. So that this can remove the abnormal heart's rhythmic patterns, which is dangerous to the life. The abnormal heart's rhythm is the incompatible between the heart muscle and the physical action.

Abnormal heart's rhythm	Possible treatment
1. Incompatibly of active parts of heart muscle (e.g. quivering of the heart)	1. Synchronous DC defibrillation
2. Complete abnormal of heart muscle beat (Ventricular flutter)	2. Asynchronous DC defibrillation (heart defibrillate)

The above table offers two common abnormal heart's rhythm cases and the related possible treatments for that. Actually the cardiac defibrillator is designed especially for asynchronous defibrillation, so this is not available in the synchronous one.

Also the above DC defibrillations are different. Here we briefly discuss about it.

(1) Asynchronous DC defibrillation (heart defibrillate)

No prolong when using this way. Just release the energy immediately press the "discharge" switch. The precondition is the correctness of cardiac fibrillation diagnosis and pulse Defects.

If the defibrillator's energy asynchronously releases to the heart rhythm, this will damage the heart. If the energy affects to the heart muscle at heart refractory Period (around half of T-wave), it will aggravate the heart quivering.

(2). Synchronous DC defibrillation

The precondition of this defibrillation is that the victims have distinguished heart rhythm. As to the synchronous discharge, the Electrocardiogram will have clear QRS Composite wave. Some millisecond (about 10-60) after R-wave detection, the synchronous mechanical system from ECG part will control to discharge.

The ECG parts will indicate "SYNC" to show the detection of QRS composite wave for doctors' easy operation.

When using, the discharge doctor should carefully note of the signal and make sure that each QRS composite waves are legible. Also they are not interfered by others or cardiac pulse synchronization

Steps for the heart defibrillation (Asynchronous DC defibrillation)

The following treatment steps only applies to the heart defibrillator. This does not apply to the

machinery, cardiopulmonary or pharmacological recovery fields. The basic premise of synchronous DC defibrillation is ventricular fibrillation, which means that in the animals' electrocardiogram have P-QRS wave or T wave defects.

1. Open the defibrillator

2. Put the conductive gel on the two electrode pads.

Remember enough gel on the pads in order to reduce transmission resistance and more energy into the victims. Too little gel possibly causes the skin burning under the pads.

Note: No gel to the hand of the electrode pads. Otherwise, it is dangerous to transfer the electric spark to the operator or doctor.

3. Energy selection

The discharging energy confirms with the animals' height and weight. It is around 2 joule/kg. Also it is according to experiences and the specific aid situation.

4. Position of electrode pads

The pads should be firmly pressed on the animals' naked chest. Also for the safe energy transmission, it is necessary to press with around 10kilograms force. Too small force will also cause the skin burning. It is necessary to do practice on the training instrument for the correct position.

The pads position is crucial to the successful recovery. So the current between the electrodes should transfer the chest to myocardial tissue. Only when 80% heart being defibrillating, and get to "critical mass", possibly the fibrillation can be over.

Wrong position of electrode pads will cause large loss of current from the heart side without any effect.

Correct positon of sternum electrode: —Right Chest
—Right side of sternum
—Beneath the clavicle

Correct positon of pole electrode —Beneath the left chest
—Above apex
—Center of axillary line

Note: Don't put the conductive gel on the electrodes on the animals' chest. If not, the current will only flow through the electrode surface. The gel also could not be on the hand of electrode pads. If not, it may form electric spark and danger to the doctor.

5. Protection before electrode discharge

Before the defibrillation, the doctor in charge should very clearly tell all the participants for recovery aid away from the victim, the bed and the connected instrument. All other instrument that is not used to defibrillation treat should remove from the animal. If not, it is possible to cause spark on other participants

6. Discharge the energy

Press the release key on the pads at the same time. The defibrillator will do the discharge.

7. Observe the result

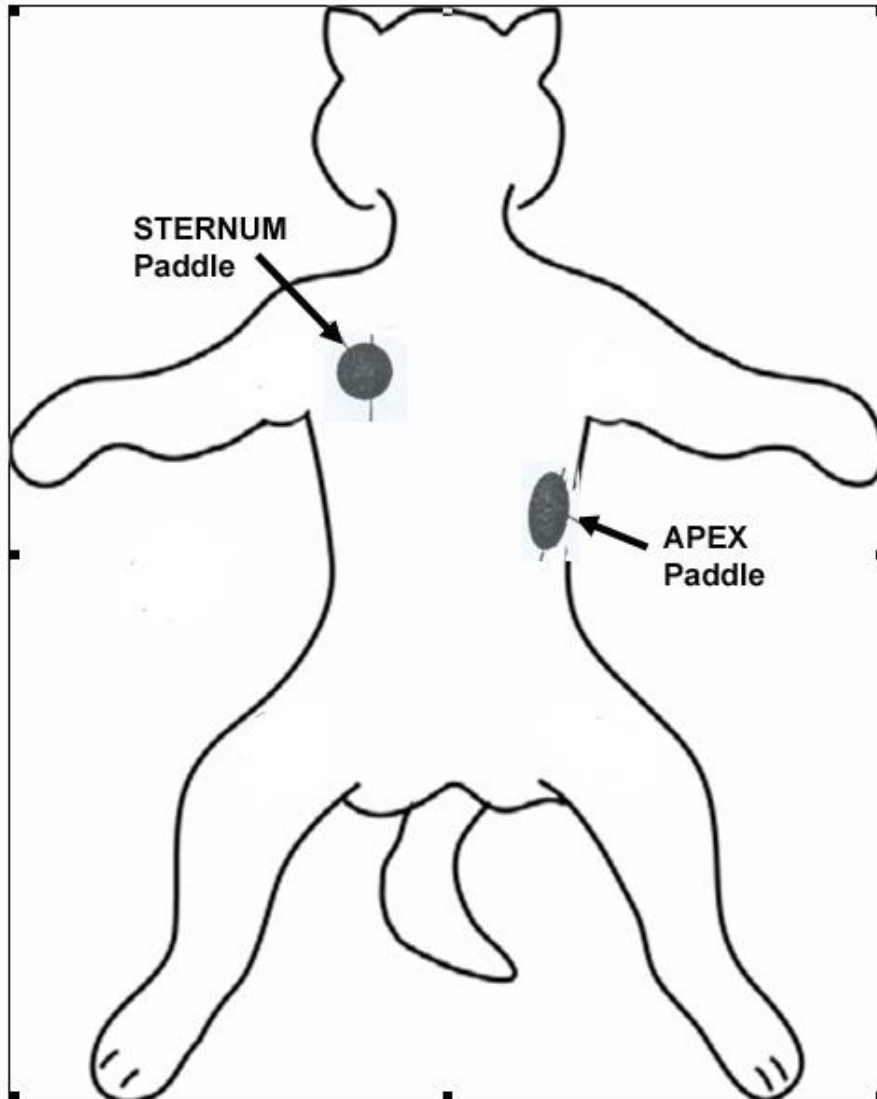
After defibrillation, it is necessary to diagnose the victim situation and the patient monitor. According to the observing result, if necessary, more defibrillation will be done for the treatment(Repeat steps 3-7 again)

If using artificial or pharmacological measures for assistant, the emergency doctor should do the guarantee and be responsible for that.

8. Make sure that the defibrillator in good condition

After the treatment, you should clean the electrode pads, electrodes and wires for next good use.

A1: The placing position of paddles



A2: The use of paddles

Our company's defibrillator use the composite paddles, an external paddle for large animals, built-in paddles for small animals. If you need to use the small paddle, the large paddle should be pulled out. After used, if you need to resume the paddle, please first clean up the electrode of the small paddle, then push in again. Must be tightened up and good in keep in touch.



A3:Installing battery

Pull out the battery cover, put the batteries in the right positions and lock them up, then push the cover in.



Step 1



Step2



Step3



Step4



Step5



Step6