

INSTRUCTIONS

VIDEO VETERINARY ENDOSCOPY

BV-15

IMPORTANT

Video veterinary endoscopy has been designed for endoscopic diagnosis and treatment within the animals' digestive tract. Do not use the instrument for any purpose other than its intended application.

Please read this entire manual carefully before using the instrument. The manual contains pertinent information on the proper care and handling of your new endoscope. Although endoscopes by nature are delicate instruments, proper handling and cleaning, as described in this manual, will greatly reduce the need for costly repair and extend the life of your new instrument.

This manual describes the recommended procedure for preparing and inspecting the equipment prior to use. It does not elaborate on how the actual procedure is to be performed. Nor does it attempt to make a beginner familiarize with endoscopic technique and the medical aspects of gastroscope. This instrument should be used only by physicians who have received the training in the art of gastroscope.

The safety and performance of an endoscopic system depends not only upon the video endoscope, but also on any ancillary equipment used with it. To ensure compatibility, it is recommended that you use only accessories confirmed by us.

As the products are ameliorated constantly, there maybe some differences between the products we provide with the products described in the manual in the aspect of the shape and the specification of the products.

If you have any questions concerning the material contained in this manual or concerning the operation or safety of the equipment, please contact us or our representative.

UPON RECEIVING THE EQUIPMENT

Please check each item in the set against the list of standard components found in Section 3. Contact our Service Center or our representative if there are any missing or defective parts. Refer to the following sections on MAIN SPECIFICATIONS and NOMENCLATURE to become acquainted with the name and function of each part of the instrument. Review the instrument preparation, inspection and cleaning/disinfecting procedures carefully.

The endoscope should be disinfected prior to its initial use.

The endoscope and accessories should be removed from the carrying case and stored as described in Section 6-2 Storage. The carrying case is not intended to be used for storage of the equipment. Retain the carrying case only for shipping or transporting the instrument.

PRIOR TO USE

In addition to thoroughly reading this manual, also refer to the instruction manuals supplied with your video processor, electronic surgical unit, accessories and other ancillary equipment.



 **WARNING**

The leakage test is a must after use Video Gastroscope every time. Do not use it if you find any leak of water, and contact us or distributors for technical support. Otherwise it will cause big trouble and do a lot of damage to the Endoscope.






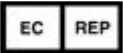

 **CAUTION**

The endoscope is a precision instrument. Its design incorporates many features to ensure patient safety. In particular, the deflection system is constructed to provide smooth response and maximal deflection of the distal tip when normal force is applied to the deflection control knobs. Excessive pressure applied to the deflection control knobs will result in damage to the endoscope and may cause patient injury. Before introducing the instrument into the patient be certain that the deflection control locks are in the “Free” (“F”) position and that the distal tip moves without resistance. If abnormal resistance is encountered when introducing the instrument or when operating the deflection mechanism, do not use the instrument. Contact us or our after-service center.

CONVENTIONS IN INSTRUCTIONS

Symbol	Explanation
 Warning	caution items about body injury
 Caution	caution items about equipment damage

CONVENTIONS ON Veterinary Video Processor

Symbol	Explanation
	The CE mark on this video processor indicates it has been tested to and conforms with the provisions noted within the 93/42/EEC MDD.
	BF type
	CONSULT INSTRUCTIONS FOR USE
	DATE OF MANUFACTURE
	MANUFACTURER
	AUTHORISED REPRESENTATIVE IN THE EUROPEAN COMMUNITY
	SERIAL NUMBER

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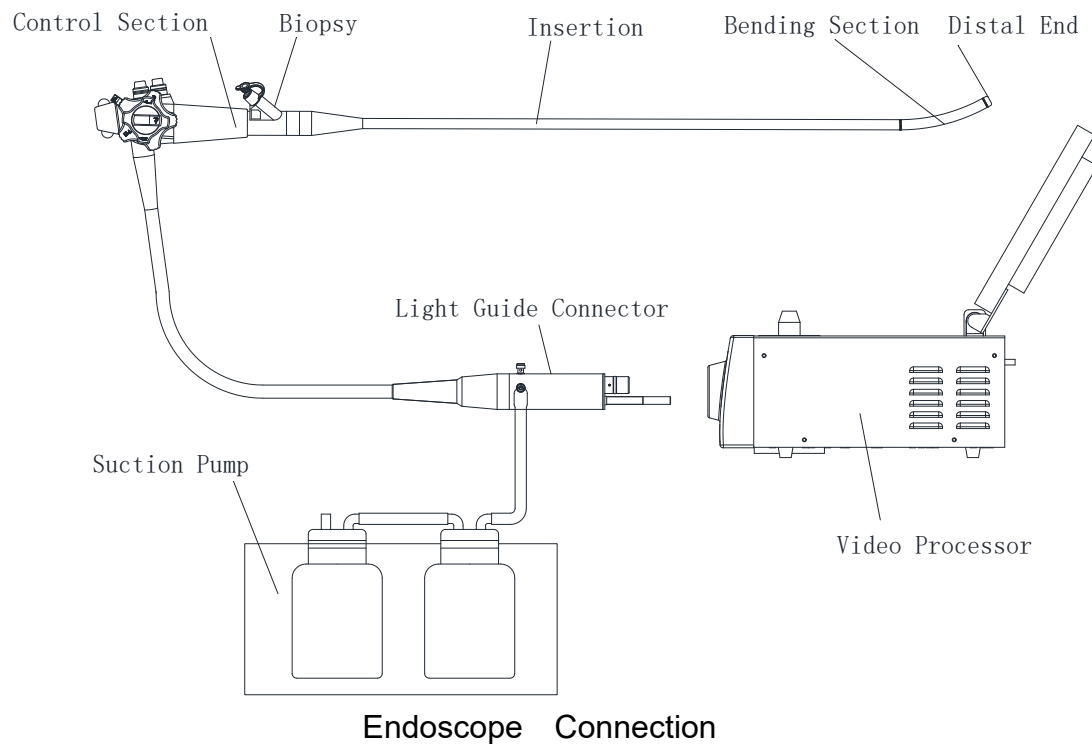
1. FEATURES AND MAIN SPECIFICATION

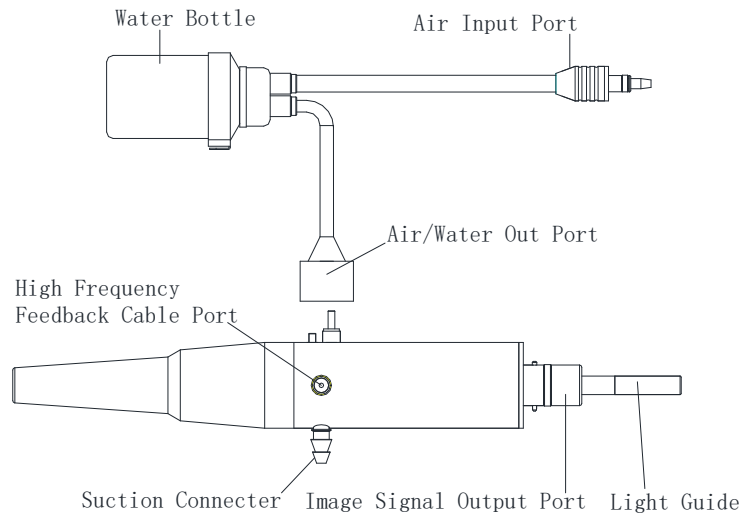
The endoscope is an upper digestive tract endoscope featuring high-resolution optics with a wide-angle lens system.

Main Specifications

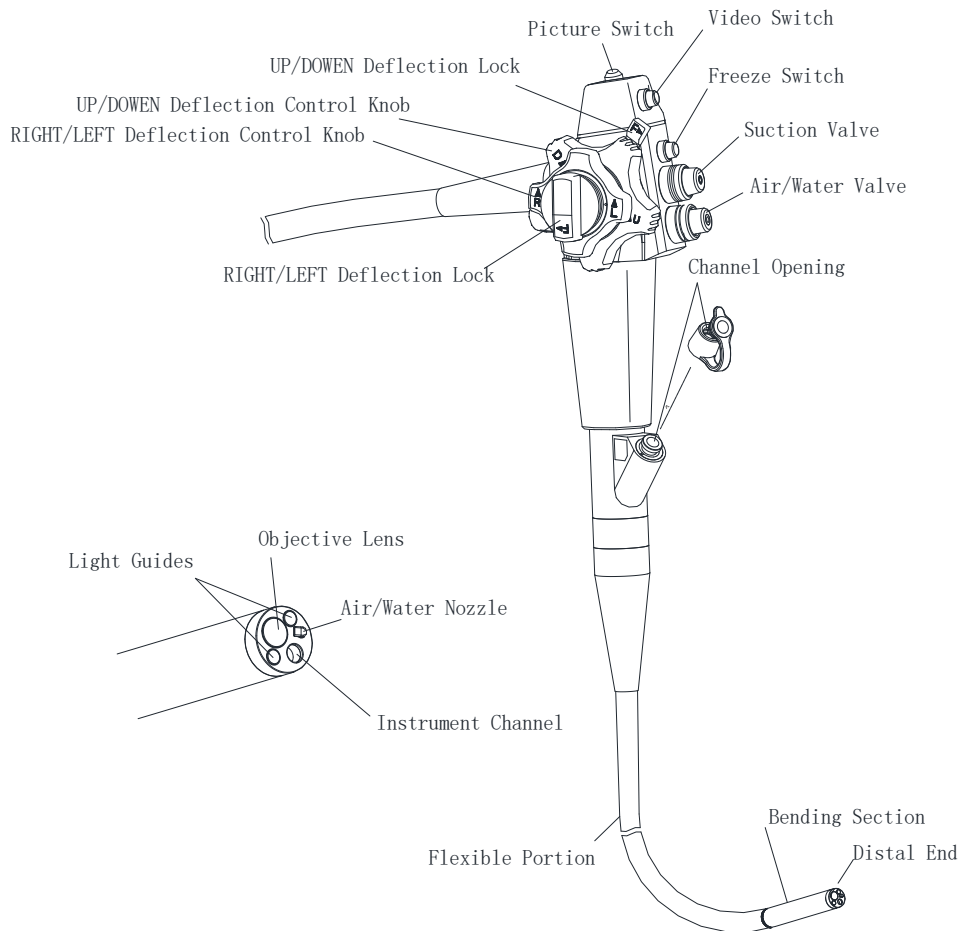
Working Length	3300mm	1500mm	1200mm
Insertion Tube Diameter	φ 12.8mm	φ 8.3mm	φ 6.3 mm
Tip Deflection	U/D 180° /180°	U/D 210° /90°	U/D 210° /90°
	L/R 160° /160°	L/R 100° /100°	L/R 100° /100°
Instrument Channel Inner Diameter	φ 3.7mm	φ 2.8 mm	φ 2.0 mm
Angle of View	120°		
Depth of View	3-100mm		
Pixel of Image	1000000		

2. NOMENCLATURE





Water Bottle Connection



Endoscope Operation

3. STANDARD SET

① Endoscope	1
② Biopsy Forceps.....	1
③ Foreign body forceps.....	1
④ Channel Cleaning Brush	1
⑤ Venting Cap.....	1
⑥ Leakage Tester.....	1

4. PREPARATION AND INSPECTION BEFORE USE

Plug the power cord (3-pin cord) into a properly grounded hospital grade receptacle (wall mains outlet)

▲ Warning
When using a 2-pin cord, securely connect the ground wire to an earth terminal. Do not connect to a gas pipe, otherwise it may cause explosion.

4-1 Preparation of Endoscope

Remove endoscope from storage area. Plug the light guide connector into the Video Processor. Fill water bottle approximately 2/3 full with distilled water. Tighten cap securely and attach to the hanger on the side of the video processor.

Connect the water bottle and suction tube to the endoscope.

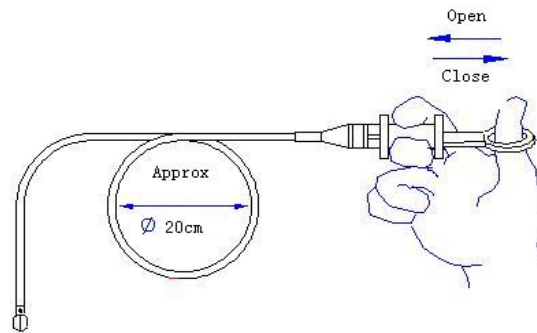
Switch ON the video endoscope processor, monitor. Check to see if there is an image on the monitor and whether the illumination of image is symmetrical. Adjust the brightness and AWB(auto white balance) to make the quality of the image best. Checking and adjusting according to the instruction manual of the video endoscope processor and monitor .

4-2 Preparation and Inspection of Biopsy Forceps

Select proper biopsy forceps for endoscope being used.

Biopsy forceps should be inspected before each use! Form a loop in the biopsy forceps approximately 20cm in diameter. Make sure that the forceps cups open and close smoothly when the handle is operated with

light force. If there is any irregularity in the operation or external appearance of a forceps, the forceps should be replaced with a new one.



4-3 Preparations and Inspection of Suction Pump

- ① Plug the power cord (3-pin cord) into a properly grounded hospital grade receptacle (wall mains outlet)
- ② Inspect the suction pump following its instruction manual, and Connect the suction tube to the suction pump and to the suction connector on the light guide section of the endoscope.
- ③ Turn ON suction pump. Dip the distal tip in water, and suction is controlled by the endoscope's suction valve.

4-4 Inspection of the Endoscope System

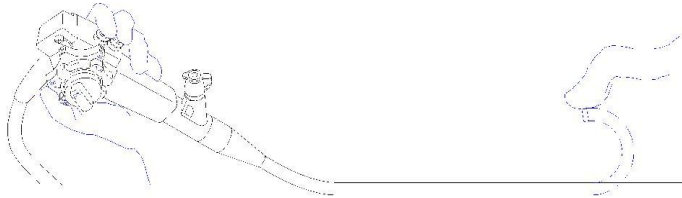
Before each use, the instrument should be inspected according to the following procedures. Should the slightest irregularity or abnormality be suspected, do not use the endoscope but contact us.

① Inspect the surface of the insertion tube visually for any dents, bugles or other irregularities. Run your fingertips over the whole length of the insertion tube checking for any protruding objects, internal looseness, or other irregularities.

② Operate the deflection control knobs slowly and to the limit in each direction. Make sure the bending section bends smoothly and correctly and that maximum deflection can be achieved. Simultaneously inspect the outer surface of the bending section for small holes, breaks, or other irregularities.

⚠ Warning

Do not bend or twist the bending section by hand while operating. Do not squeeze the bending section forcefully.



③ Check to see if an object approximately 10mm away from the objective lens can be visualized clearly.

④ Pass the biopsy forceps through the channel to confirm smooth passage. If forceps do not pass smoothly, do not force!

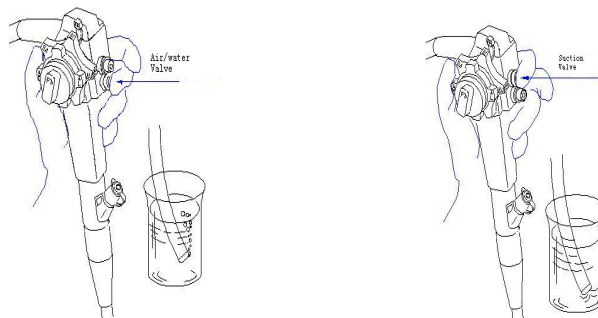
⚠ Caution

Damage will occur to both biopsy forceps and instrument channel if excess force is applied.

4-5 Inspection of Air/Water Feeding Mechanism

① The air pump inside the Video processor can emit air automatically. Use the air/water valve to emit air or water automatically. Or use the biopsy port and the instrument channel to emit air by hand.

② Switch ON the suction pump. Dip the distal end in tap water and depress the suction valve to control the action of suction.



4-6 The Final Preparation Before Use

① Disinfect or sterilize the endoscope and accessories as described in appendix I.

② Apply Silicone Wax (lens cleaner) to a piece of clean gauze and lightly wipe the objective lens and the light guide lens. Remove excess.

 **Caution**

When cleaning the objective lens, always wipe in a direction away from the air/water nozzle.

③ Lubricate the insertion tube with a water-soluble medical grade lubricant, taking care to avoid the distal tip.

 **Warning**

Do not use olive oil, lignocaine ointment, petroleum based lubricants or vaseline based lubricants. Otherwise damage will occur to the material of the endoscope.

5. OPERATION OF THE ENDOSCOPE

5-1. Operation of Air/Water

Switch ON the air pump inside the video processor. Cover the air/water valve hole with finger tip and confirm that air is emitted from the air/water nozzle. Depress the air/water valve completely, while covering the hole and confirm that water is fed through the air/water nozzle.

5-2. Operation of Suction and Transfusion

Suction: Connect the suction tube to the suction connector in the light guide connector section. Switch ON the suction pump. Depress the suction valve and secretion will be aspirated.

Transfusion: Connect the injector to the end of the transfusion tube. Insert the transfusion tube through the instrument channel and inject the solution to the proper position.

5-3. The Operation of the Biopsy

Insert the biopsy forceps into the instrument channel, and let the assistant operator make the forceps cup in closed position. Slowly advance the forceps, and when the forceps comes into view, press the distal end of the forceps against the mucosa, and pull them into the scope with the distal end thus closed in case the mucosa falling off the distal end. Withdraw the forceps.

5-4. Use with the high frequency electro surgical generator

The user must refer to the electro surgical generator manual first, and connect the electro surgical generator to the endoscope according to the sketch map in section 2.

Warning

- A. Leakage current maybe increased when using the high frequency electro surgical generator
- B. The maximum repeating peak voltage of the electronic surgical generator:
 - coagulation mode: 500V
 - cutting mode: 800V
 - blended mode: 900VHigher repeating peak voltage is prohibited.

5-5. The Troubleshooting of Endoscope

Please contact experienced doctor if the endoscope does not work properly, such as the malfunction of control system, illumination system. Withdraw the endoscope carefully under the help of the technician. If necessary, use the X-ray apparatus. Any improper operation will cause damage to the lumen.

6. MAINTENANCE AND CARE

6-1 Care for Storage

① The endoscope must be dried thoroughly prior to storing. Take special care to dry the distal tip, and all lens. Use a dry cotton swab to dry carefully the objective lens and light guide on the distal end. Apply lens cleaner (silicone wax) to a piece of clean gauze and lightly wipe the lens surface. This will prevent residue in tap water from leaving a film over the lens.



Caution

Do not wipe off the lens cleaner (silicone wax).

Storage area must be clean, dry, well ventilated and maintained at a normal temperature. Avoid direct sunshine, high temperature, high humidity, and X-ray exposure.

② The endoscope should be stored with the insertion tube as straight as possible. If it must be coiled for storage, do not coil insertion tube tighter than it's condition when in the instrument carrying case.

③ Do not use the carrying case for storage. The carrying case is designed for shipping purpose only. Routine storage of the endoscope in a humid, dark, non-ventilated environment, such as carrying case, may cause problems with infection control. Accessories (e.g. biopsy forceps), must also be dried thoroughly before storage. Do not coil tightly.

6-2 Cautions in Transport and Storage

The product is portable and should be transported and stored after packing.

Pay attention to the following conditions in the process.

- ① Storage、 transport (Temperature/ Humidity/ Air Pressure Range)
– 10°C ~ +55°C/10%~93%/500hpa~1060hpa
- ② Conditions of Transport(Temperature/ Humidity/ Air Pressure Range)
+5°C ~ 40°C/30%~80%/700hpa~1060hpa

6-3 Endoscope Repair

- ① Should the endoscope require repair, it should be shipped to us.
- ② Minor problems with the operation of the endoscope may be

correctable by the operator or assistant. Refer to APPENDIX II

TROUBLESHOOTING GUIDE. All other repairs should be only performed by us. No liability for any patient/user injury, instrument damage or malfunction due to repairs made by unauthorized personnel.

 **Caution**

For the purpose of infection control, and for the safety of all those who will handle the equipment, before returning any instrument to us, the instrument must be thoroughly cleaned and subjected to a high-level disinfection procedure. If the endoscope are used by patient with infectious disease(e.g. patient with HA positive), please inform the maintenance man of us.

APPENDIX I CLEANING AND STERILIZATION PROCEDURE

1) Cautions

Endoscopic instruments must be thoroughly cleaned prior to disinfection or sterilization. Cleaning thoroughly will eliminate animalcule and organic materials, which have adverse effects on the disinfection /sterilization.

Endoscope and accessories are made of materials in a manner, which may not tolerate certain methods of cleaning / disinfection. Those procedures, as described in APPENDIX I of this manual, have been thoroughly tested and found to have no adverse effects on durability of the instrument. Strict adhere to these procedures is highly recommended.

The endoscopes and accessories are designed for different kinds of disinfection methods. The decision of which methods should be employed by certain party should be made by the national / local relating department or the hospital's disinfection-preventing department.

Cleaning & Disinfecting		Instruments	Endoscopies	Water Container	
				Air/Water Valve	Suction Valve
Cleaning	Ultrasonic		Not applicable	Not Applicable	
	Solution		Applicable	Applicable	
Disinfectant	Solution(immersion)		Applicable	Applicable	

2). Cleaning and Sterilization Procedure

① Preparation

- a. Medium Cleaning Solution Disinfection Solution Water Container
(Generally, 3 bottles are needed)
- b. Venting Cap (Prior to completely sterilizing the endoscope, the venting cap must be attached to the light guide connector) Leakage tester
- c. Others(cleaning brush, rubber gloves, gauze etc.)

② Cleaning and disinfection

Some materials used by the endoscope may not tolerate certain disinfectant. Prior to each disinfection, the cleaning procedure should be

performed by hand. The following disinfectors have been thoroughly tested and found to have no adverse effects on durability of the endoscope:

Chlorhexidine

Glutaraldehyde(2%)

EOG When disinfecting the instrument, especially using EOG, disinfection must under the following condition:

Pressure: under 1.5hpa

Temperature: under 40°C

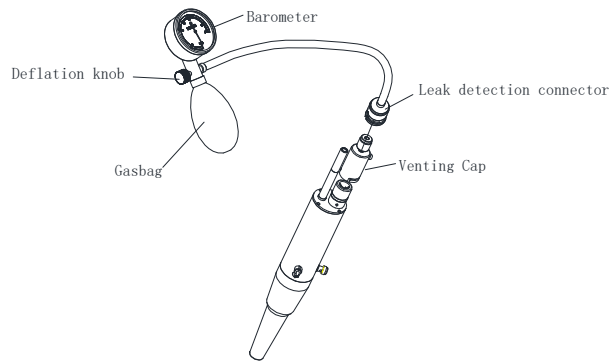
⚠ Warning

The way of disinfection as below will bring serious malfunction to the endoscope which should be prohibited.

- **When pressure is over 1.5hpa and temperature is over 40°C, using EOG to disinfect the instrument.**
- **Clean and disinfect with ultrasonic**
- **Disinfect with boiled water**
- **Desiccate sterilization to disinfect**
- **Disinfect with steam**
- **Disinfect with cresol liquid**
- **Using chloridize-benzene liquid which has not been diluted to disinfect the instrument.**

Initiate the following procedure immediately after each examination:

- a. Wipe insertion tube with gauze, and remove the mucus.
- b. Immerse insertion tube in cleaning solution, gently wipe insertion tube with gauze or sponge.
- c. Alternately feed air and water for 10 second each to clean the air/water channel. Turn off the video processor.
- d. Place the distal end in water and suction for 10 seconds. Then alternate suctioning of water and air several times. Turn off suction pump.
- e. Remove the suction valve, air/water valve, and biopsy valve. Place in cleaning solution.
- f. After making sure that the venting cap on the light guide connector, attach the leakage tester to the venting cap. Pump the hand bulb until the indicator needle is within the test zone (22kP) Observe the gauge indicator needle. If it remains still, remove the tester (The venting cap should still be attached on the light guide connector.), and then immerse the complete endoscope into the water. Observe the endoscope for about 30 seconds. If no bubble is observed from the instrument, the endoscope is watertight.



⚠ Caution

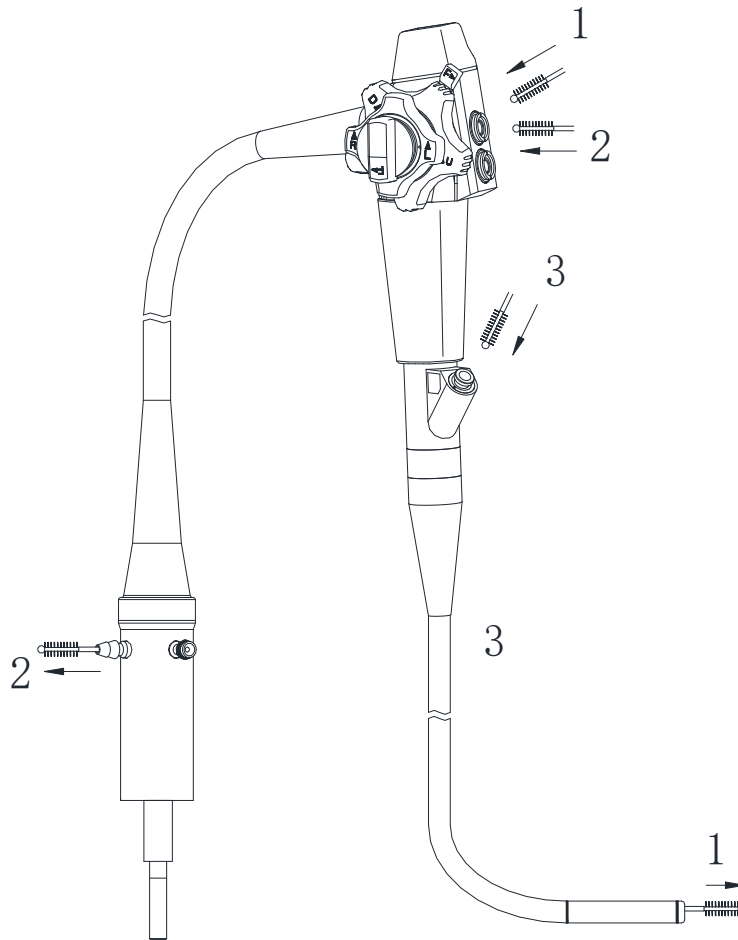
If the indicator needle moves, a leakage is indicated, remove the endoscope from the water, and contact us.

g. Clean the entire suction channel with cleaning brush

① Pass cleaning brush through suction valve housing at an angle of 45° until the brush extends from the distal end of the instrument. Brush channel several times.

② Pass the cleaning brush directly into the suction valve housing (approximately 90°) brushing the entire length of the universal cord until the brush extends from the suction connector. Brush several times.

③ Insert cleaning brush into channel opening approximately 10cm. Brush several times.



<p>⚠ Caution</p> <p>Please insert the cleaning brush in the direction indicated in the picture. Do not attempt to pass cleaning brush in reverse direction until the brush head extends from the distal end of the endoscope. Use only the cleaning brush to clean the channel.</p>

h. Attach the biopsy seal Air/Water Valve and Suction Valve to the endoscope, and Repeat steps c, d and e again

i. Immerse the endoscope in disinfectant solution. Pump disinfectant solution through all channels. Allow the endoscope remain in disinfectant solution for recommended period of time.

Following disinfection, remove the instrument from disinfectant solution and place in clean water. Flush all channels with clean water until thoroughly rinsed. Then remove weighted end of intake tube from water and repeat flushing process, forcing air through channels to expel water. Flush all channels with 75% ethanol solution, forcing air through channels to expel

the ethanol solution.

Disconnect all channel irrigator and rinse the outside of the endoscope and all the button under running water.

j. Wipe the endoscope and all the buttons dry. Daub hospital grade silicone oil on the sealing ring of the button, connect the buttons to the endoscope.

k. Empty the water container after the final examination of the day, and disinfect the outside of it with 70% ethanol solution

3) Cleaning/Disinfecting/Sterilizing the Biopsy Forceps

The accessories should be thoroughly rinsing before disinfection/sterilizing.

The use of ultrasonic cleaner is desirable to aid in the removal of particulate matter. If possible, the accessories should be sterilized with ethylene oxide, and should be cleaned with gas to eliminate the poisonous gas. When the sterilizing can not be done, immerse the entire accessories into the disinfection solution. Wash and dry them thoroughly. To avoid sticking, lubricate the forceps cups with a medical grade silicone lubricant or liquid lubricant.

APPENDIX II TROUBLESHOOTING GUIDE

Refer to the listed methods. If the problems still can't be solved, stop using the instrument and send to us for repair.

	Sympton	Possible Cause	Solution
Image Quality	Image is not clear.	Dirty objective lens	Feed water to remove mucous, etc.
		There is bead or color list on image.	Stop using and return to Us for repair
Air/Water	Absent or insufficient Air/water feeding	Light guide connector is loose. Water bottle cap is loose.	Tighten the light guide connector. Tighten the water bottle cap.
		Air/water nozzle blocked	Soak tip of endoscope in warm soapy water. Or apply high-pressure air to eliminate fragment from the air pipe in light guide connector section.
	No air/water feeding	Air pump not turned on.	Turn air pump on.
Suction	Absent or insufficient suction	Suction valve blocked.	Remove valve. Clean the port with cotton swab. Lubricate with petroleum-based lubricants.
		Suction channel blocked.	Remove suction pipe. Depress the suction valve and apply more pressure to eliminate fragment from the pipe. .
		Semi-disposable biopsy valve is damaged	Replace with a new semi-disposable biopsy valve.
	Sticky suction valve	Suction Valve is dirty.	Remove and wash the valve. Clean the port by cotton swab with alcohol and lubricate with Petroleum based lubricants . Then reattach it.
	Fluid or air leak from the biopsy valve.	Valve deterioration or missing	Replace with a new valve.
Angulation	Tip deflection is abnormal.	Tip deflection is less than specifications.	Send back the instrument to Us for repair.
		There is interspace in angulation	(If resistance is encountered when rotating angulation control knobs, do not apply excessive force, otherwise early deterioration and damage will occur.
		Resistance is abnormal.	

		Angulation can not be locked	
		The outside of bending section is damaged	Stop using. Send back instrument for repair.
Accessory	Forceps do not operate smoothly	Forceps shaft is bent or kinked.	Discard and replace with new forceps
		Forceps cups dirty.	Soak in hot soapy water or hydrogen peroxide and brush to remove debris. The routine use of an ultrasonic cleaner to aid in cleaning the small sup hinges is recommended if problem does not persist (Do not clean the lens by ultrasonic cleaner)Lubricator forceps with silicone oil
	Forceps do not pass through channel smoothly	Forceps shaft is bent or kinked.	Discard and replace with new forceps.

APPENDIX III GUARANTEE AND SALES SERVICES

Certificate

Certificate card is added to this equipment.

Repair services after sale

1) Read the instruction manual again and inspect first when problems occurs.

2) Contact us if problems still can not be solved.

3) About the repair during the period of guarantee

 Period of guarantee is one year, the starting time is the date promised in purchase contract.

The following damage or injury does not belong to the repair object.

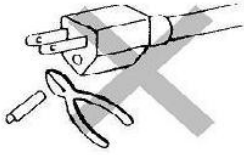
- Damage caused by natural disaster such as fire, gale, and flood etc.
- Damage resulting from improper use of the instrument or wrong operation.
- Products repaired or changed not by our company.

4) Cautions about repair

- Put the Video Processor which is to be repaired into the original package.

Please remember to write down the malfunction or damage of the instrument. And inform us your address, Zip code, operator's name and telephone number.

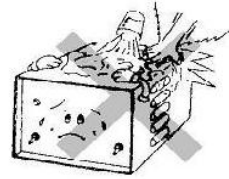
• Simple problems can be solved by qualified technician according to (Appendix II) Troubleshooting Guide. Any other repairment should be conducted only by us.



In case of current shock, all the light source and suction pump should be connected to the ground completely and securely.



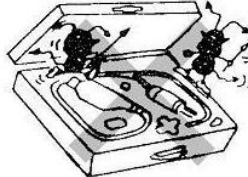
Direct sunlight, dust, high humidity and high temperature will damage instruments.



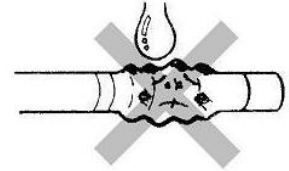
To prevent operator shock and damage to the equipment, keep spillable liquids away from electrical equipment.



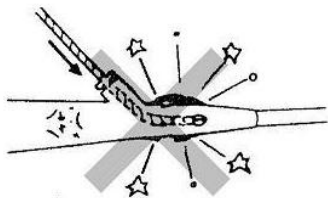
Do not bend insertion tube in a tight radius, as this will damage delicate fiber bundles.



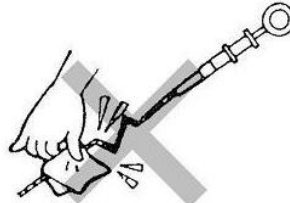
Do not store in the carrying case.



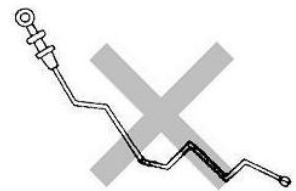
Petroleum based lubricants will cause stretching and deterioration of bending section rubber.



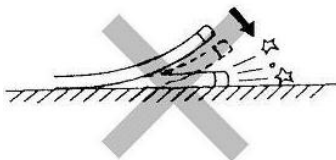
If forceps do not pass smoothly, do not force! Damage will occur to both biopsy forceps and instrument channel.



Do not apply excessive force.



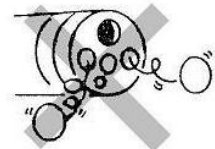
Any accessory which is kinked or bent along its shaft will not operate smoothly, will be difficult to pass through the video endoscope, and must be replaced.



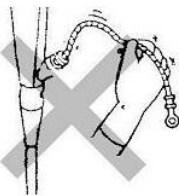
Do not let distal end strike a hard surface as this may crack the objective lens.



Do not use a needle or other sharp object to remove debris from air/water nozzle. The nozzle may be deformed or pried loose.



Do not autoclave or boil the video endoscope, nor clean the video endoscope with ultrasonic cleaner.



To prevent bending or kinking forceps shaft, hold forceps close to biopsy valve and advance using repeated, short strokes.



Excessive air feed may cause discomfort to the patient, or cause damage to the stomach.