



User Manual

VETERINARY VIDEOSCOPE

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Precautions

Prior to using this video endoscope, be sure to undertake sufficient practice in correct sequences, not least read this manual carefully to have full understanding of each content to avoid serious adverse consequences to the patients or users. Meanwhile, it is also necessary to carefully read the operating manuals of other devices and accessories associated with this manual and handling issues.

The hazards it may bring during the operation of video endoscope normally include: perforation, electric burns and stimulation, bleeding, infection, rupture, etc. Knowing that incompliance with the User Manual may damage the video endoscope or cause malfunction.

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Important Information — Please Read Before Use

Intended use

This instrument has been designed to be used with an Aohua video system center, and other ancillary equipment for endoscope diagnosis, treatment and video observation. Do not use this instrument for any purpose other than its intended use.

User qualifications

The operator of this instrument must be a trained and qualified veterinarian.

Instrument compatibility

Using incompatible equipment can result in animal or operator injury and/or equipment damage. Before use, please refer to this manual to confirm that this instrument is compatible with the ancillary equipment.

Spare equipment

Be sure to prepare another endoscope to avoid that the examination will be interrupted due to equipment failure or malfunction.

Repair and modification

This instrument does not contain any user-serviceable parts. Do not disassemble, modify or attempt to repair it; animal or operator injury, equipment damage and/or the failure to obtain the expected functionality can result. This instrument should be repaired by Aohua authorized personnel only.

Signal words

The following signal words are used throughout this manual:

Warning

It indicates a potentially hazardous situation, if not be avoided, could result in death or serious injury.

Caution

It indicates a potentially hazardous situation, if not be avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.

Warnings and cautions

Follow the warnings and cautions below when handling this instrument.

Warning:

- ◆ After using this instrument reprocess and store it according to the instructions.
- ◆ Do not strike, bend, hit, pull, twist, or drop the endoscope's distal end, insertion tube, bending section, control section, universal cord, or light guide connector of the endoscope with excessive force.
- ◆ Never perform angulation control forcibly or abruptly.
- ◆ Never insert or withdraw the endoscope's insertion tube while the bending section is locked in position.
- ◆ Never perform flexibility adjustment, operate the bending section, feed air or perform suction, insert or withdraw the endoscope's insertion tube, or use endo-therapy accessories without viewing the endoscopic image.
- ◆ Never perform flexibility adjustment, operate the bending section, feed air or perform suction, insert or withdraw the endoscope's insertion tube, or use endo-therapy accessories while the image is frozen.
- ◆ Never insert or withdraw the endoscope's insertion tube, use endo-therapy accessories while the image is magnified.
- ◆ Do not touch the light guide connector immediately after removing it from the video system center because it is extremely hot.
- ◆ When the endoscopic image does not appear on the monitor, the CCD may have been damaged. Turn the video system center OFF immediately.
- ◆ If it is difficult to insert the endoscope, do not forcibly insert the endoscope and stop the endoscopy.
- ◆ To avoid the risk of electric shock, the equipment must only be connected to a supply mains with protective earth.
- ◆ Please check thoroughly to make sure there is no interference or collision between the patient and other equipment.
- ◆ The equipment can not be used with life support equipment ,and the other equipment that have

serious impact on the lives of patients ,or can not be used with the treatment effect of other equipment or low current measurement or treatment equipment in the same room.

Caution:

- ◆ Do not pull the universal cord during an examination.
- ◆ Do not touch the electrical contacts inside the electrical connector.
- ◆ Do not apply shock to the distal end of the insertion tube, particularly the objective lens surface at the distal end.
- ◆ Do not twist or bend the bending section with your hands.
- ◆ Do not squeeze the bending section forcefully.
- ◆ Do not hit or bend the electrical contacts on the light guide connector.
- ◆ Electromagnetic interference may occur on this instrument near equipment marked with the following symbol or other portable and mobile RF communications equipment.

Labels and Symbols



Category tags: BF type class I



Ground terminal



Note! Consult the accompanying document.



Potential equalization terminal



Catalogue Number



Consult instructions for use



Date of manufacture



Keep away from rain



Manufacturer



Use-by date



Protect from heat and radioactive source



Series Number



Fragile, handle with care



Stack up



Temperature limit

Note:

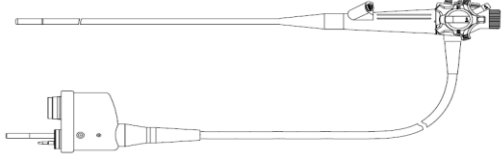

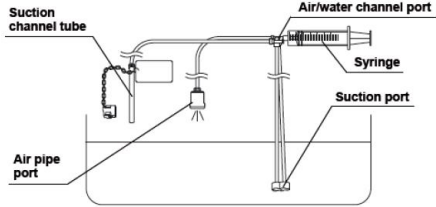
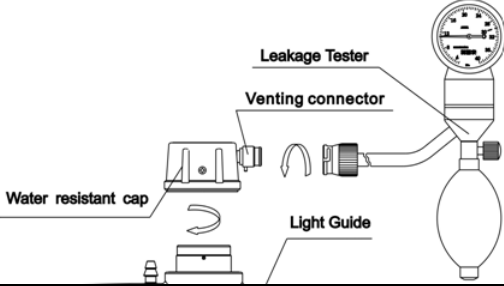
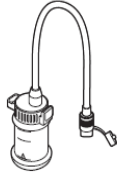
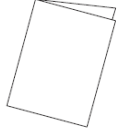
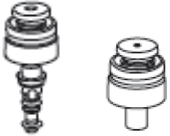
- The equipment is water-resistant.
- Water-resistant: IPX7

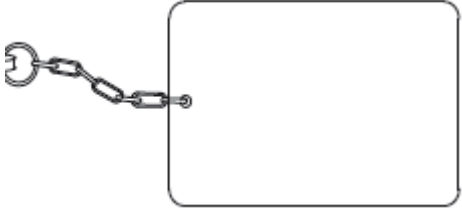

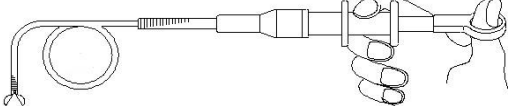

Chapter 1 Checking the Package Contents

Caution:

Match all items in the package with the components shown below. Inspect each item for damage. If a component is missing or damaged, please contact Aohua.

Package Contents

VET-8015 endoscope	1pc	
Biopsy cap	3pcs	
Cleaning kits	1pc	
Leakage tester & Water resistant cap	1pc	
Carrying case	1pc	
Water bottle	1pc	
Instruction manual	1 pc	
Spare suction / air water valves set	1pc	

Plug information card	1pc	
Cleaning cap	1pc	
Biopsy forceps	2pcs	
Cleaning brush	2pcs	

Ps. This endoscope requires a video image processor to constitute a video endoscopy system.

Model of video image processor: LG-200/VET-OR1000/VET-OR1000Li/VET-OR1000R

VETOR1200HD

Chapter 2 Nomenclature and Functions

2.1 Nomenclature

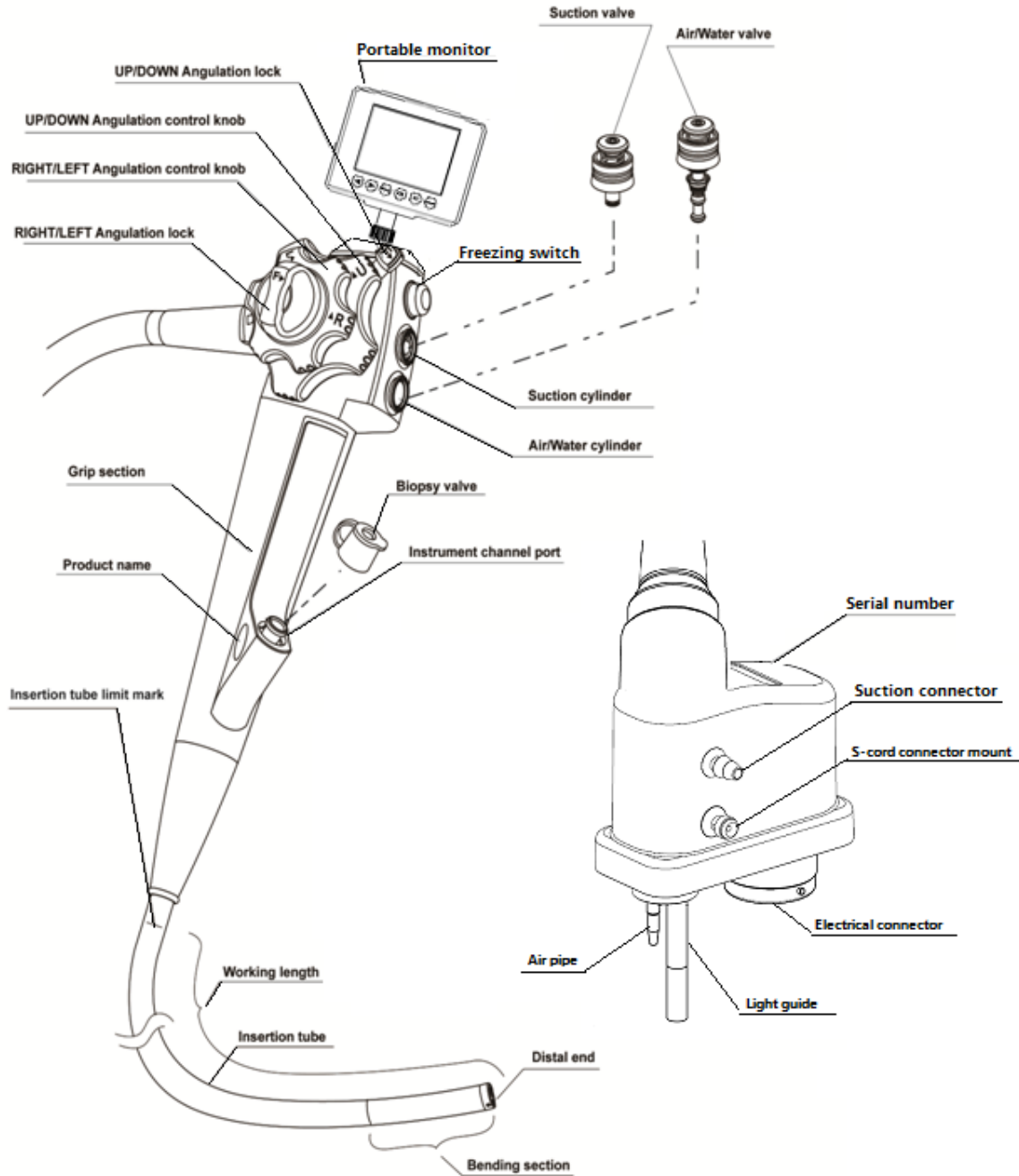


Figure 2.1 (split unit)

This device is applied for observation, diagnosis and treatment of various diseases inside of animals. And it is easy for users to carry it based on its portable design.

2.2 Functions

1. Suction connector

Connect the endoscope to the suction tube of the suction pump.

2. S-cord connector mount

Connect the endoscope with electrosurgical unit via the S-cord.

3. Water supply connector and air supply connector

Connect the endoscope to the water container via the water container tube, to supply water to the distal end of the endoscope.

4. Light guide connector

Connect the endoscope to the output socket of the video system center and transmits light from the video system center to the endoscope.

5. UP/DOWN angulation control knob

Move the bending section UP/DOWN by operating it.

6. UP/DOWN angulation lock

Moving this lock in the “F” direction frees angulation.

7. Suction valve

This valve is depressed to active suction.

8. Air/Water valve

The hole in this valve is covered to insufflate air and the valve is depressed to feed water for lens washing. It also can be used to feed air to remove any fluid or debris adhering to the objective lens.

9. Instrument channel

The instrument channel functions as:

△channel for the insertion of endo-therapy accessories

△suction channel

△fluid feed channel

10. Insertion tube limit mark

This mark shows the maximum point to which the endoscope may be inserted into the animal's body.

11. Bending section

This section moves the distal end when the UP/DOWN and RIGTH/LEFT angulation control knobs are operated.

12. Right/Left angulation lock

Turning this lock in the “F▼” direction frees angulation.

13. Right/Left angulation control knob

When this knob is turned in the “R▲” direction, the bending section moves RIGTH.

2.3 Specifications

Operating environment:

- ◆ Ambient temperature: +5°C to +40°C
- ◆ Relative humidity: 30% to 85%
- ◆ Atmospheric pressure: 700 to 1060hPa

Specifications:

Direction of view	Forward viewing
Field of view	140°
Depth of field	3—100mm
Total length	1825mm
Working length	1500mm
Distal end outer diameter	Φ8.5mm
Insertion tube outer diameter	Φ8.0mm
Instrument channel inner diameter	Φ2.0mm
Angulations range of bending section	U210° D90° L100° R100°

Chapter 3 Preparation and Inspection

Before each case, prepare and inspect this instrument as instructed below.

Warning:

- ◆ Using an endoscope that is not functioning properly may compromise animal or operator safety and may result in more severe equipment damage.
- ◆ This instrument was not cleaned, disinfected or sterilized before shipment. Before using this instrument for the first time, reprocess it according to the instructions.

3.1 Preparation of the equipment

Prepare the endoscope, video system center, MP4 monitor, and connection manner between the endoscope and the video system center.

1. Plug the light guide connector into the socket of the video system center according to Figure 3.1.

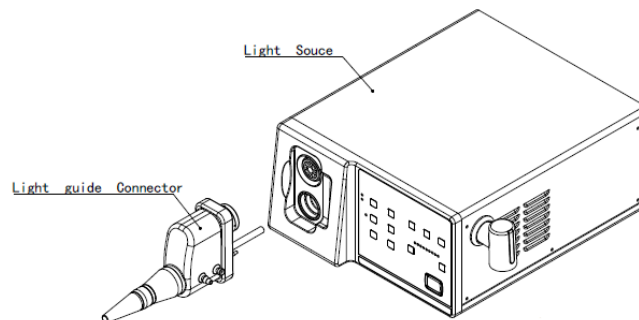


Figure 3.1

2. Connect 3.5" MP4 monitor to the endoscopes according to Figure 3.2.

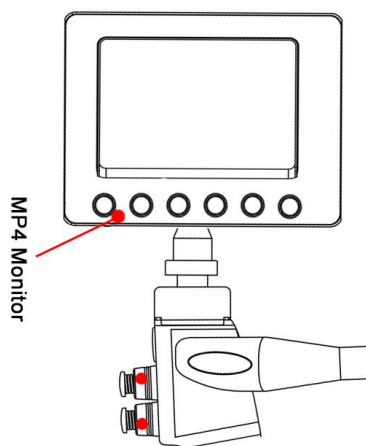


Figure 3.2

3. Power on both Processor and MP4 monitor. Press the Button of “VIDEO” at the front panel. Wait the images shown on the LCD screen. If there is abnormal color of images, please press W.B (white balance) to adjust the color. (Aim to the white object while pressing the W.B button. If red light lit, the WB setting is finished).

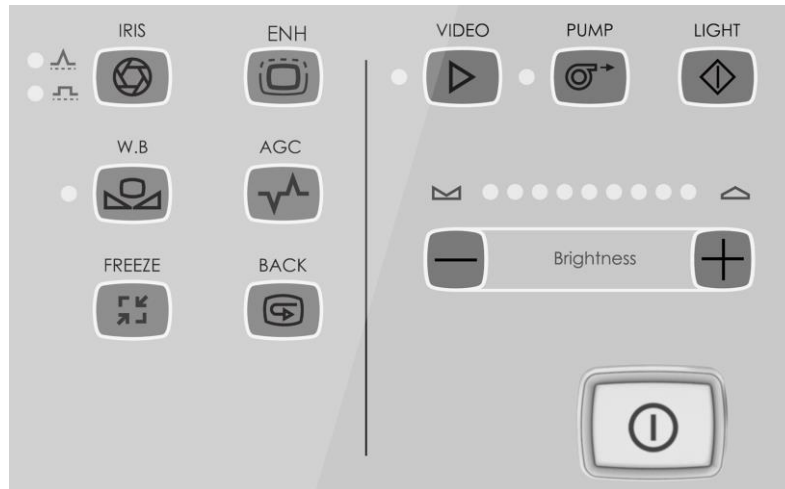


Figure 3.3

3.1.1 Preparation before suction

△Confirm that the place and suction performance of the suction pump is in good condition.

Connect the suction flexible tube of the suction unit and the suction connector of the light guide connector of the video endoscope. Switch on the power supply of the suction unit, then dip the distal end of the endoscope in water, and control suction through the suction valve of the endoscope.

3.1.2 Preparation of air/water feeding system

△Distilled water or purified water should occupy 80% of the bottle volume. Then, tighten the cap, and place the bottle at the location designated on the video system center.

△Connect the bottle and the light guide connector.

△Turn on the air pump, operate the air/water valve to control air/water feeding, and make sure that the function is normal.

3.2 Inspection of the endoscope

Clean and disinfect or sterilize the endoscope, then remove the water-resistant cap from the light guide connector.

Inspection of the endoscope

1. Inspect the control section and the light guide connector for excessive scratching, deformation, loose parts or other irregularities.
2. Inspect the boot and the insertion tube near the boot for bends, twists or other irregularities.
3. Inspect the external surface of the entire insertion tube including the bending section and the distal end for dents, bulges, swelling, scratching, holes, sagging, transformation, bends, adhesion of foreign bodies, dropout of parts, any protruding objects or other irregularities.
4. Slowly operate the angulation control knob to confirm that the bending section, the angulation control knob and the angulation lock are flexible, effective, reliable, and free from any jamming.
Make sure that the bending angle meets the use of requirement. (See Figure 3.4)

(★ For the bending section, do not bend or straighten a tube with your hands forcibly).



Figure 3.4

5. Inspect the sealing property of the video endoscope as following steps:
 - make sure the portable monitor is removed from the endoscope, and the sealing cap is installed correctly onto the portable monitor connector.
- △ Connect the leakage tester to the endoscope according to the method shown in Figure 3.5.
(★During the leakage test, make sure to seal the cable socket of the endoscope with a water-resistant cap well, and detach the light guide connector of the endoscope from the video system center. Otherwise, damage of the endoscope can be caused).
- △ Press the leakage tester to reach 20 Kpa. Make sure that the reading indicated by the pointer falls after stop pressing.
- △ If the reading indicated by the pointer slowly falls, continue to slowly pressurize (**not exceed 20 Kpa, otherwise the video endoscope will be damaged**). Meanwhile, put the video endoscope in

water, observing whether there are continuous bubbles on the surface of the endoscope or not (**normally, three or less bubbles per minute is acceptable**). If bubbles continuously appear, stop using this equipment, and contact After-sales Service Department of Aohua timely.

△If there is not any change of the leakage tester's pointer, that means the video endoscope has a sound sealing property, the endoscope can be used normally or cleaned or disinfected.

6. Inspect the objective lens and light guide lens at the distal end of the endoscope's insertion tube for scratching, cracks, stains, or other irregularities.

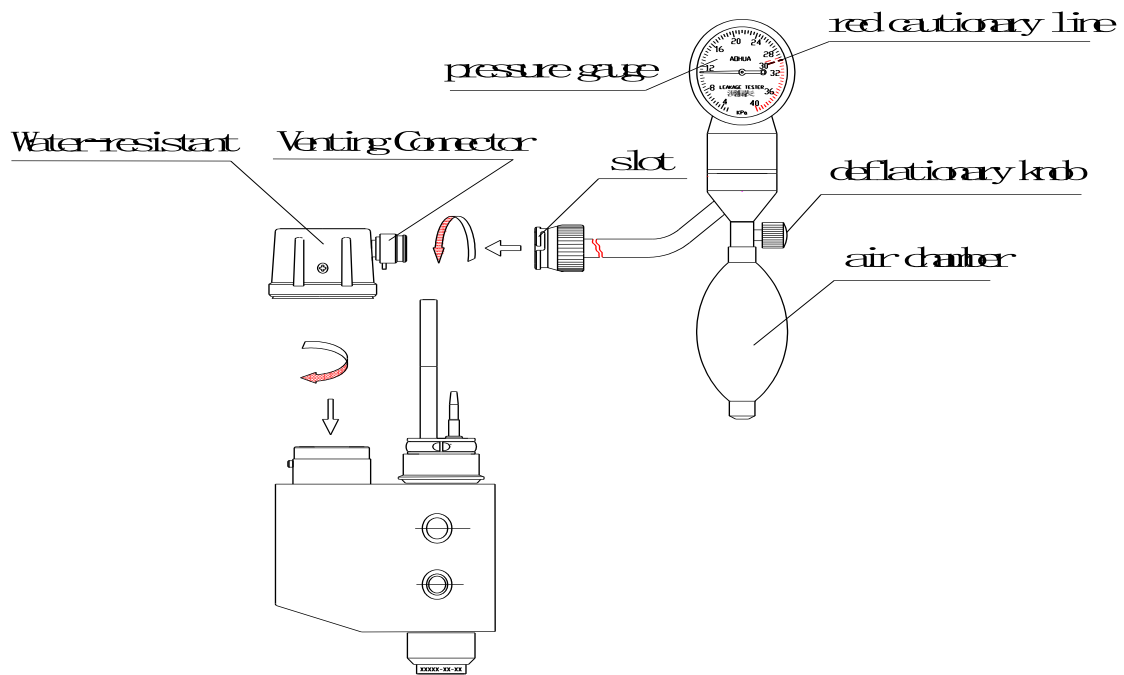


Figure 3.5

7. Inspect the air/water nozzle at the distal end of the endoscope's insertion tube for abnormal swelling, bulges, dents or other irregularities.

△ Press the air/water valve to confirm that air/water is supplied at the distal end. After loosening your hand, confirm that air/water feeding stops.

△ Dip the distal end in water, and press the suction valve to confirm that water is aspirated. Loosen your hands, and make sure that such suction stops.

8. Inspection of the biopsy forceps

△ Bend the biopsy forceps into a circle with the diameter of 20 cm. When slightly operating the biopsy forceps, make sure that the head of the biopsy forceps can be opened or closed smoothly.

(See Figure 3.6)

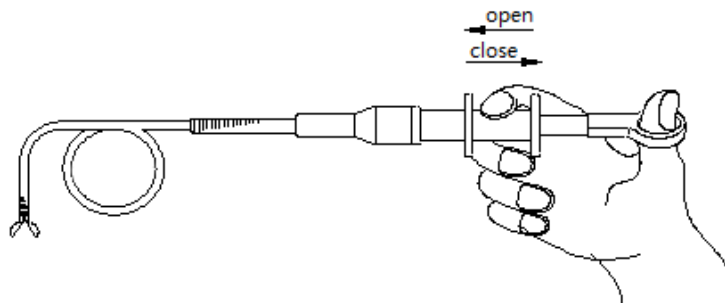


Figure 3.6

- △ Check the biopsy forceps according to the operation instructions for accessories, etc.
- △ When finding that the operation or appearance of the biopsy forceps goes wrong, be sure to replace it with a new one.
- △ Hold the grip section, slightly insert the biopsy forceps into the instrument channel, and confirm that the instrument channel is clear and the biopsy forceps can smoothly be extended from the distal end.

3.3 Attaching accessories to the endoscope

Caution:

The air/water valve and the suction valve do not require lubrication. Lubricants can cause swelling of the valves' seals, which will impair valve function.

3.3.1 Attaching the suction valve

1. Align the two metal ridges on the underside of the suction valve with the two holes in the suction cylinder.
2. Attach the suction valve to the suction cylinder of the endoscope. Confirm that the valve fits properly without any bulging of the skirt. Also confirm that the valve cannot be rotated.

Note:

Suction valve will make a whistling noise when it is dry; this does not indicate a malfunction.

3.3.2 Attaching the air/water valve

1. Attach the air/water valve to the air/water cylinder of the endoscope.
2. Confirm that the valve fits properly without any bulging of the skirt.

Note:

The air/water valve may stick at first, but it should operate smoothly after it is depressed a few times.

3.3.3 Attaching the biopsy valve

Warning:

If a biopsy valve is not properly connected to the instrument channel port, it can reduce the efficacy of the endoscope's suction system and may cause animal debris to leak or spray from the endoscope. Attach the biopsy valve to the instrument channel port of the endoscope. Confirm that the biopsy valve fits properly.

3.4 Inspection of the endoscopic image

Warning:

Do not stare directly at the distal end of the endoscope while the examination light is ON. Otherwise, eye injury may result.

- ◆ Turn the video system center, MP4 monitor ON and inspect endoscopic image.
- ◆ Confirm that light is output from the endoscope's distal end.
- ◆ While observing the palm of your hand, confirm that the endoscopic image is free from noise, blur, fog or other irregularities.
- ◆ Angulate the endoscope and confirm that the endoscopic image does not momentarily disappear or displays any other irregularities.

Note:

If the object cannot be seen clearly, wipe the objective lens using a clean lint-free cloth moistened with 70% ethyl or isopropyl alcohol.

Chapter 4 Operation

The operator of this instrument must be physician or medical personnel under the supervision of a physician and must have received sufficient training in clinical endoscopic technique.

Warning:

- ◆ Wear personal protective equipment to guard against dangerous chemicals and potentially infectious material during the procedure.
- ◆ Whenever possible, avoid close stationary viewing and do not leave the distal end of the endoscope close to the mucous membrane for a long time.
- ◆ Whenever possible, do not leave the endoscope illuminated before and/or after an examination.
- ◆ If an abnormal endoscopic image or function is observed, but quickly corrects itself, the endoscope may have malfunctioned.
- ◆ Never perform flexibility adjustment while the endo-therapy accessory extends from the distal end of the endoscope.
- △ Confirm cleaning and disinfection;
- △ Reconfirm the connection condition;
- △ Use a piece of lens paper to slightly apply silicone oil on the distal end observation window and the illuminating window;
- △ If required, apply lubricant on the appearance of the insertion tube on the bending section and the soft section. (**★ Lubricant is free from grease substances. Otherwise, the rubber tube may be damaged. Don't apply too much lubricant on the observation window and the illuminating window. Otherwise, it will affect the clearness and brightness of view.**)

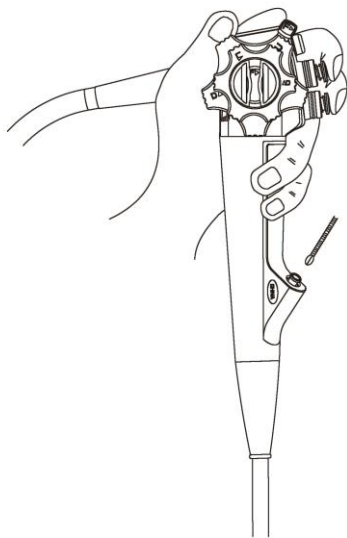


Figure 4.1

4.1 Insertion

4.1.1 Holding and manipulating the endoscope

The control section of the endoscope is designed to be held in the left hand. The air/water and suction valves can be operated using the left index finger. The UP/DOWN angulation control knob can be operated using the left thumb. The right hand is free to manipulate the insertion tube and the RIGHT/LEFT angulation control knob.

4.1.2 Insertion of the endoscope

Caution:

- ◆To prevent the animal from accidentally biting the insertion tube during an examination, it is strongly recommend that a mouthpiece be placed in the animal's mouth before inserting the endoscope.
- ◆Do not apply olive oil or products containing petroleum-based lubrications. These products may cause stretching and deterioration of the bending section's covering.
- ◆Do not allow the insertion tube to be bent within a distance of 10cm or less from the junction of the boot. Insertion tube damage can occur.

4.1.3 Insertion and Observation

- ◆Switch on the power supply of the video system center, and turn on the CCD power switch.
- ◆Press the white balance button of the video system center, and adjust the reflected real color.
- ◆Adjust the illumination of the video system center to make the luminance suitable for observation.
- ◆As required, supply air and water, operate the angulation hand wheel, adjust the angulation to move the distal end of the video endoscope to the place to be observed, and slowly insert the distal end when observing.
- ◆If images become vague due to mucus, etc., press the water valve to wash the endoscope surface. Then, you can quickly make images clear by both air feeding and suction.

4.1.4 Angulations of the distal end

Caution:

Avoid forcible or excessive angulation, as this imposes load on the wire controlling the bending section. This may cause stretching or tearing of the wire, which could impair the movement of the bending section.

1. Operate the angulation control knobs as necessary to guide the distal end for insertion tube and observation.
2. The endoscope's angulation locks are used to hold the angulated distal end in position.

Note:

- When passing an endo-therapy accessory through the instrument channel while the angulation is locked, the angle of the distal end may change. When it is necessary to keep the angulation stationary, hold the angulation control knob in place with your hand.
- When operating the UP/DOWN or RIGHT/LEFT angulation lock, hold the angulation control knob stationary with your finger. If this is not done, the angulation will change.

4.2 Use of the Biopsy Forceps

- ◆ Open the protective rubber cap of the biopsy mouth on the grip section of the video endoscope;
- ◆ Close the biopsy forceps tightly and insert them in the biopsy mouth slowly;
- ◆ When observing an objective within field of vision, align the biopsy forceps with the desired objective, open the small bowl of the biopsy forceps to catch the objective;
- ◆ After catching any living tissue or foreign matter, closing the biopsy forceps tightly and pull out them of the biopsy mouth;
- ◆ If a foreign matter doesn't pass the biopsy channel due to its large size; withdraw the video endoscope and the biopsy forceps from the mouth of the animal;
- ◆ After withdrawing the biopsy forceps or other instruments, cover the protective rubber cap of the biopsy mouth.

(★To insert or withdraw the biopsy forceps or other instruments please close the small bowl or the moving part at the head of the biopsy forceps).

4.3 Withdraw the endoscope

4.3.1 Withdrawal of the endoscope

If blood unexpectedly adheres to the surface of the insertion tube of the withdrawn endoscope, carefully check the condition of the animal

1. Aspirate accumulated air, blood, mucus, or other debris by depressing the suction valve.
2. Turn the UP/DOWN and RIGHT/LEFT angulation locks to the “F▼” direction to release them.
3. Loosen the up/down angulation lock and left/right angulation lock, confirm that you can withdraw the endoscope from the mouth of the animal after making the bending section straight.
4. Carefully withdraw the endoscope while observing the endoscopic image.
5. After using the endoscope, be sure to switch off the CCD power supply of the video system center, and disconnect the light guide connector from the video system center.

★Since the video system center causes the surface temperature of the exit window at the front end of the light guide connector exceed 41°C, you cannot touch it with your hands or skin as soon as withdrawing the light guide of this endoscope; after a while (at least two minutes), you can touch it on the hand or skin to prevent from being scalded.

4.4 Transportation of the endoscope

4.4.1 Transporting outside the animal hospital

Transport the endoscope in the carrying case.

Warning:

Always clean, disinfect or sterilize the endoscope after removing it from the carrying case. If the endoscope is not cleaned, disinfected or sterilized, it could pose an infection-control risk.

Caution:

- ◆ The carrying case cannot be cleaned, disinfected or sterilized. Clean and disinfect or sterilize the endoscope before placing it in the carrying case.
- ◆ Do not attach the water-resistant cap when transporting the endoscope, to avoid damage to the endoscope caused by changes in air pressure.
- ◆ Before putting the endoscope in the carrying case, always make sure that the insertion tube is set to the most-flexible condition. Putting the endoscope in the carrying case while the insertion tube is rigid could damage the endoscope.

4.5 Cleaning and disinfection of the endoscope

When each inspection ends, detach the light guide connector from the video system center and clean it, particularly the mucus on the distal end or in the tube, etc. If the light guide connector isn't washed for a long time, it may make the performance of the endoscope abnormal. Before cleaning and disinfection, make sure to cover the water-resistant cap to avoid water inflow or moisture.

★Whenever each clinical examination case ends, be sure to clean and disinfect the endoscope immediately.

The cleaning and disinfection include automatic and manual method. Our company only introduces how to manually clean and disinfect the video endoscope. For the automatic method, consult the instructions for relevant equipment.

4.5.1 Cleaning of the Video endoscope

Caution:

Leakage test of the endoscope is always required before each cleaning, please refer to the leakage testing process in chapter 3.2.

- △ Remove the air/water valve, suction valve and biopsy valve, wash them with clear water, and put them in disinfectant.
- △ Clean the insertion tube with gauze or soft sponge in clear water.
- △ Immerse the insertion tube in detergent solution, cleaning the insertion flexible tube slightly and repeatedly with gauze or soft sponge.
- △ Insert a cleaning brush into the instrument channel and the suction cylinder to brush the inner wall of the instrument channel tube. (See Figure 4.2)
- ★ Do not move the cleaning brush backward until the head of the brush is completely exposed at the distal end to avoid damaging the inner wall of the tube.
- △ Before cleaning the air/water tube, connect the purge pipe of the tube cleaner (disinfector) to the air feeding joint at the light guide connector. Meanwhile, plug the tube cleaner (disinfector) to the water bottle connector and the air/water cylinder of the endoscope. Then, put the inlet valve of the tube cleaner (disinfector) in detergent solution, and repeatedly aspirate the syringe to wash the air/water channel tube. (For the connection and operation method, see Figure 4.3 Tube Cleaning and Disinfection)

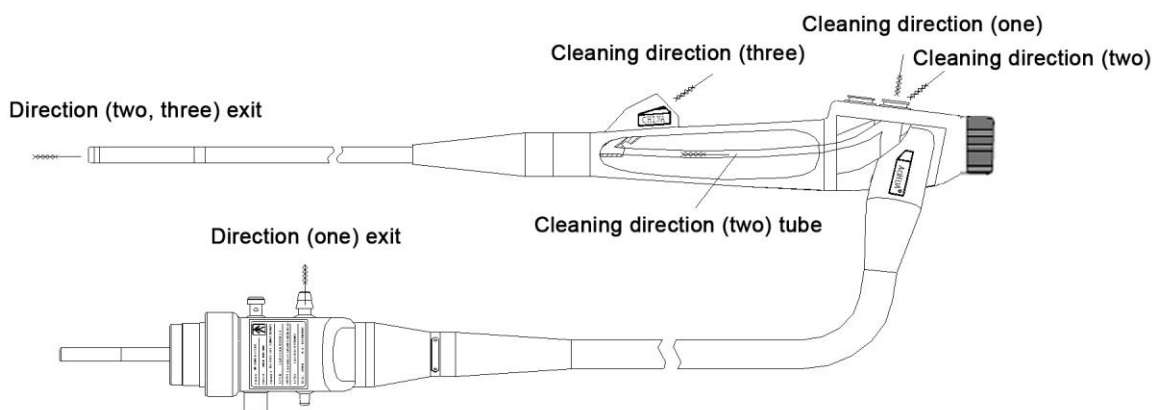


Figure 4.2

△Before cleaning the suction and instrument channel tubes, connect the purge pipe of the tube cleaner (disinfector) to the suction connector on the light guide connector. Meanwhile, plug the tube cleaner (disinfector) to the suction cylinder and the biopsy port of the endoscope. Then, put the inlet valve of the tube cleaner (disinfector) in detergent solution, and repeatedly aspirate the syringe to wash the suction and instrument channel tubes. (For the connection and operation method, see Figure 4.3 Tube Cleaning and Disinfection.)

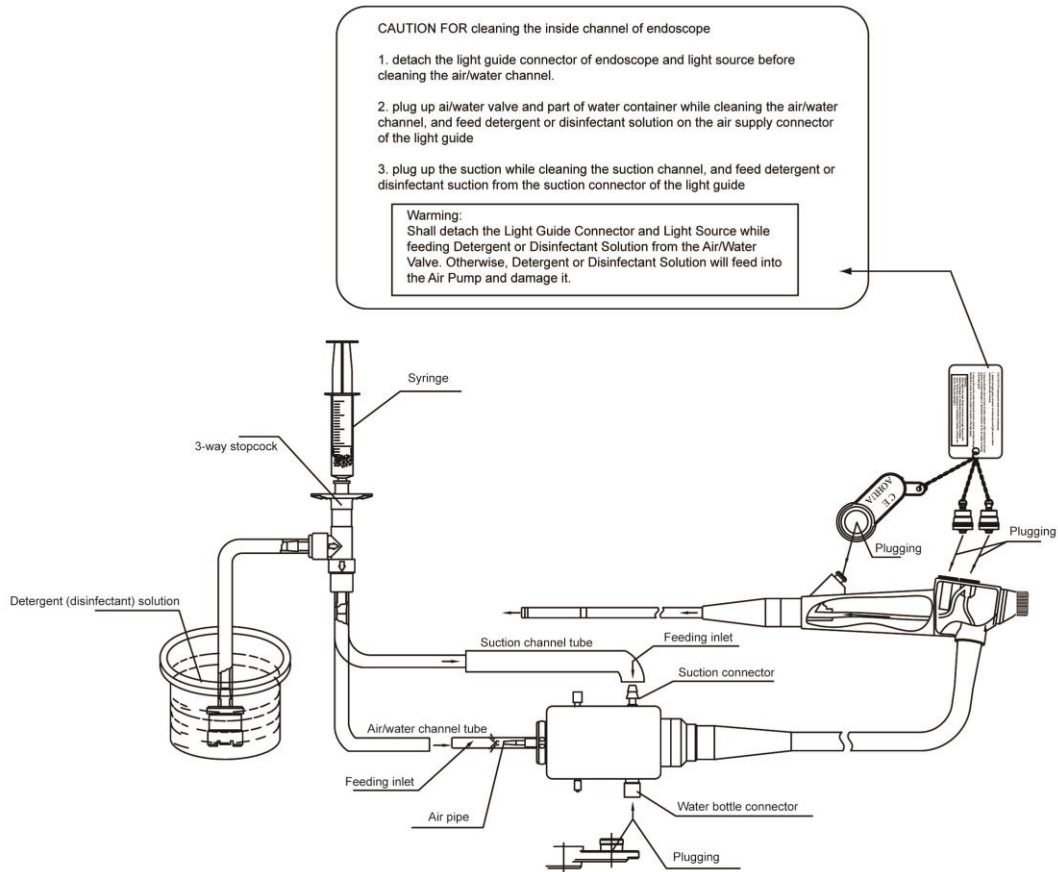


Figure 4.3

4.5.2 Disinfection of the video endoscope

As a waterproof endoscope, this product can be entirely immersed to undergo disinfection. Before immersing the endoscope, check its sealing property.

- △ Immerse the video endoscope in detergent solution; clean the insertion flexible tube slightly and repeatedly with gauze or soft sponge.
- △ Put the inlet valve of the tube cleaner (disinfector) in detergent solution. According to the cleaning method of the air/water tube, instrument channel tube and suction tube of the endoscope, disinfect them respectively.
- △ After disinfecting the endoscope, rinse it with clear water to remove the disinfectant residual. Meanwhile, get rid of the disinfectant residual in the tube according to the cleaning method of the air/water tube, instrument channel tube and suction tube of the endoscope.
- △ Use dry gauze to wipe the surface of the video endoscope.
- △ Seal the water bottle connector on the light guide connector and the air/water valve on the grip section, then connect the light guide connector to the video system center, and turn on the air pump to thoroughly dry the air/water channel tube.
- △ Seal the biopsy block and suction valve, connect the suction tube, switch on the suction pump to completely dry the suction tube and instrument channel tube, and then detach the light guide connector from the video system center.
- △ Use clear water to rinse the air/water valve, suction valve and biopsy valve, wipe them with dry gauze, and then install them on the corresponding connectors.
- △ Use gauze with alcohol (70%) to clean the surface of the whole video endoscope.

Caution:

- △ Some disinfectant may damage some materials (e.g., synthetic resin and rubber, etc.) used in the video endoscope. Before using any disinfection, fully ensure the safety of the video endoscope.
- △ According to the long-term test and clinical use, the following disinfectant solution will do no harm to the video endoscope if it is correctly used:
 - Chlorhexidine solution
 - Glutaraldehyde solution
- △ The following disinfection methods, which will cause major faults to the video endoscope, should be prohibitive!
 - ◆ Heating and pressing EGO disinfection at the atmospheric pressure of over 1.5 and the temperature of over 40°C.
 - ◆ USC or disinfection
 - ◆ Scalding
 - ◆ Disinfection by drying
 - ◆ Steam disinfection
 - ◆ Disinfection by cresol solution or formaldehyde
 - ◆ Disinfection by using chlorobenzene to rinse the disinfectant solution not diluted
- △ During disinfection or when the video endoscope isn't used, put the water-resistant cap on the light guide connector to avoid water inflow or moisture.
- △ Don't make disinfection or soak time more than one hour because repeatedly immersing the endoscope in disinfectant solution for a long time may increase the internal humidity of the endoscope, making the lens unclear and even damaging CCD.
- △ To prevent water leakage from badly damaging the video endoscope or avoid more repair expenses, check the sealing property of the endoscope before cleaning and disinfecting the endoscope.

4.5.3 Cleaning, Disinfection or Sterilization of Other Accessories

- △ Before disinfecting accessories (e.g., the biopsy forceps, the cytology brush, etc.), carefully clean them according to their instructions.
- △ Ideally, conduct the physical cleaning by the USC at the grain level. If possible, sterilize these accessories with ethylene oxide gas, and clean them by rushing gas to get rid of toxic gas. If not disinfecting these accessories, please immerse them to disinfect, then rinse and dry them completely.
- △ For the small bowl of the biopsy forceps, use silicone oil spray or liquid lubricant to lubricate and protect it to prevent adherency.

4.6 Storage of the endoscope

◆ Ambient temperature range: -40°C to +55°C

◆ Relative humidity range: 10% to 95%

◆ Atmospheric pressure range: 500hPa to 1060hPa

★ The packaged video endoscope should be stored in an indoor environment where relative humidity is not more than 80%, no corrosive gas exists and ventilation is good.

△ Before storage, make sure to completely dry the video endoscope and try to keep it straight, and store the insertion tube in an environment without any external force influence.

△ **The endoscope box is not for safeguard. Do not safeguard the video endoscope in an endoscope box to avoid any infection.**

Chapter 5 Troubleshooting

Generally, the following troubles may happen to the video endoscope. If the problems cannot be resolved by described inspection method, stop using the video endoscope and contact Aohua after-sales service department.

Failures	Inspection Method
◆Unclear image or interference.	Make sure that the voltage is stable, or the lens is clean.
◆Water drops or stripes	Contact authorized distributor for repair.
◆No illumination or dim light	Confirm that the video system center and the light guide connector are in place.
◆Inadequate angulation or angulation failing to actuate	Contact authorized distributor for repair.
◆Angulation lock malfunction	Contact authorized distributor for repair.
◆Fail to insert the biopsy forceps and other instruments	Confirm that no foreign matter falls in the tube.
◆Weak water/air feeding or failure to supply water/air	Make sure that the connection between the video system center, the water bottle component and the water bottle connector and the light guide connector is secure, and the air pump is in good condition.
◆ Weak suction or suction failure	Inspect the suction pump, the suction tube, the suction connector and the instrument channel port.
◆Needle-like protrusions or breakage or sinking on the surface of the insertion tube	Contact authorized distributor for repair.
◆Cracks on the observation window and the illuminating window	Contact authorized distributor for repair.

Caution:

△ After being used a period of time, the distal end of the endoscope may burn animal body if it touches the body inside, so keep an eye on this point at any time when using the endoscope.

★ Once the distal end of it closes to mucosa, strong light will focus on a very small area. Thus, the surface temperature in this area can rise, may cause burns.

Under the following circumstances, growing risk of burns may result:

◆ Propel the video endoscope along the narrow lumen;

To reduce the risk of burn, adopting the following methods:

◆ Avoid long observation at a fixed point as far as possible.

△ Don't storage the video endoscope in a high temperature, humid, and dusty environment.

△ If the video endoscope is exposed in X-ray, the internal CCD and other meticulous component will

aged and change color.

△ Do not align the distal end of the video endoscope with strong light (e.g., sunlight, emergent light of a light source, etc.) because CCD as a sensitive, precision device is easily damaged.

△ For equipment connecting with the endoscope, such as the video system center, the suction pump, make sure to use three-pin plug and socket and connect the grounding cable to the power supply. (If such equipment triggers any electric shock, burn or other accidents due to violation of the operation standard, the full responsibility is assumed by the user).

△ To use the video endoscope together with the video system center, better connect a voltage regulator with over 1000 W and automatic regulation function. Don't use a voltage regulator for household purpose on the video endoscope and the system center.

△As the video endoscope goes wrong, stop using it without delay and contact our after-sales service department, or contact the nearby franchised dealer or authorized maintenance station of our company.

★ To prevent infection and ensure the safety of all apparatus maintenance personnel, make sure to clean and strictly disinfect the video endoscope before sending the above endoscope back to our company for repair.

Warranty Card of Product

User's Information (fill out it in detail)

User's Name			
Specific Address		Postal Code	
Product Name:	Product No.:		
Purchase Place:	Purchase Date:		
Invoice No.:	Telephone:		

●The warranty card must be sent back to our company within one month after purchase of this product.

Warranty measure: Hold the invoice (or copy) of the product and contact our maintenance center. Be sure to send the warranty card of product to our company within one month after purchase of this product.

Warranty conditions: Within one year after purchase, our company is responsible for repairing any quality faults of this product free of charge.

The following cases are beyond the warranty scope:

- 1、 Any damage is caused by the improper use or safeguard of the user.
- 2、 Any damage is caused by the independent dismounting of the user.

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