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1.Introduction

1.1 About AM852

AM852 is an anaesthetic transportation system, and it may carry out the following functions:


Provide manual ventilation for the animal in an operation.


Supply the animal with oxygen in an operation.

Supply the animal with anaesthetic gases of accurate and steady concentration in an operation.

Absorb carbon dioxide exhaled by the animal in an operation.

1.2 Symbols used in the manual and device

 **Warning** and **Note** show the possible risks if you disobey the declarations in this manual. Please read and abide by all the warnings and cautions seriously.

 **Warning:** Indicate the possible injury to operators or animal.

 **Note:** Indicate the possible damage to the device.

 **Importance:** similar to a commentary, but with emphasis meaning.

There are other symbols also used in the device or AM852 user's manual to replace text statement, including:















O₂+ O₂ Flush	CE 0123
SN	SN ABC123 SN ABC123
	 2001-06 , 2002 
	Note read the document
EC REP	EC REP Company Address EC REP Company
	 2008-08
LOT	LOT ABC123
	 Company Address
	 °C
	

Figure 1-1 symbol

-  **Importance:** Punchy recommendation: It is necessary to use the O₂ check and test assembly in this device, and please refer to the local standards for the relevant rules of detection.
-  **Importance:** Punchy recommendation: When using the system, User should equip anaesthetic gas spiritualization system (AGSS) according with EN740 standard.
-  **Importance:** According to EN12342 or ISO7767 it is necessary to use the O₂ check and test

and the CO₂ check and test (according to EN864 or ISO9918) in this device.

User should equip CO₂ check and test according with EN740 standard.

⚠ Importance: According to the stipulation of European standards EN740 and international standards IEC 60601-2-13/ISO8835-1, it is essential to check and test the anesthetic (according to ISO11196) when using Anaesthesia evaporator. User should equip Anaesthesia evaporator monitor according with EN740 standard.

⚠ Warning: Please read this manual in detail and master the content before operating the product.

⚠ Warning: Ensure the avirulence of air feed tube, bag and breathing loop assembly, and the followings must not emerge:

- Cause allergic reactions in the animal's body.
- React with Anaesthesia gas or anesthetic to produce dangerous byproducts.

⚠ Warning: The danger of explosion. Ensure not to use flammable anesthetic in AM852 system.

⚠ Warning: Do not use anlistatig breathing tube or face mask. It is possible to cause burning when using this species of breathing tube or face mask near surgery equipments of high frequency.

⚠ Warning: In order to protect the animal, the following must be ensured.

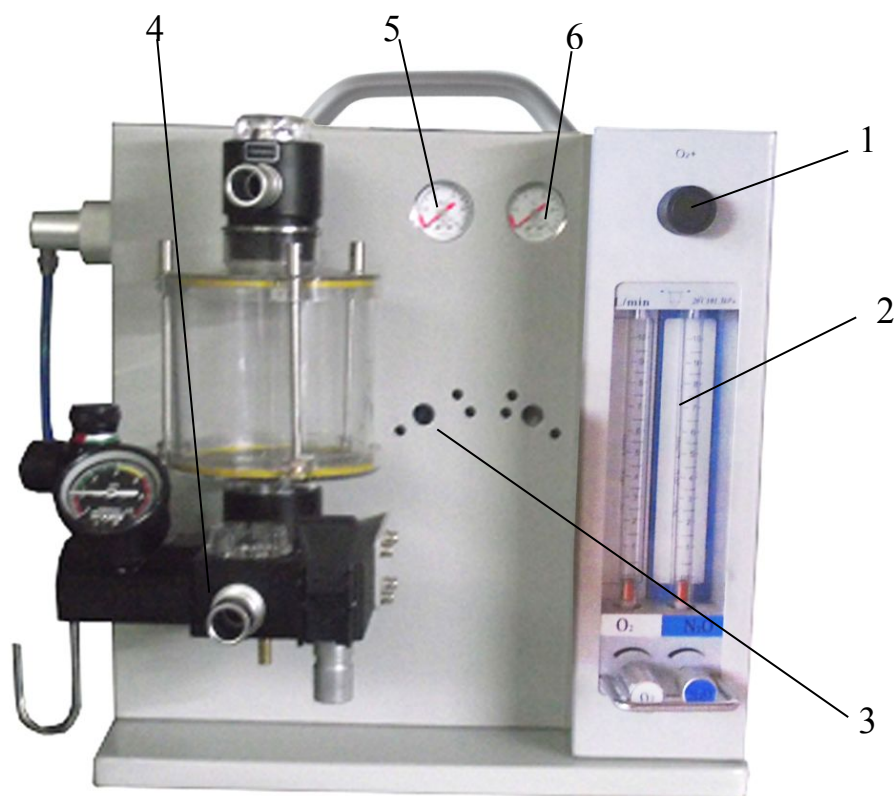
- Ensure the operations of all life supports and monitor assembly are proper.
- Ensure manual ventilation equipment convenient .

⚠ Warning : If the anaesthetic system is to be equipped with an anaesthetic ventilator, the anaesthetic ventilator shall comply with the requirements of ISO 8835-5.

⚠ Warning: a malfunction of central gas supply system may cause more than one or even all devices connected to it to stop their operation simultaneously.

2. Control section of anaesthetic system


2.1 Anaesthetic control system




- | | | |
|--------------------------------------|-----------------------------------|----------------------------------|
| 1. O ₂ Flush press button | 2. Flowrate regulating | 3. Evaporator |
| 4. Respiration system | 5. NO ₂ pressure gauge | 6. O ₂ pressure gauge |

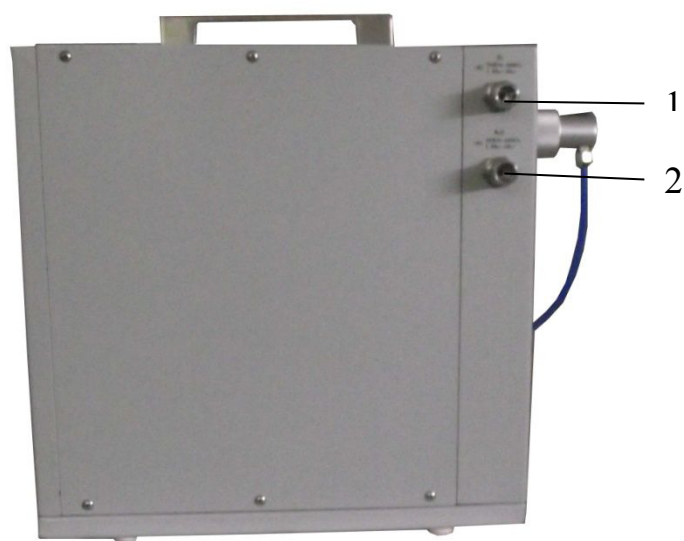
Figure2-1 AM852 Control functions on front

Items	Remark
1 O ₂ flush button	Press O ₂ flush button to provide high flowrate O ₂ to respiration system



2 Flowrate regulating	Revolving control button anti-clockwise will augment flowrate and revolving control button clockwise will decrease flowrate.
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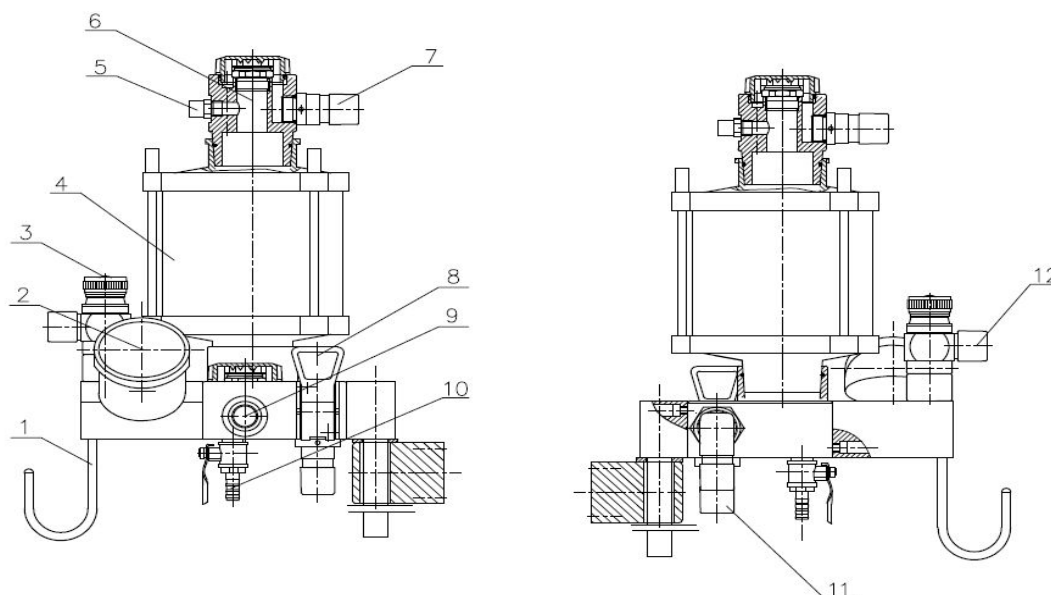




1. Pipeline gas linker(O₂) 2. Pipeline gas linker(NO₂)

Figure 2-2 AM852 Functions on back

2.2 Assembly of respiration system



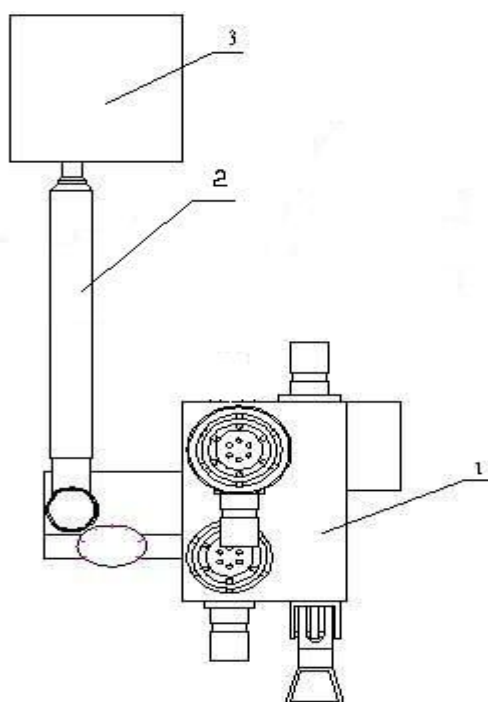
- 1. Hook** **2. Pressure gauge** **3. APL valve** **4. Absorbers** **5. Common gas inlet**
6. Inspiration unidirectional valve **7. Inspiration outlet** **8. Manual switch**
9. Expiration unidirectional valve **10. Water outlet** **11. Manual gasbag interface**
12. Exhaust outlet

Figure2-3 Assembly of respiration system

Items	Remark
absorber load and unload	Unscrewing screw, releasing absorber and then can unload it; fitting on absorber and screw screw can load it.
APL valve	Adjustable pressure limit valve (APL valve): In manual control, the adjusting range is 0.2kPa-6.0kPa, color mark displays the press range, the green denotes low pressure range, the red denotes high pressure range and the yellow denote the middle value.
Manual switch	Horizontal wrench is manual ventilation (gas goes to gasbag);

2.3 Exhaust emission

When using the system, exhaust emission should be carried out. User should equip AGSS according with EN740 standard. Connect exhaust outlet of respiration system with AGSS by exhaust emission tubes according with EN740 standard. See Fig. 2-4



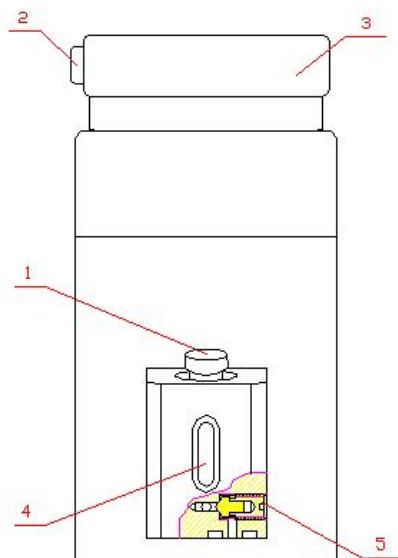
1. Respiration system 2. Connecting tube 3. AGSS system

Fig 2-4 Connecting AGSS system

⚠ Warning: Never connect exhaust gas port with sub-atmospheric system directly. Or else leakage of breathing system generates.

2.4 Control Evaporator

Please refer to the evaporator operation manual to find the more details .



- 1 .drug-adding knob 2.lock knob 3. concentration panel
 4. viewing window 5.drug-releasing port

Figure 2-5 Control Evaporator

Items	Remarks
1 Drug-adding knob	Anticlockwise rotate screw cap to unload it, and the drug can be put in, clockwise rotate screw cap to airproof.
2 Lock knob	Press this button, and rotate concentration control switch to set anaesthetic concentration.
5 Drug-releasing port	You could see the Drug-releasing knob inside the evaporator when you rotate the drug-adding knob to unload it. Unload the drug-releasing knob, and release the drug.

	Operation	Storage
Temperature	+10°C ~+40°C	-5°C ~+50°C
Relative humidity	30%~75% no condensation	10%~90% no condensation
Pressure	70 kPa~106kPa	50 kPa~106kPa
Anaesthetic concentration	0.5%~5.0%	
The carrier gas(O₂ N₂O) flow	0.2L/min~10L/min	

2.5 Instructions for filling the AVDD

1. Check that the vaporizer concentration control is in the '0' position.
2. Unscrew the filler cap.
3. Remove the bottle cap and fill the vaporizer slowly and carefully, stopping to check the liquid level occasionally, Stop filling when the upper mark is reached on the filler block.
4. Check that the seal in the filler cap is clean, and positioned correctly. Replace the filler cap. Tighten finger tight only. DO NOT use a wrench.

Capacity

Volume at MAX mark 150ml(nominal)

Volume at MIN mark 35ml(nominal)

Determination of vapour concentration delivered by AVDD

1. Test the AVDD on a calibrated test rig capable of supplying the necessary gas flowrate and pressures required by the test conditions, or on an anaesthetic system with the anaesthetic ventilator and anaesthetic breathing system supplied or recommended by the manufacturer or supplier.

Connect an anaesthetic vapour analyser to the fresh gas outlet of the anaesthetic system, or to the inlet of the anaesthetic breathing system if there is no fresh gas outlet or, if applicable, to the inspiratory port of the anaesthetic ventilator.

Check to ensure that the components downstream of the AVDD will not affect the test results, for example by absorbing volatile agents, by imposing time delays on response, or by leakage.

2. Condition the calibrated test rig or the anaesthetic system, as applicable, with the specified test equipment and anaesthetic agent in the test room for at least 3 h

at $(20 \pm 3)^\circ \text{C}$, and maintain this temperature throughout the test procedure.


3. Fill the **AVDD** with the appropriate anaesthetic agent to approximately half of the maximum usable volume, and leave it to stand for at least 45 min.

If the manufacturer recommends that when power is applied to the **AVDD**, a warm-up period be allowed before use, power shall be applied for at least that period before testing. This period may be within the 45 min.

4. With the **AVDD** control in the “Off”, “0” or, if applicable, “Standby” position, set the gas flowrate through the anaesthetic system to $(2 \pm 0,2)$ l/min and adjust the anaesthetic ventilator to give (15 ± 2) breaths/min at an I:E ratio of $1:2 \pm 20\%$ with the inspiratory flow control set to maximum.

For an anaesthetic system in which the fresh gas flow is determined by the anaesthetic ventilator settings, set these to give a minute volume of $(2 \pm 0,2)$ l.

Introduce a maximum pressure fluctuation of $(2 \pm 0,3)$ kPa (above ambient) at the fresh gas outlet, ensuring that the decay time during the expiration period (from 100 % of the fresh gas outlet pressure at the end of the inspiration period to 33 % of this pressure) is less than 0,6 s.

 **Note:** This can be achieved by using a test lung having a compliance of 0,2 l/kPa and an appropriate resistance.

Maintain the pressure fluctuations for 3 min, and after that time measure the concentration of anaesthetic vapour delivered over a further 1 min period while maintaining the pressure fluctuation. Calculate the average vapour concentration in the total delivered gas flow.

5. Repeat the procedure described in 4. with the **AVDD** set to each of the other settings, and in the order given in Table 2-1. If the **AVDD** is not marked with the concentration settings given in Table 101, use the nearest settings on the **AVDD**. If any setting given in Table 101 is equidistant between settings on the **AVDD**, use the lower setting on the **AVDD**.

Table 2-1 — Settings to be used for testing delivered concentration

Order of test	
1	Off, Standby, and zero, if separately marked
2 ^a	lowest graduation above zero
3	10 % FS
4	20 % FS
5	50 % FS
6	75 % FS
7	maximum graduation (full scale)

a If 10 % of full scale (FS) is the lowest graduation, step 2 is omitted.

6. Repeat the procedure in 4. and 5., using a fresh gas flowrate of $(8 \pm 0,8)$ l/min and a

pressure fluctuation at the fresh gas outlet of $(5 \pm 0,4)$ kPa.

For an anaesthetic system in which the fresh gas flowrate is determined by the ventilator settings, set these to give a minute volume of $(8 \pm 0,8)$ l.


Vapour output during and after oxygen flush

* When the AVDD is tested as described in **Determination of delivered vapour output during and after oxygen flush** , the output of anaesthetic vapour shall not increase by more than 20 %.


Determination of delivered vapour output during and after oxygen flush

1. Follow the test procedure in.6. Instead of introducing a pressure fluctuation at the fresh gas outlet, measure the output of anaesthetic vapour (concentration of vapour \times volume of gas) for 1 min before, during a 10s activation of the oxygen flush, and for 30s after the oxygen flush activation.

Compare these three measurements, expressed as volume flowrate (volume of vapour per unit of time).

 **Note:** The volume of gas can be determined for example, by integrating flow or by collecting the gas during the specified period.

2. Repeat the test procedure in 1. using a steady sub-atmospheric pressure of 10 kPa.
Compare these three measurements, expressed as volume flowrate (volume of vapour per unit of time).

 **Warning:** The evaporator isn't adjusted in the range from 0 to the first scale, so this range can not be used.

 **Warning:** An ANAESTHETIC VAPOUR DELIVERY DEVICE used with the ANAESTHETIC SYSTEM shall comply with ISO 8835-4.

3. Assembly of whole set

3.1 Respiratory system installation

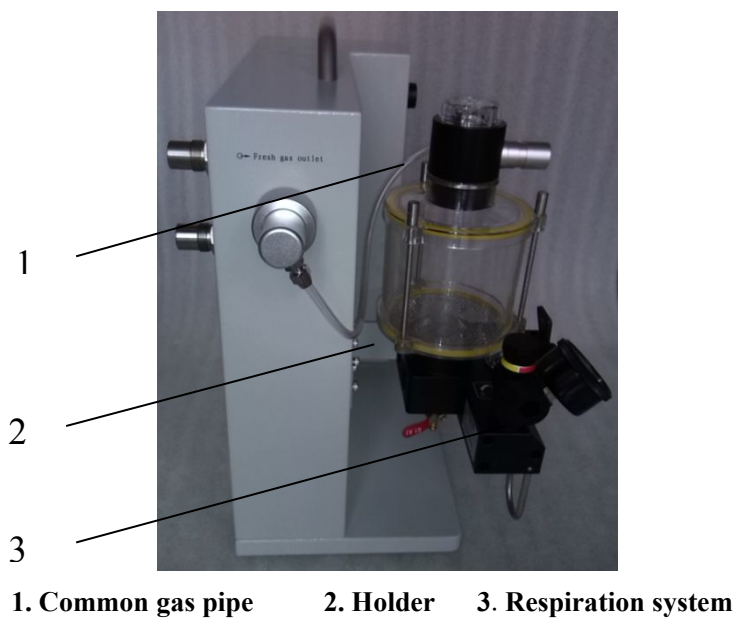


Fig. 3-1

Pipeline installation:



Fig. 3-2

4. Pre-use Test

4.1 Test interval

Under the following condition, pre-use test should carry out:

1. Before the first pet use every day.
2. Before each pet use.
3. Test machine according to the request after service and maintenance.

Test item	Before the first pet use every day	Before each pet use
Check system	applicable	–
Test pipe and gas cylinder	applicable	–
Test flowrate control	applicable	–
Install evaporator	applicable	–
Test respiration system	applicable	applicable

⚠ Warning: Do not put the machine into operation before you read and comprehend the operation and maintenance of each parts.

- All system connection.
- All warnings and notes.
- Operation method of each parts.
- Test method of each parts.

Before you use the system, should

- Complete all tests mentioned in this section.
- Test all other system parts.

4.2 Check the system

⚠ Warning:

Ensure:

1. The equipment is in good condition.
2. All parts are connected correctly.
3. Respiration circuit and pipes are connected correctly and in good conditions, and there are enough absorbent in absorber.
4. Lock evaporator to correct position and fill enough anaesthetic.
5. The connection and pressure of gas supply system are correct.
6. If there are spare gas cylinders, the valve of gas cylinder which is connected to the system should be closed.

⚠ Warning: When use pipe to provide air, the spare gas cylinder should not be open so as to avoid that supply gas exhaust result in storing supply shortage when pipeline is in trouble.

7. The contingency equipment have already been prepared and in good condition.
8. The equipment used to maintain airway, tracheal intubation and manage device have already been prepared and in good condition.
9. Applicable anaesthetic and contingency drug have already been prepared.
10. Anaesthesia gas spiritualization system has been connected correctly and in good condition.
11. Ensure truckles are not loose and brake has been locked, can not move.

4.3 Test gas supply pipe

⚠ Warning: In order to prevent the equipment being damaged:

- Open gas cylinder valve slowly
- Do not take flowrate control forcefully.

1. Cut off all air feed linkages and close all gas cylinder valves.

If the values of pipe and gas cylinder pressure gauge are not zero, then:

- Feed into O2
 - Set flowrate control on middle range.
 - Ensure all of the pressure gauges be reset to zero, except O2.
 - Cut off O2 feed.
 - Ensure O2 pressure decline to zero gradually. With the pressure debase, the low pressure alarm should ring.
2. Connect pipeline supply air.
 3. Check whether the pipe pressure is coincident with the request of the region where the user locates in.

4.4 Test flowrate control

⚠ Warning:

- If N2O is connected, it will flow through the system during the period of test. Use safe and eligible method to collect and dispose it.
- Unsuitable mixture gas will harm the animal. If the linkage system can not supply the suitable proportioned O2 and N2O, the system should not be used.

1. Connect the supply gas pipes to the system. Clockwise rotate all flowrate regulating switches; ensure to rotate them to the bottom.
2. Open the system power supply breaking road switch.
3. Counterclockwise rotate N2O flowrate regulating switch slowly, ensure that the flowrate of O2 is increasing and set the flowrate of N2O according to the following table. The flowrate of O2 must be more than the minimum limitation.

N2O flowrate (L/min)	the minimum limitation of O2 flowrate (L/min)
1.5	0.5
3	1
6	2
9	3

4. Adjust the flowrate of N₂O to 9L/min, the flowrate of O₂ to 3L/min or higher, clockwise rotate the O₂ flowrate regulating switch slowly, ensure that the flowrate of N₂O decreased and set the flowrate of N₂O according to the following table. The flowrate of O₂ must be more than the minimum limitation.

N₂O flowrate (L/min)	the minimum limitation of O₂ flowrate (L/min)
6	2
3	1
1.5	0.5

5. Adjust the whole range flowrate of all gases; ensure the buoy of the flowrate tube can move smoothly.
6. Disconnection O₂ pipes feed or close the gas cylinder valve.
7. Ensure :
 - alarming when O₂ supply pressure is low .
 - the flow of N₂O stop, the flow of O₂ stop at last.
8. Clockwise rotate all flowrate regulating switches, ensure to rotate them to the bottom.
9. Connect the pipes to the system again.

4.5Evaporator Installation

⚠ Warning: The evaporators which can open more than one at the same time can not be used in this system.

If the evaporator is not the product appointed by manufacturer, the performance of this system may be debased.

1. If the evaporator does not assemble the support circuit tightly, it should be removed and reinstalled. If the evaporator cannot fit the support circuit tightly, the system should be given up.
2. Before uninstall the evaporator from the support circuit, lift it up following the perpendicular direction as best as you can to make it break away from support circuit, but do not pull it forward. Do not make the evaporator rotate on the support circuit.

3. If more than one the evaporators can be opened at the same time, these evaporators should be removed and reinstalled according to the operation manual of evaporators.

4.6 Test Respiration system

1. Verify that the anaesthetic gas spiritualization system(AGSS) have been connected correctly and work normally.
2. Expiration unilateral valve 1 ascends during the inspiration period and descends during the expiration period.
Inspiration unilateral valve 2 ascends during the inspiration period and descends during the expiration period.

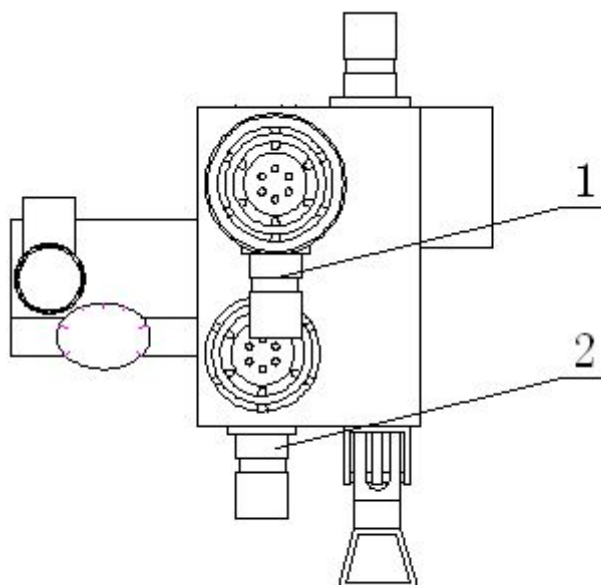



Figure 4-1 Respiration System

3. Gas leak test of gas bag circuit:
 - Wrench manual/ mechanical ventilator control to manual ventilation.
 - Set the flowrate of O₂ to about 0.3L/min and close others flowrate regulating switches.
 - Close APL valve.
 - Install manual gas bag on the port of it.
 - Connect the Y-junction with the simulated lung at the animal interface.
 - Press the O₂ flush button until the pressure gauge reaches to about 3kPa.

- The value of pressure gauge should not drop more than 0.3kPa within 20s, if it is over this limit, that indicates gas leakage, the troubleshooting process should be made.

4. Test the APL valve

- Close the APL valve completely.
- Set the flowrate of O₂ to 3L/min. Close other gases and ensure that the value of airway pressure do not over 7.5kPa. Certain pressure fluctuation is normal circumstance.
- Open the APL valve completely.
- Ensure the value of airway pressure do not over 0.5kPa.
- Press the O₂ flush button and ensure that the value of airway pressure is nearly 0.

 Warning: If there were foreign bodies in respiration system, these will jam the gas follow to the animal, this may cause injury or death to the animal Ensure that there is no test plug or other foreign bodies in system.

5. Installation and Replacing

5.1 Install absorber

⚠ Warning: Please comply with prescript of security defense in point:

- Avoid skin or eyes to contact with material in absorber. In case skin or eyes contact with it, rinse affected parts with rinsing immediately and take medical measures
- Do not replace absorber during ventilation.
- Check the color of absorbent after every case. The color of absorbent could resume former color during nonuse. Refer to absorbent label to obtain detail about color change.
- Completely dry absorbent will release CO when contacting with anesthetic. Please replace absorbent in time taking security into account.

5.2 Replace absorbent

· Gradual color change of calx sodica in absorber indicates CO₂ absorption, but the color change of calx sodica is a approximate show. Utilize a CO₂ detector to determine whether to replace absorbent or not.

· Discard the absorbent once it change color. Calx sodica could resume former color when deposited for several hours, which will mislead users.

1. Unload absorber: unscrew screw, and loosen absorber so as to take it down.
2. Discard scrap calx sodica, and then fill new absorbent.
3. Fix absorber: place absorber on the former position, and screw screw.

· There are two absorber, and each may accommodate 1000mL absorbent.

Connect gas source

⚠ Note: Only medical gas source can be used. Other types of gas source may contain water, oil or other garbage.

Connect one end of input pipe of O₂, N₂O and air with inlet tie-in of pipeline and screw down. Connect another end to corresponding gas source.

6. Cleaning and Sterilization

6.1 Cleaning and sterilization of Anaesthesia workstation surface

Clean the machine's panel and all surfaces with soft cloth soaked in the common water soluble disinfectant. The confection of the disinfectant must be done in accordance with the directions given by the manufacturer. One must prevent the disinfectant drops from entering the Anaesthesia apparatus and the misuse of organic solvent for cleaning the machine.

6.2 Cleaning and sterilization of reusable rubber corrugated tube and manual breathing bag

Every used rubber corrugated tube and manual breathing bag must be firstly washed with rinsing carefully and after they were dried put them into the suffocating sterilization chamber to be suffocated and sterilized for a while or sterilize them as the rubber products require to do. Don't sterilize them with ultraviolet radiation, or else it will result in the fast aging of rubber products.

 **Note:** Do not reuse one-off consumable.

 **Warning:** Ensure the avirulence of corrugated hose and respiratory bag, and the followings

must not emerge:

·Cause allergic reactions in animal's body.

·React with Anaesthesia gas or anesthetic to produce dangerous byproducts.

6.3 Cleaning and sterilization of inspiration and expiratory unidirectional valve

Loosen the cover of the inspiration and expiratory valves by rotating it anti-clockwise, then clean valve cover, cover plate and valve mouth with the germfree gauze soaked in water soluble disinfectant. After all parts cleaned and dried, recover the cover plate properly and screw down the valve cover clockwise. Then user must check the airtightness and the movement of the valve cover plate in accordance with the required regulation and checking procedure. Please handle all parts with care lest valve cover and cover plate are bumped or crushed.

6.4 Cleaning and sterilization of absorber

Taking conditions of hospital, either suffocating sterilization (temperature no more than 50 °C) or soak sterilization can be adopted in practice. When adopting soak sterilization, user must dry all sterilized parts with high pressure air or oxygen after sterilization.

⚠ Warning: Be sure to protect Valve carefully and prevent hard objects bumping them. The damage of valve bodies (especially valve orifices) and valve flakes will result in air leak so as to severe malfunction.

7. User's maintenance

⚠ Warning: Please comply with sterilization regulations and security disciplines because all used equipments possibly contain blood and body fluid of the animal.

⚠ Warning: Personnel without maintenance experience to this kind of equipments are prohibited undertaking maintenance tasks.

7.1 Maintenance schedule

Least maintenance times	Maintenance
Every day	Clean external surface 21%O ₂ calibration
Every two weeks	Empty evaporator, and discard remanent agent
Every month	100%O ₂ calibration
During cleaning and installation	Check whether accessories are in good condition or not, and replace or service them when necessary
Process according to need	Empty water store, and replace absorbent in absorber

7.2 Maintenance of anaesthetic evaporator

Anaesthetic evaporator is the most important part of the workstation, therefore notice to: never lift the concentration-regulating knob by hand; in case of regulating the anaesthetic concentration one must firstly gently rotate the dial gauge of knob, and mustn't further rotate the gauge forcibly when reaching already the limit. Suggest calibrating the evaporator annually. Oxygen should be used as the carrier when checking the evaporator. The flowrate pass through the evaporator are 1 ± 0.1 L/min and 5 ± 0.5 L/min.

7.3 Maintenance of flowmeter

Flowmeter is an important part of Anaesthesia workstation. Its glass tube is fragile. No impact and vibration should happen during transportation. User must gently rotate flowrate control knob and mustn't further rotate knobs forcibly when reaching already the max. or min., otherwise they would be damaged and malfunction.

7.4 Maintenance of inspiration and expiratory unidirectional valve

Do not press the cover plates on inspiration and expiratory valves curving. One must handle them with care preventing damage when cleaning and sterilizing, and installation and remove, if any, must replace them in time to guarantee normal reliable work.

8. Trouble shooting

⚠ Warning: Please make eligible service representative repair the system.

Fault symptom and alarm info	Possible cause	Troubleshooting
The animal respiratory circuit leak gas	APL valve disclose by manual control	Close APL valve
	Absorber fix untightly	Fix it again
	Corrugated hose mangle or joint loose	Replace hose or fix again
	Inhale or exhale unidirectional valve cover doesn't screw down	Screw again
	Manual switch doesn't work	Please contact with our company
Airway pressure is far high when manual respiration	APL valve adjust isn't accurate	Adjust APL valve to right position

9. Operation Principle

9.1 Diagram of system drive air circuit

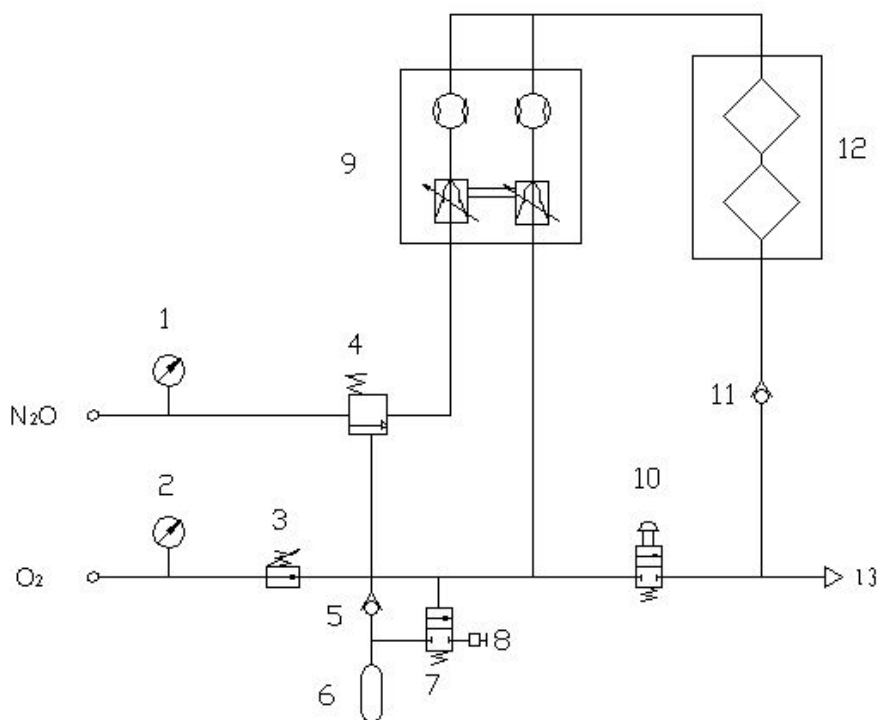


Figure 9-1 diagram of drive air circuit

Figure 9-1 Legend

Serial No.	name	Serial No.	name
1.	pressure gauge	8	alarm
2.	pressure gauge	9	linkage flowmeter
3.	pressure regulator	10	O2 flush valve
4.	N2O driven regulate valve	11	unidirectional valve
5.	unidirectional valve	12	evaporator
6.	gas storage cylinder	13	Flash gas outlet
7.	alarm shift valve		

Gases supply

Gases enter the system through interface of pipeline, all conjunctions have the bond which is labeled by gas tab. Pressure gauge displays airway pressure.

N2O driven regulate valve controls the N2O flowrate going to flow control valve. The output of N2O is adjusted by O2 pressure of the control port. It can cut off the N2O current when O2 pressure is in trouble and ensure the low N2O pressure descends with O2 pressure until N2O has been cut off. Ensure the concentration of O2 at fresh gas outlet is more than 25%. When the pressure of O2 is too low, alarm device sends sound of low O2 alarm.

Mixture Gas

From the outlet of flowmeter, mixture gas passing by support circuit and evaporator if it is open, flows to fresh gas outlet and comes into respiration system.

10. Technical Specification

Remark: All technical specifications are rating, may be changed at any time, and do not message again.

Gas Supply

pipeline gas	O ₂ 、N ₂ O
the output pressure of regulator	280kPa-600kPa
security valve discharge pressure	≤600 kPa
the pressure of pipeline inlet	280kPa-600kPa

Note Gas providing must be medicinal level.

Note When the medical gas pipeline supply pressure is lower than 0.15Mpa,the anaesthetic system will cease to deliver gas.

Flowmeter

Gas	scale
O₂	0.0L/min ~ 10L/min
N₂O	0.0L/min ~ 10L/min

Precision: At 20 °C , atmospheric pressure is101.3kPa,the precision of flowmeter is level 2.5.

O₂ flushing 25L/min ~ 75L/min

O₂ supply trouble alarm O₂ pressure lower than 0.14MPa

N₂O cut off O₂ lower than 0.1MPa

Respiration System

volume	50~1500mL	
absorbent	1200mL×2	
System leakage	When pressure is lower than 3kPa, ≤175mL/min	
system compliance	≤4mL/kPa	
Resistance of ventilator system	Flow-rate: 30L/min	Flow-rate: 60L/ kPa min
	≤0.16kPa	≤ 0.52kPa
pressure of opening unidirectional inspiration/expiration valve	Dryness state: 0.02kPa Moist state: 0.03kPa	
APL valve	About 0.19-6 kPa	

Inspiratory and expiratory pressure/flow characteristics

The pressure (positive/sub-atmospheric) generated at the connection port shall not exceed 0.6 kPa(6 cm H₂O) at the peak flow of 60 L/min when connected to the anaesthesia system or suitable test rig supplying a fresh gas flow of 10 L/min (1 L/min) or the maximum fresh gas inlet flow specified by the manufacturer.

Leakage

The leakage from an anaesthetic breathing system shall not exceed 150 ml/min (15.2 kPa l/min) at 3.0 kPa(30 cm H₂O) internal pressure.

Compliance

The internal compliance of the anaesthetic breathing system shall not exceed 120 ml, at a pressure of 3 kPa (30 cm H₂O) and measured with any carbon dioxide absorbent container(s) filled with fresh absorbent of any type recommended by the manufacturer and any reservoir bag excluded

⚠ Warning: the anaesthetic breathing system is intended to be used with an anaesthetic system which should comply with IEC 60601-2-1

Check the performance of the unidirectional valves

1. Close the APL (expiratory) valve.
2. Plug one end of the circuit and connect the other side to the machine common gas outlet via a T-piece connected to a pressure gauge(0 to 100cmH₂O).
3. Gradually open the oxygen supply on the machine until a pressure of 50cm H₂O is indicated on the pressure gauge.
4. Check that a flow of not more than 300 ml/min is required to maintain this pressure.

5. Unscrew the APL valve until it is fully open.
6. Set the flow to 30l/m. Check that the pressure reading is between 1 and 3cm H₂O.
7. Set the flow to 30l/m (from a separate source if necessary) and check that the pressure reading is between 1 and 5cm H₂O.
8. For semi-closed circuits, check the continuity of the inner tube by passing a flow of 20l/m along the inner tube with the APL valve closed. Block the outlet for a time sufficient to allow the bag to partially fill. The reservoir bag should then collapse by Venturi action when the animal outlet is opened to the atmosphere. If the bag continues to fill, there is a break in the inner tube.

Physical Technical Specification

Note: Do not put AM852 in vibrate environment.

System

Height	450mm
Width	405mm
Depth	330mm
Weight	21.25kg

Environment Requirement

	Operation	Storage
Temperature	+15°C ~ +35°C	5°C ~ +40°C
Relative humidity	≤90% no condensation	≤90% no condensation
Pressure	96 kPa ~ 104kPa	50 kPa ~ 106kPa

11. Detailed list of host machine, accessories, and consumer goods

Item	Name	Quantity	Remark
Host machine	Anesthetic workstation frame	1	Spare part
	evaporator	1	Spare part
	Respiratory circuit system	1	Spare part
accessories	O2 feeding pipeline	1	Spare part
	N2O feeding pipeline	1	Spare part
expendables	Breathing pipeline	1 set	Spare part
	Face mask	1	Spare part
Files with machine	User manual	1	Spare part
	Product certificate	1	Spare part
	Guarantee card	1	Spare part

12. Guarantee

Beijing Eternity sells this product according to the following assurances. The assurances are valid to those products purchased directly in new products form from Beijing Eternity or dealers authorized by Beijing Eternity and valid to those product purchasers. The assurances are invalid to those products purchased on resale purpose.

Beijing Eternity assures all products (except consumable assemblies) accord with the product statement in user's manual without function defects in material and arts and crafts in 12 months beginning with initial delivery to purchaser. In any case the assurance term will not exceed two years beginning with initial delivery to authorized dealers from Beijing Eternity. The premises are correct operation in normal condition, periodic maintenance, all changes and repairs proceeded according to instruction. The assurance term to consumable assemblies is 30 days. The above assurances are invalid in the following status: the repair works are accomplished by other companies; the repair works are not carried out according to the written instruction provided by Beijing Eternity; the products are modified by anybody do not belong to Beijing Eternity; the products are abused, misused, used carelessly or suffer misadventures.

According to the above assurances, the only obligation and the only compensation of Beijing Eternity are limited to free repair or replace(decided by Beijing Eternity) the products. Users should call the nearest Beijing Eternity client service center when finding the products defective. If Beijing Eternity asks the users to send the products back, it should be returned to the client service center in normal business hours in seven days beginning with assurance term expiry. Furthermore, the users should state the products defect in written form and prepay the carriage. Beijing Eternity will provide free repair or replace it when the case is verified to accord with assurances condition assuredly.

Operation Manual
for AM852 Veterinary Anaesthesia machine

Version 15.01.

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Beijing Eternity Electronic Technology CO., LTD