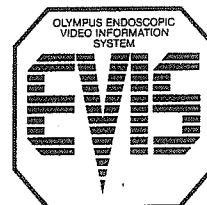


INSTRUCTIONS

OLYMPUS CF TYPE 100S

EVIS SIGMOIDOVideoscope



WARNING

The user of this endoscope should be thoroughly trained in the applicable procedure. Furthermore, failure to read and thoroughly understand the contents of this instruction manual may result in serious injury to the patient and/or user. It is essential to follow the instructions contained in this and other manuals which pertain to any equipment and accessories used in conjunction with this endoscope. Possible injuries related to endoscopic procedures may include perforation, electric burns and shock, hemorrhage, infection, explosion, etc.

Failure to follow these instructions may also result in damage to and/or malfunction of this endoscope.

CAUTION

Federal (USA) law restricts this device to sale by or on the order of a physician.

OLYMPUS®

IMPORTANT

The Olympus CFTYPE100S has been designed for endoscopic diagnosis and treatment within the lower digestive tract (rectum and sigmoid). Do not use the videoscope for any purpose other than its intended use.

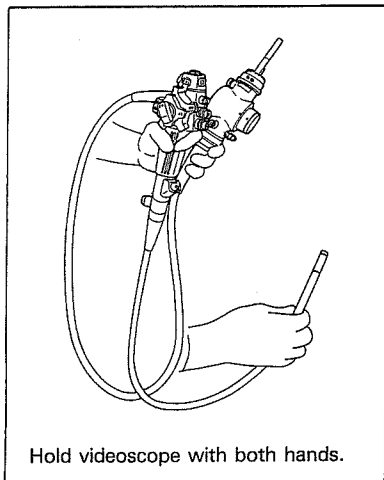
Please read this entire manual carefully before using the videoscope. It contains pertinent information on the proper care and handling of your new videoscope. Although videoscope by nature are delicate instruments, proper handling and cleaning, as described in this manual, will greatly reduce the need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

This manual describes the recommended procedure for preparing and inspecting the videoscope prior to use. It does not describe how an actual procedure is to be performed in detail. Nor does it attempt to acquaint a beginner with endoscopic technique and the medical aspects of sigmoidovideoscopy. This videoscope should be used only by physicians who have received thorough previous training in the art of flexible endoscopy.

The safety and performance of an endoscopic system depends not only on the endoscope but also on any ancillary equipment used with it. Safety precautions must be exercised when handling electrical equipment to prevent operator/patient shock.

If you have any questions concerning the material contained in this manual or concerning the operation or safety of the equipment, please contact your Olympus representative or the nearest Olympus Service Center.

UPON RECEIVING THE VIDEOSCOPE



Please check each item in the set against the list of standard components found in Section 3. Contact your Olympus representative or nearest Olympus Service Center if there are any missing or defective parts. Refer to Section 1-2, Main Specifications and Section 2 NOMENCLATURE to become acquainted with the name and function of each part of the videoscope. Review the videoscope preparation, inspection and cleaning/disinfecting procedures carefully. The videoscope 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—4 Storage. The carrying case is not intended to be used for storage of the videoscope. Retain the carrying case only for shipping or transporting the videoscope.

PRIOR TO USE

In addition to thoroughly reading this manual, also refer to the instruction manuals supplied with your EVIS Video System Center CV-100, photographic equipment, video accessories, electrosurgical unit, endoscopic accessories and other ancillary equipment.

CAUTION:

The CFTYPE100S is a precision instrument. Its design incorporates many features to ensure patient safety. In particular, the angulation system is constructed to provide smooth response and maximal angulation of the distal end when normal force is applied to the angulation control knobs. Excessive pressure applied to the angulation control knobs will result in damage to the videoscope and may cause patient injury.

Before inserting the videoscope into the patient be certain that the angulation control locks are in the "Free" ("F") position and that the distal end moves without resistance. If abnormal resistance is encountered when inserting the videoscope or when operating the angulation mechanism, DO NOT USE THE VIDEOSCOPE. Contact your Olympus representative or the nearest Olympus Service Center.

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1 FEATURES AND MAIN SPECIFICATIONS

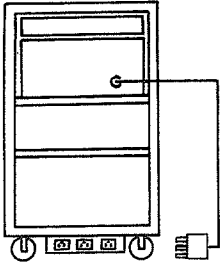
1-1 Features

- A relatively thin insertion tube, extensive angulation capability and a wide-angle lens system facilitate insertion, orientation and observation in the stomach.
- 3.2 mm working channel for maximum versatility and performance.
- Push-button remote switches on the control section give the physician or technician finger-tip control of documentation equipment.
- Complete immersion allowing total cleaning and disinfection, provided that the electrical plug is attached with a water resistant cap.

1-2 Main Specifications

Optical System	Field of view Direction of view Depth of field	140° 0° (Forward viewing) 5 – 100 mm
Distal End	Outer diameter	15.4 mm
Bending Section	Range of distal end bending Maximum deflection	Up 180°, Down 180° Right 160°, Left 160° 230°
Insertion Tube	Outer diameter	13.3 mm
Working Length		620 mm
Total Length		920 mm
Instrument Channel	Inner diameter	3.2 mm
Biopsy Forceps	Minimum visible distance	4 mm from distal end
Remote Switch	Switch 1 Switch 2 Switch 3 Switch 4	RELEASE/FREEZE (Selection IRIS/PRINT made at FAST SHUT./VTR the RELEASE/FREEZE CV-100)
Operating Environment	Ambient temperature Relative humidity Atmospheric pressure	10 – 40°C (50 – 104°F) 30 – 85% 700 – 1,060 mbars

1-3 Electrical Safety



Plug the Light Source power cable directly into a "HOSPITAL" grade receptacle (wall mains outlet) (NOT into the service socket mounted on the Compact Video Trolley).



The physician and technician must wear rubber handgloves.

Leakage current from electrical equipment can cause electrical shock to the physician and technician and may affect cardiac function of the patient.

Although Olympus endoscopic equipment has been designed taking every safety precaution into consideration, consumer products such as video monitors and VTRs to be integrated with the endoscopic system are generally not manufactured to meet the strict requirements imposed upon electromedical devices. Therefore, when using these products, the following points must be noted in order to ensure the safety of the procedure.

① Connection of Equipment to AC Power

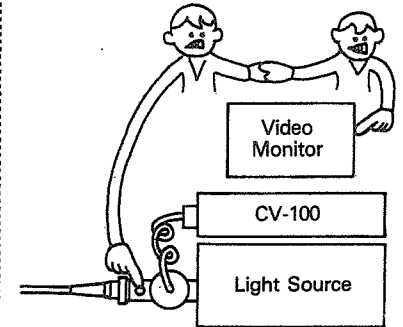
- All equipment used with the EVIS Video System Center CV-100, including the video monitor and VTR, must be properly grounded to prevent shock. (some video accessories may not be equipped with a ground contact by design.) In all cases plug the Light Source power cable directly into a properly grounded hospital grade receptacle (wall mains outlet). Do not connect the Light Source to the service sockets mounted on its custom cart. The service sockets are intended for use only with those items designated in the CV-100 instruction manual.
- Any equipment not designated in the CV-100 instruction manual, as well as the Olympus Endoscopic Image & Data Filing system, should be connected to a properly grounded hospital grade receptacle (wall mains outlet) via an isolation transformer for medical used.

② Handling the Videoscope

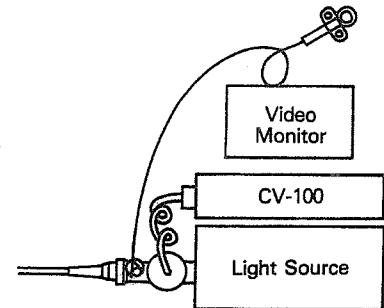
Do not allow the videoscope to come in contact with video accessories either directly, or indirectly via the physician, technician, or via an endoscopic accessory (forceps, snare, etc.) or any other potentially conductive object. The physician and technician must wear rubber handgloves as an added precaution.

③ Endoscopy Bed

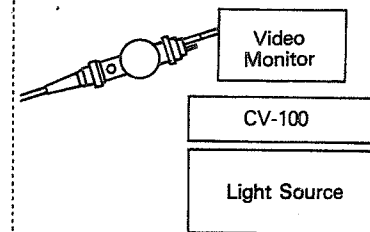
We recommend that the endoscopy bed be insulated from the suite's floor to prevent possible conduction between the patient and the ground.



Do not touch video equipment and endoscope at the same time without wearing rubber handgloves...



Nor let an endoscopic accessory (forceps, etc.) come in contact with video equipment at the same time.



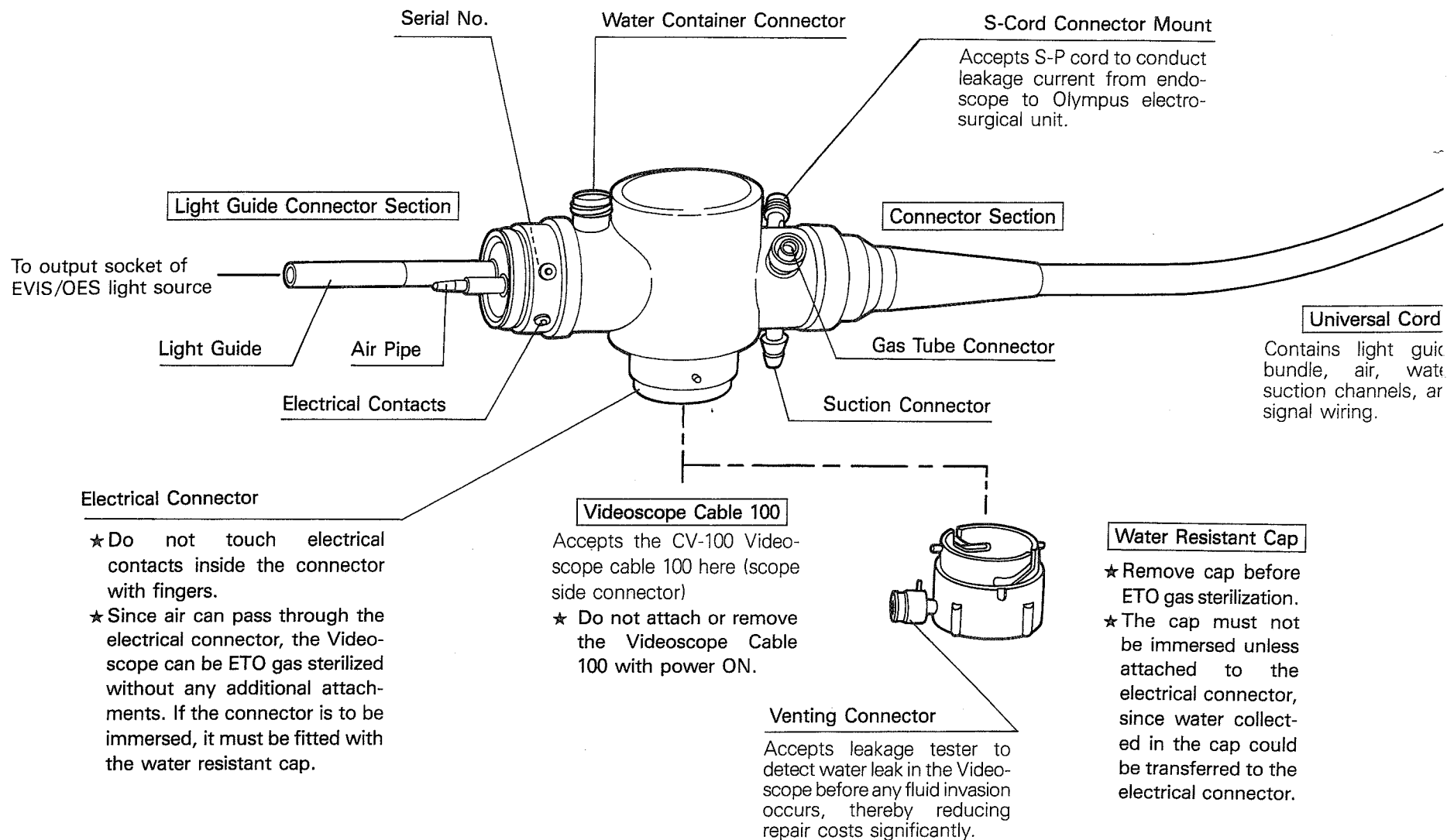
Do not let the endoscope come in contact with other electronic equipment (Video monitor, VTR, etc.)

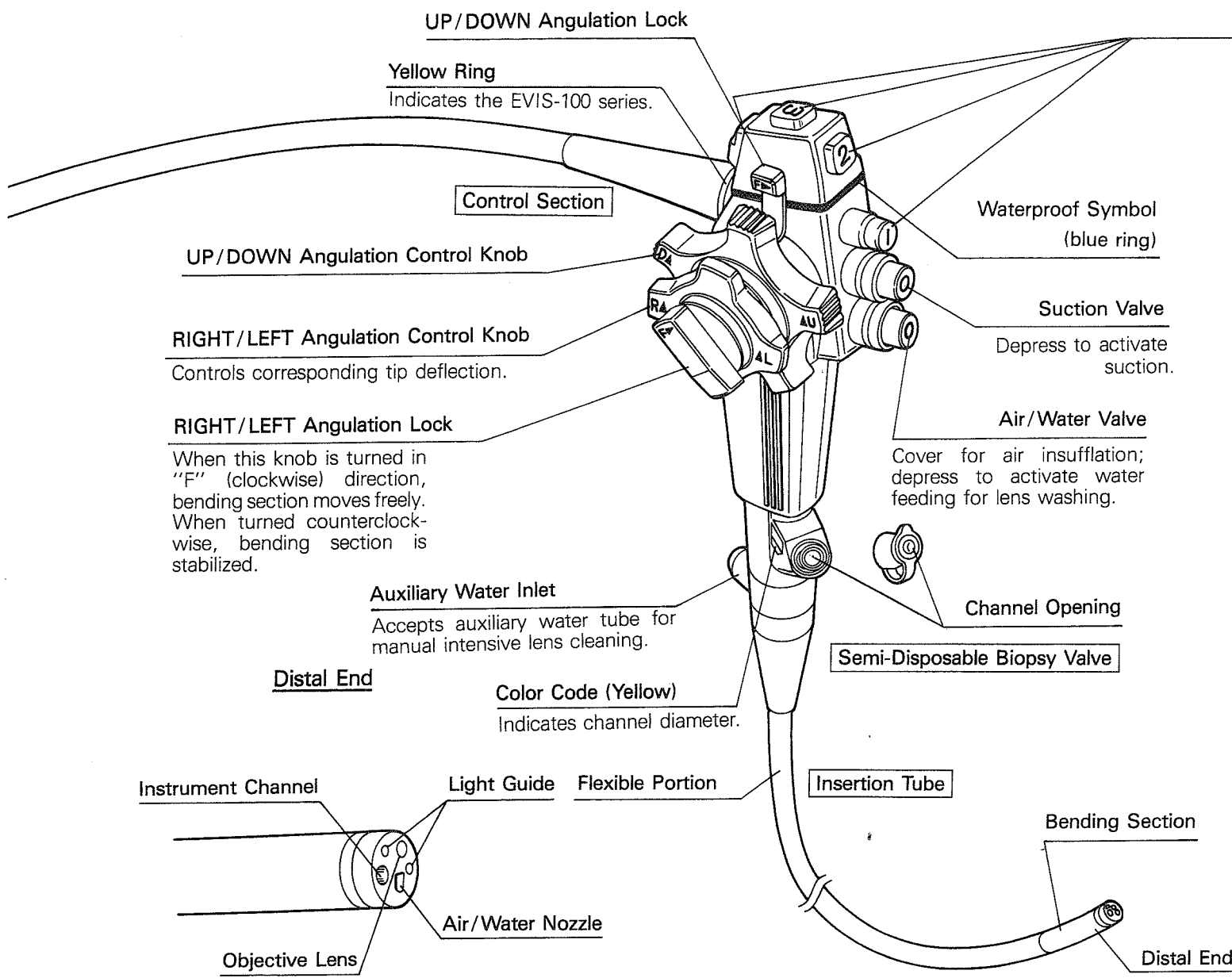
ILLUSTRATIONS AND DRAWINGS OF EQUIPMENTS

2 NOMENCLATURE

2

NOMENCLATURE





UP/DOWN Angulation Lock

Yellow Ring

Indicates the EVIS-100 series.

Control Section

UP/DOWN Angulation Control Knob

RIGHT/LEFT Angulation Control Knob

Controls corresponding tip deflection.

RIGHT/LEFT Angulation Lock

When this knob is turned in "F" (clockwise) direction, bending section moves freely. When turned counterclockwise, bending section is stabilized.

Auxiliary Water Inlet

Accepts auxiliary water tube for manual intensive lens cleaning.

Distal End

Color Code (Yellow)

Indicates channel diameter.

Instrument Channel

Light Guide

Flexible Portion

Insertion Tube

Bending Section

Objective Lens

Air/Water Nozzle

Distal End

Remote Switches

Switch 1

- RELEASE - records the frozen image (not video printer).
- FREEZE - freezes the image.

Switch 2

- IRIS - changes the average light and peak light.
- PRINT - sends the image to the video printer.

Switch 3

- FAST SHUT. - changes the shutter speed.
- VTR - records the moving image.

Switch 4

- RELEASE - records the frozen image (not video printer).
- FREEZE - freezes the image.

★ Each function is selected at the CV-100.

★ The switches cannot be removed.

Waterproof Symbol (blue ring)

Suction Valve

Depress to activate suction.

Air/Water Valve

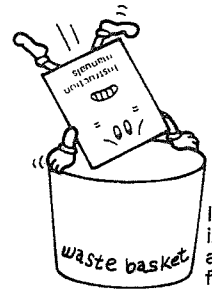
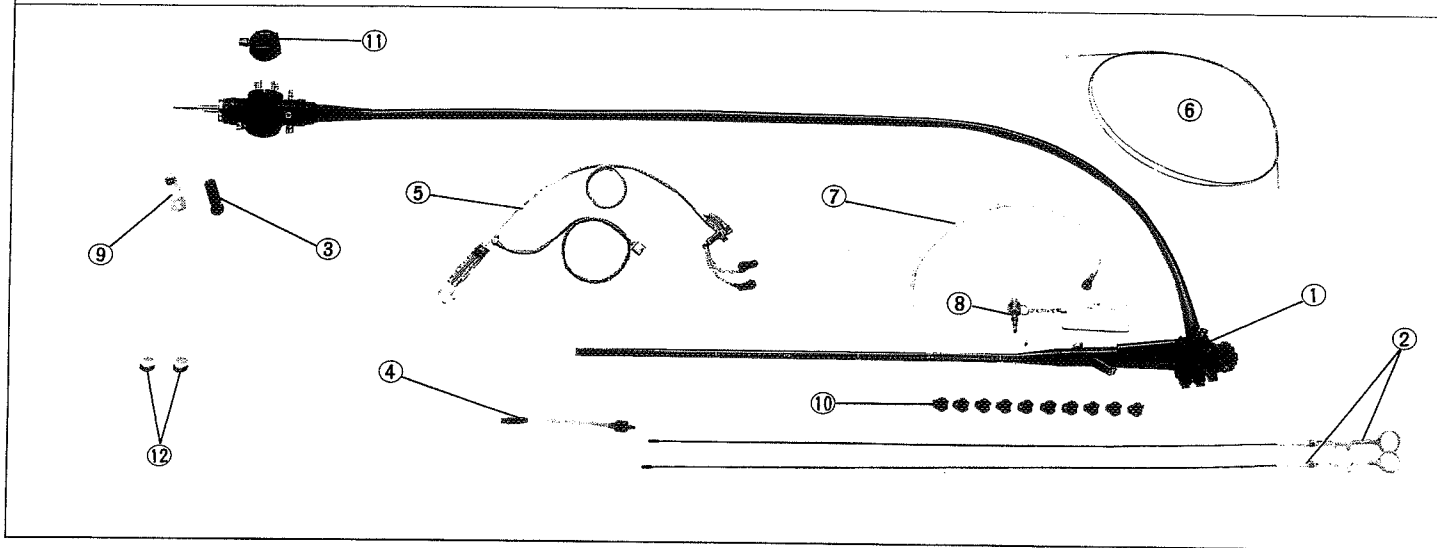
Cover for air insufflation; depress to activate water feeding for lens washing.

Channel Opening

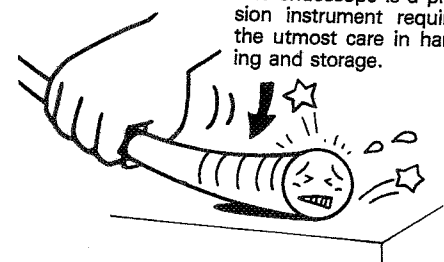
Semi-Disposable Biopsy Valve

Distal Hood

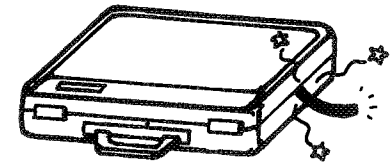
- | | | | |
|---|---|--|----|
| ① Videoscope | 1 | ⑦ Channel Cleaning Adapter (MB-19) | 1 |
| ② Biopsy Forceps (FB-24E) | 2 | ⑧ AW (Air/Water) channel Cleaning Adapter (MB-107) | 1 |
| ③ Lens Cleaner (MA-2) | 1 | ⑨ Lubricant (Silicone oil) (MB-146) | 1 |
| ④ Auxiliary Water Tube (MB-1) | 1 | ⑩ Semi-Disposable Biopsy Valve (spare) (MB-358) | 10 |
| ⑤ All-Channel Irrigator (CW-3) w/30cc syringe | 1 | ⑪ Water Resistant Cap (MD-252) | 1 |
| ⑥ Channel Cleaning Brush (BW-9T) | 1 | ⑫ Distal Hood (MB-622) | 2 |



Instruction manuals are invaluable for staff training and should be retained for future reference.



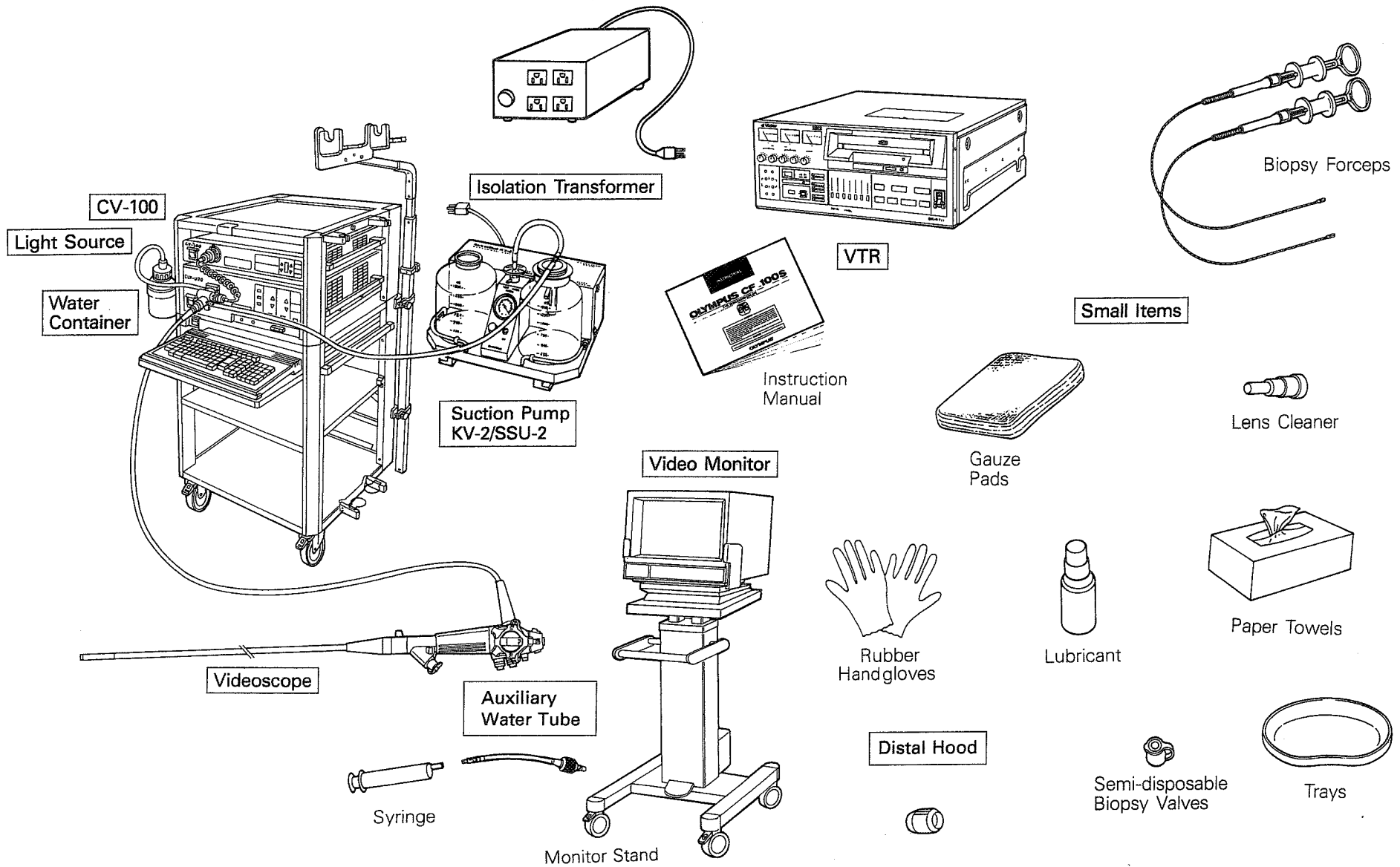
The endoscope is a precision instrument requiring the utmost care in handling and storage.



Accidentally closing the endoscope in the carrying case will severely damage the instrument, necessitating an expensive repair.

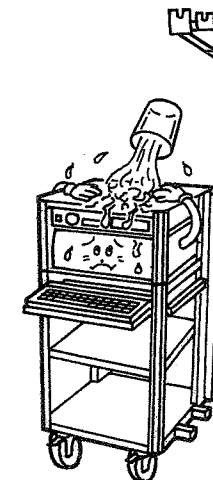
4 PREPARATION AND INSPECTION

4-1 Basic Equipment

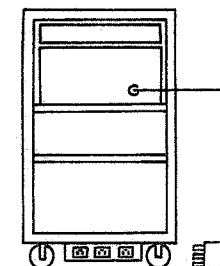


4-2 Preparation and Adjustment of the EVIS Video System Center, Light Source, Video Monitor and Documentation Equipment

- ★ Read also Section 1-3 'Electrical Safety'
- ① Connect the power cords, ground cords, and signal cable for the CV-100, light source, compact video trolley, video monitor and various recording devices such as the Automatic Monitor Photo Unit or VTR, by following the instruction manual for the EVIS Video system center CV-100.
 - ★ Use an OES Xenon light source. Combinations including other than light sources or halogen sources cannot utilize the automatic light control system, resulting in a decrease of image quality.
 - ★ Only devices designated in the CV-100 instruction manual are to be connected to the Compact video trolley medical isolation transformer.
 - ★ Do not use the medical isolation transformer of the Compact Video Trolley as the power supply of the light source, as this may result in interference degrading the image.
 - ★ Devices not designated in the manual, or endoscopic image file devices must obtain their power from an alternative isolation transformer.
 - ★ Even some devices designated as appropriate in that instruction manual, must obtain their power from alternate sources. Follow the instructions found in the instruction manual.
 - ★ Ensure that the power cords, ground cords, Videoscope Cable 100, and signal cable are securely fastened, and cannot come out during the examination.
 - ★ Some models of still video printers and VTRs may not accept remote control from the CV-100. Remote control operations differ from model to model. Refer to the CV-100 instruction manual for further details.
- ② Connect the videoscope cable 100 (MD-148) to the CV-100
- ③ Switch on the CV-100, light source, compact video trolley, video monitor, and the recording devices in use.
- ④ Put a blank tape in the VTR and set it to RECORD/PAUSE.
- ⑤ Following the instructions in the manuals of the CV-100 and the automatic monitor photo unit, load a blank film in the device.
- ⑥ Following the instructions of the video monitor manual, set the color temperature switch to 6500K.
- ⑦ Following the instructions of the video monitor manual, reset the APERTURE, BRIGHTNESS, CHROMA and PHASE controls, and set the CONTRAST control to the center position.
- ⑧ Using the CV-100 output selector switch, set the RGB output to "SCOPE".
- ⑨ Following the CV-100 instruction manual, set the color temperature of the video monitor.
 - ★ During endoscopic examinations the use of RGB input to the video monitor is recommended.

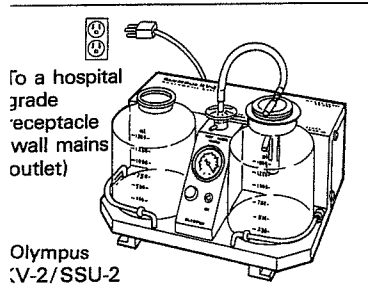


Do not spill water or other fluids, as this may result in electrical shock or explosion.

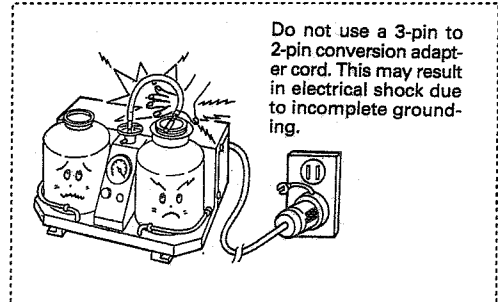


Do not use the medical isolation transformer of the compact video trolley as the power supply of the light source.

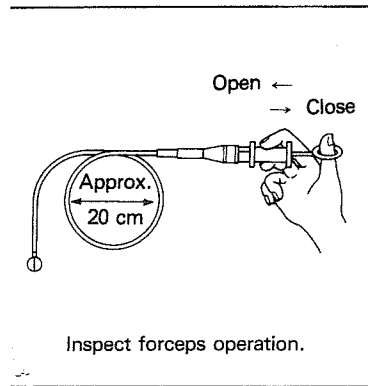
4-3 Preparation and Inspection of Suction Pump



- ① Plug the power card (3-pin cord) into a properly grounded hospital grade receptacle (wall mains outlet).
 - ★ When using a Non-Olympus suction pump having a power cord with a 2-pin cord, securely connect the ground wire to a grounding terminal. Do not connect to a gas pipe or it may cause explosion.
 - ★ The suction pump must be in safe and proper working condition.
- ② Inspect the suction pump following its instruction manual.
- ③ Connect the suction tube to the suction pump and to the suction connector on the videoscope.
- ④ Turn ON suction pump. Suction is controlled by the endoscope's suction valve.



4-4 Preparation and Inspection of Biopsy Forceps



1 Preparation

Select proper biopsy forceps for videoscope being used. (Refer to the System Chart, page 41.)
 ★ Always have spare forceps available.

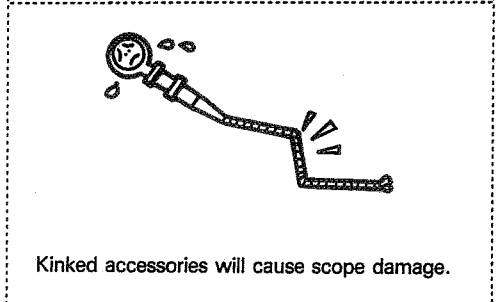
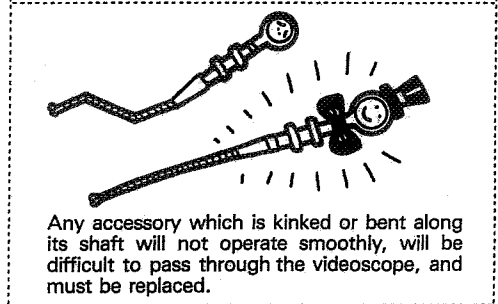
2 Inspection

Biopsy forceps should be inspected before each use!

- ① Form a loop in the biopsy forceps approximately 20 cm in diameter. Make sure that the forceps cups open and close smoothly when the handle is lightly operated.
- ② Inspect snares, etc., following individual instruction manuals.
- ③ If there is any irregularity in the operation or external appearance of a forceps, snare, etc., the item should be replaced with a new one.

★ Replace bent or kinked accessories.

All Olympus accessories have been designed and manufactured with utmost care. Due to the delicate nature of the small precision parts involved, it is considered neither safe nor economical to repair endoscopic accessories. In the interest of patient safety, Olympus' policy is to replace rather than repair these items. Repair by unauthorized individuals should not be attempted.



4-5 Preparation of the Water Container

★ Use water container MD-431. (Model MA-995 can also be used.)

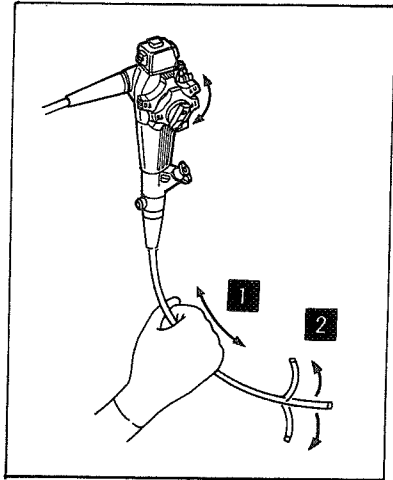
Fill the container about 2/3 full of clean water. Fasten the lid tightly, and hang on the light source or the compact video trolley's water container receiver.

★ Replace the water daily.

★ Clean or sterilized water must be used, to avert clogging of the water supply tube.

★ When encountering mist in the videoscope field of view, use clean, lukewarm (40—50°C) water.

4-6 Inspection of the Videoscope



Before each use, the videoscope should be inspected according to the following procedure. Should the slightest irregularity or abnormality be suspected, do not use videoscope but contact an authorized Olympus service center.

1 Inspection of the Insertion Tube

- ① Inspect the surface of the insertion tube visually for any dents, bulges or other irregularities.
- ② Run your fingertips over the whole length of the insertion tube checking for any protruding objects, internal looseness or other irregularities.
 - ★ Do not squeeze the bending section forcefully, as this may not only stretch the rubber covering, but also cause water leakage.

2 Inspection of the Bending Mechanism

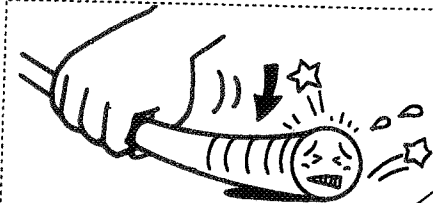
- ① Operate the angulation control knobs slowly and to the limit in each direction. Make sure the bending section bends smoothly and correctly and that maximum deflection can be achieved. Simultaneously inspect the outer surface of the bending section.
- ② Operate the angulation locks and check that the bending section is stabilized when the locks are engaged. Also check that the knobs rotate freely when the locks are released ("F" Position).
- ③ Inspect the rubber covering of the bending section for small holes, breaks or other irregularities.
 - ★ Do not bend or twist the bending section by hand.

3 Inspection of the Instrument Channel

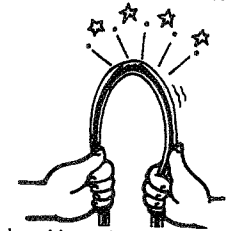
- ① Check semi-disposable biopsy valves for foreign matters and tears.
- ② Pass the biopsy forceps STRAIGHT into the channel through the biopsy valve, with forceps cups in a closed position, to confirm smooth passage.

The most effective seal is obtained by using the valve in the capped condition, passing the accessory through the small slit in the cap.

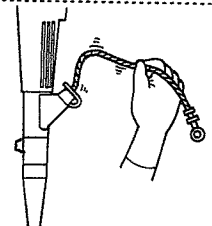
 - ★ The valve may be uncapped for smoother insertion of a standard-type forceps (but leak may occur) or for passing a large-size accessory.



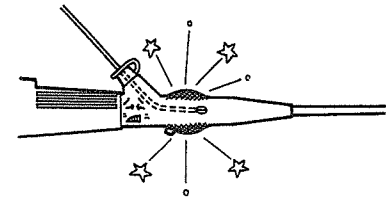
Do not let distal end strike a hard surface; this may crack the objective lens.



Do not bend insertion tube in a tight radius; this will damage delicate illumination fib bundle.

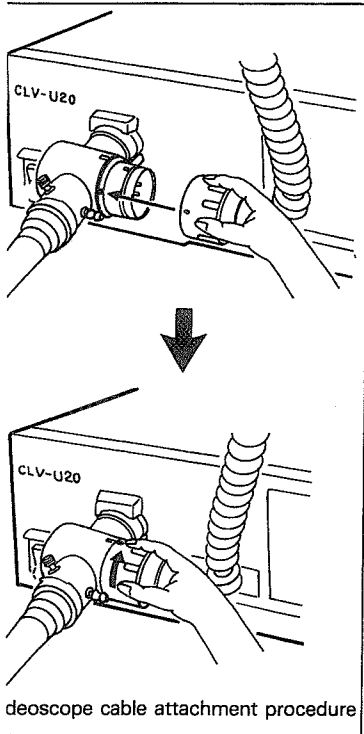


To prevent bending or kinking forceps shaft hold forceps close to biopsy valve and advance using repeated, short strokes.



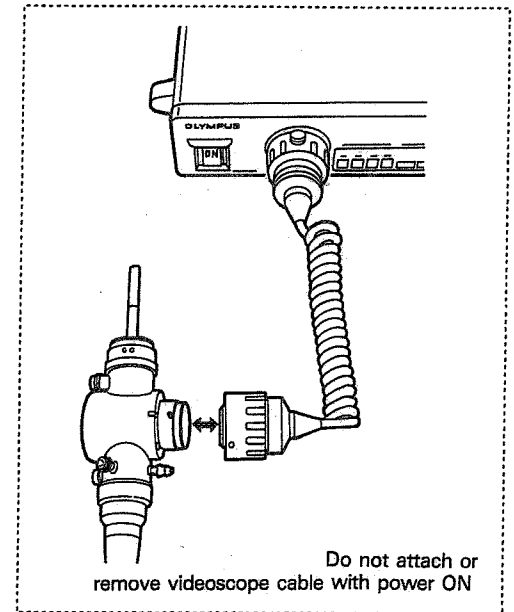
If forceps do not pass smoothly, do not force! Damage will occur to both biopsy forceps and instrument channel.

4-7 Inspection of the Endoscopic System



1 Preparation

- ① Securely attach the scope connector to the light source socket.
- ② Turn OFF the CV-100 power switch.
- ③ Attach the videoscope cable to the electrical connector.
 - (1) Align the indicator marks on the cord and the scope, and push together firmly.
 - (2) Rotate the videoscope cable clockwise until it stops.
 - (3) Before proceeding, ensure that the indicator marks are aligned properly.
 - ★ Be sure that the power switch remains OFF when attaching or removing the videoscope cable. The CCD may be destroyed if power is left ON during attachment.
 - ★ To avoid damage to the CCD, do not touch the electrical contacts inside the electrical connector.
- ④ Attach the suction tube and the water feed tube to the appropriate connectors on the videoscope.

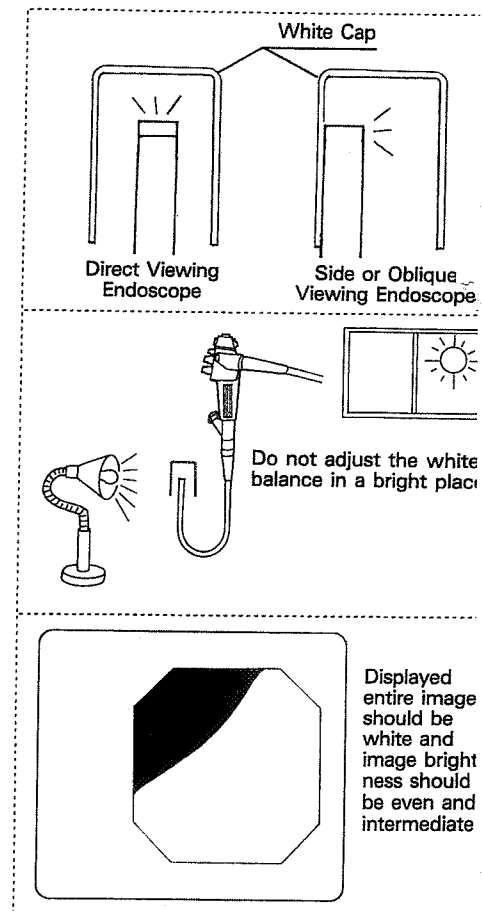


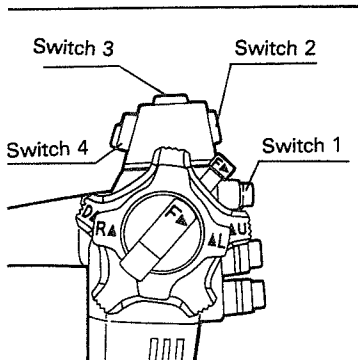
Color Adjustment Procedures

- ① Video monitor color temperature set-up
 - Differences between video monitors make it necessary to allow for adjustment of the balance of the color tones. This also permits adjustment of the color tones recorded by the various recording devices.
 - Refer to page 7, Section 4-2 'Preparation and Adjustment of the Video system center, Light Source, video monitor and Documentation Equipment'
- ② Scope white balance adjustment
 - Even if there are differences in color tone between each scope, allow the average color tone level to be obtained for each scope.
- ③ Adjustment of the color tone (color tone switch)
 - Adjust the color tone to suit the examination purpose.
 - Refer to page 15, Section 5-2 [8] 'Adjusting Color Tone'

2 Inspection and Adjustment of Video Equipment

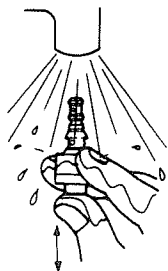
- ① Turn ON the power switch of CV-100.
- ② Turn ON the power switch of light source and set its Brightness Control switch to '3'.
- ③ Darken the surroundings and insert the endoscope into the opening of the white cap (MH-155, a standard component of the CV-100). While displaying a white image on the Display Monitor, push the White Balance switch of the CV-100 approximately 1 second. White balance adjustment is completed when the white balance indicator turns lit from blinking.
 - ★ To obtain natural color reproduction, darken the surroundings and avoid entry of lights, such as fluorescent light.
 - ★ Always perform white balance adjustment after confirming that the entire videoscope image becomes white.
 - ★ If bringing the videoscope too close to a subject, image washed-out may cause and cannot perform white balance adjustment. In such a case, move and position the videoscope away from the subject so that an image in intermediate brightness is displayed on the monitor.
 - ★ Videoscopes have difference of color tone from individual equipment. When using several videoscopes in combination with a CV-100, perform white balance adjustment each time exchanging with another videoscope.
 - ★ It is not necessary to reset the Color Tone switch of the CV-100 to its central position before white balance adjustment. If color tone was set anyhow, the system will be designated to set the fixed level of white balance. After white balance adjustment, color tone will be set automatically according to a proper color tone level.
 - ★ Wipe the interior of the white cap using a gauze dampened with alcohol (disinfectant ethanol) or water diluted neutral detergent to keep whiteness in a designated level.
 - ★ Dry thoroughly the white cap before reusing.
 - ★ If the white cap is dirty too severely to be wiped off or the color of the white cap is changed severely, replace the white cap.
 - ★ If using the severely dirty cap, proper white balance adjustment cannot be performed.
- ④ Direct the endoscope tip toward an object (e.g., the palm of your hand). Check the monitor screen for abnormal noise, blurred or foggy image or objective lens scratches. If the image is not clear, check cable connections, or wipe the objective lens using a piece of gauze dampened with disinfectant ethanol.
 - ★ If no image shows on the monitor screen, check the wiring connections as outlined in the CV-100 manual.
 - ★ If the image is blurred or frosty, wipe the objective lens lightly with gauze pads dampened with disinfectant alcohol.
 - ★ Moire patterns are sometimes discernible, depending on the viewed object, but this is not abnormal.
- ⑤ Change the palm-to-lens distance between 10 to 50 mm: the screen brightness should hardly change.
 - ★ Quickly moving the palm will cause the screen brightness to change: this is normal.
- ⑥ Hold the palm at 20 mm from the objective lens and depress the CV-100 iris switches. The screen brightness should increase or decrease in response.
- ⑦ Following the instructions in the CV-100 manual, ensure that the CV-100 color tone switch, the image enhancement switch and the shutter switch are in proper operating condition.





Cleaning the air/water valve and suction valve.

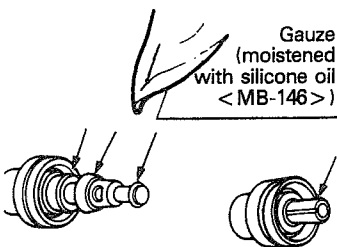
Wasing



Drying

Thoroughly wash under running water while moving piston.

Lubrication



Apply a small amount of lubricant to ARROWS.

3 Inspection of the Remote Control Switches

- Using the remote change switch on the CV-100 rear panel, select functions for each switch which are desirable for the current examination procedure.
 - ★ Selected functions are displayed on the CV-100 front panel.
- Following the instructions of the CV-100, ensure that the remote control functions are in proper operating condition.
 - ★ Switch 1 can be activated by pushing not only vertically, but in a transverse or slanting direction.
 - ★ The switches are not removable. Pulling them upwards or twisting them may cause water leakage.
 - ★ In some cases, after being activated with a slant ways pull, switch 1 will not return to the original position, but will remain continuously 'ON'. Should this occur, the switch can be restored to the 'OFF' position with a gentle tug.

4 Inspection of the Air Feeding Mechanism

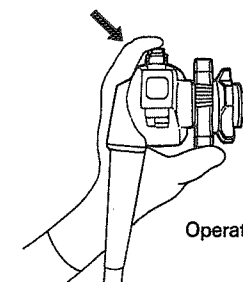
- Set the light source's air switch to "HIGH".
- Place distal end of videoscope in water to a depth of 10 cm. Cover the air/water valve hole with finger tip and confirm that air is emitted from the air/water nozzle.
- Remove finger from valve and confirm that no air is emitted from the air/water nozzle. At a depth of less than 10 cm beneath the water's surface a small amount of air may come out. However, this does not indicate a malfunction.

5 Inspection of the Water Feeding (Lens Cleaning) Mechanism

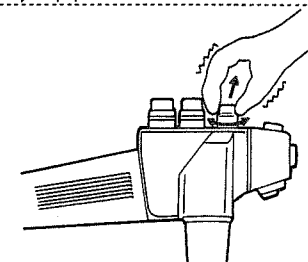
- Depress the air/water valve completely and confirm that water is fed through the air/water nozzle. Release the valve and make sure water feeding ceases.
 - ★ At the first depression it will take a few seconds before water is fed.
- To clear the field of view following lens washing, feed air.

6 Inspection of Suction Mechanism

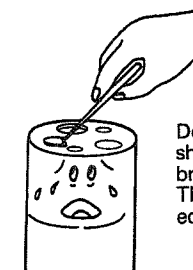
- Dip the distal end in tap water and depress the suction valve. Make sure water is aspirated. Release the valve and make sure the valve returns to its original position and that aspiration ceases.
- ★ Ensure that the suction pump to be used is in safe and proper working condition.
 - ★ If the air/water or suction valves fail to function smoothly, clean as illustrated at right.
 - ★ A faulty semi-disposable biopsy valve lowers suction power and should be replaced with a new one.



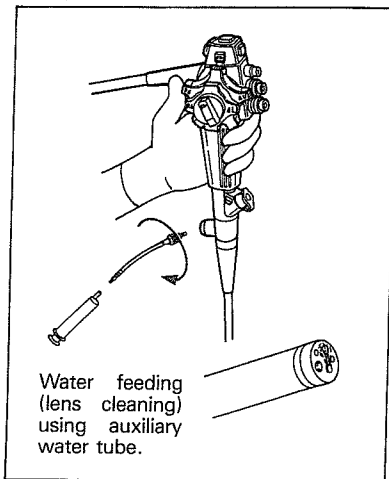
Operation of switch 1



Do not pull or twist switch 1.

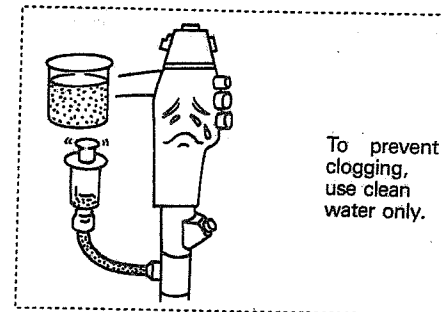


Do not use a needle or other sharp object to remove debris from air/water nozzle. The nozzle may be deformed or pryed loose.



7 Inspection of Manual Water Feeding (for Lens Cleaning)

- ① Connect the auxiliary water tube firmly to the auxiliary water inlet. Connect the other end of the tube to a syringe. Feed clean water via the syringe and make sure that water is emitted from the air/water nozzle. At this point do not operate the air/water valve.
- ② Make sure no water leak occurs around the auxiliary water inlet.
 - ★ Do not operate the air or air/water valve while infusing with a syringe.
 - ★ To prevent channel clogging use clean water only.



5 OPERATING THE VIDEOSCOPE

This section describes the basic operation of the videoscope and outlines a general procedure for electro-visual endoscopy. The endoscopist should carefully evaluate the clinical factors involved and decide on the technical details of the procedure.

SPECIAL NOTE

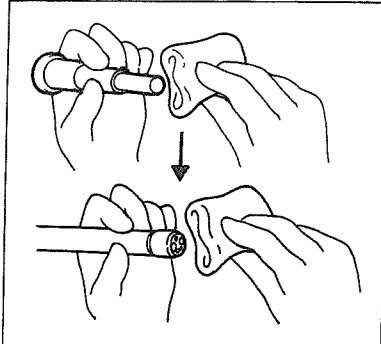
To become more thoroughly acquainted with some of the potential hazards associated with endoscopy, the following are examples of possible complications resulting from improper technique.

Improper Technique	Possible Complication
1. Use of faulty endoscope and/or accessory	Mucosal trauma, Perforation, Laceration, Electrical shock
2. Forceful insertion without clear view of the lumen	Perforation
3. Prolonged suction with distal tip in contact with mucosal surface	Bleeding, Suction artifact
4. Overinsufflation	Pain, Rupture
5. Blind or abrupt protrusion of accessory from distal tip	Perforation
6. Electrosurgery without clear view	Mucosal burns, Perforation
7. Withdrawal of videoscope with angulation controls in locked position	Trauma, Perforation, Laceration
8. Blind withdrawal of videoscope	Trauma, Perforation, Laceration
9. Improperly cleaned/disinfected instruments	Cross-contamination, Infection

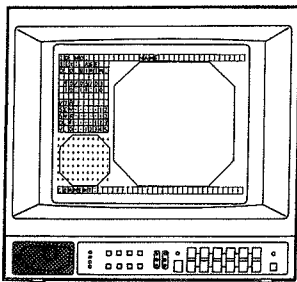
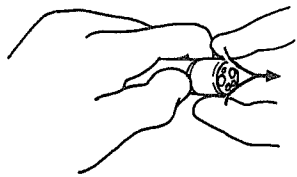
★ In case the endoscopic image disappears from the screen, check that all connections between the CV-100 and monitor are still intact; that the monitor controls are properly set; and that the **SCOPE** button (lower right corner of CV-100 front panel) is illuminated. If the problem cannot be solved instantly, turn OFF the CV-100. Turn it ON again. If the image still fails to appear, stop the examination; free the angulation locks and return the angulation control knobs to their neutral position and carefully withdraw the videoscope. If an accessory is being used, stop the procedure and remove the accessory in the safest possible manner, before withdrawing the instrument.

OPERATING THE VIDEOSCOPE

5-1 Preparation for Use



Detaching distal hood



1 Disinfection / Sterilization of Instruments

Disinfect or sterilize the videoscope and accessories as described in Section 6.

2 Application of Lens Cleaner (Anti-Fogging Agent)

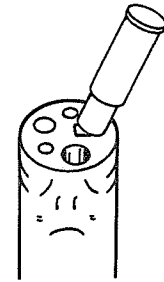
- ① Wipe moisture from objective lens.
- ② Apply lens cleaner to a piece of clean gauze and lightly wipe the objective lens. Remove excess.
 - ★ When cleaning the objective lens, always wipe in a direction away from the air/water nozzle.

3 Attaching the Distal Hood (if required)

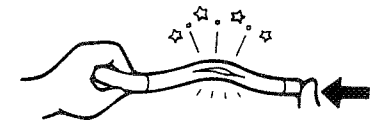
- ① Wipe moisture from distal hood.
- ② Attach the distal hood by pushing it, while holding the distal end of the endoscope firmly between finger tips. Make sure that the hood is securely attached.
- ③ To detach the distal hood, pinch and pull its outer edge.
 - ★ If hood appears cracked or worn, do not use. Replace with a new one.
 - ★ The hood may slightly eclipse the view field and may make water drain less effective.

4 Inputting the Patient Data

Operating the CV-100 keyboard, enter patient data and comments as necessary.

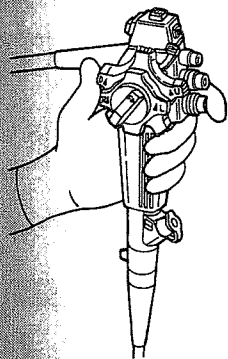


Do not occlude air/w nozzle when applying cleaner.



To prevent damage to bending section, grasp insertion tube near the distal end when attaching/detaching hood.

5-2 Insertion, Observation and Documentation



1 Preparation for Insertion

- ① Lubricate the insertion tube with a water soluble medical grade lubricant, taking care to avoid the distal end.
 - ★ In order to protect the rubber covering, do not use vaseline (or medicines containing vaseline), or olive oil.
- ② Insert the tip of the videoscope gently through the anus.
 - ★ Refer to page 17 'Preventing thermal injury from illumination'.

2 Holding the Videoscope

The control section of the videoscope is designed to be held in the left hand. The air/water and suction valves are activated by the index finger. The up/down angulation control knob is operated by the thumb. The right hand is free to manipulate the insertion tube and the left/right angulation control knob.

- ★ Do not sharply coil the universal cord (umbilical cable); damage may result.

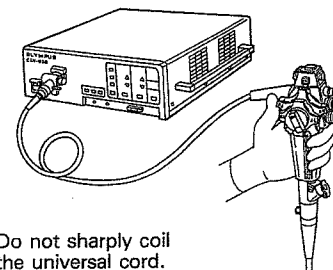
3 Distal End Deflection

Operate the angulation control knobs as necessary to guide the distal end for insertion and observation.

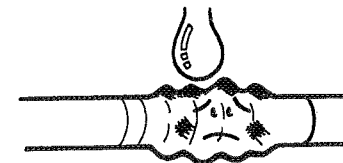
- ★ If the angle control mechanism ceases to function, or if any other irregularity is noticed in the operation of the videoscope, stop the examination immediately; free the angulation control knobs and carefully withdraw the endoscope while observing the monitor screen.
- ★ Always operate the angulation control knobs slowly.

4 Aspiration

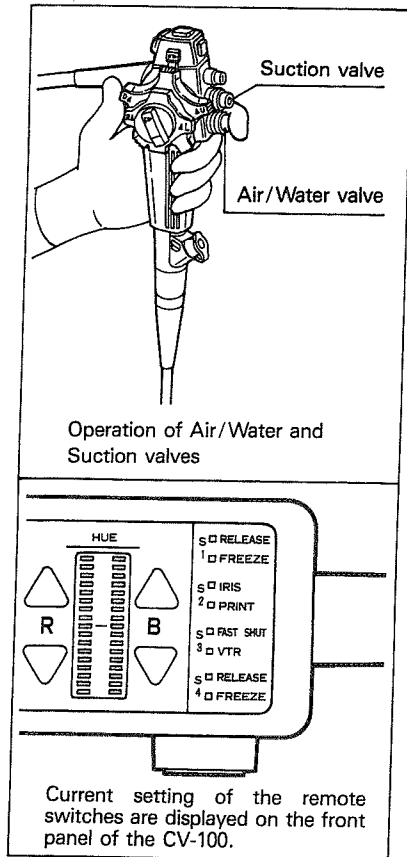
Fluid or foreign matter obscuring the visual field may be aspirated by depressing the suction valve. Aspiration is also useful for removing excess air.



Do not sharply coil the universal cord.



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



5 Cleaning the Objective Lens

- ① Secretions and foreign matter adhering to the objective lens may be removed by simultaneously depressing the air/water and suction valves.
- ② Water droplets remaining on the lens may be removed by feeding air.

6 Adjusting Lumen Insufflation

Maintain the proper level of lumen insufflation for observation by feeding and aspirating air as necessary.

★ Overinsufflation may cause excessive patient discomfort and possible injury.

7 Brightness Adjustment

★ Vertical stripes may occur above and below the illuminated point. This is due to reflection from the mucous and is not an abnormal indication.

- ① Standard switch settings: CV-100 IRIS switch — 'AVERAGE'; AGC switch — 'ON'; light source light level control — 'AUTOMATIC'; and CINE/TV index — '3'.
- ② In cases where both near and far objects are to be observed, and the close-up view is over-exposed, set the IRIS switch to the 'PEAK' position.
 - ★ The IRIS switch can be controlled from either the CV-100 front panel or by remote control from the scope. If remote control is desired, the appropriate selection of remote switch functions must be set up in advance.
 - ★ If the biopsy forceps are used in 'PEAK' mode, the screen will become dark.
- ③ At extreme distances, or when spraying dye, if interference becomes a problem, turn OFF the CV-100 AGC switch.
 - ★ When the AGC switch is OFF, white snow may occur on the monitor screen in close-up areas, and black interference in other areas.
- ④ When controlling the full frame screen brightness, turn OFF the CV-100 AGC switch, and adjust the light source CINE/TV index number to the optimum level for observation.
 - ★ Use the 'AUTO' setting of the light source light level control.

8 Adjusting Color Tone

★ The bright areas of the image can sometimes become tinged with red or green. This is due to reflection from the mucous, and is not an indication of abnormality.

Use the CV-100 color tone switch, and adjust the monitor screen to the desired image.



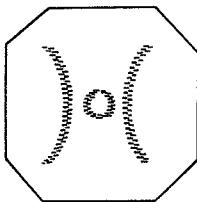
Overinsufflation may cause excessive patient discomfort and possible injury.

Preventing Thermal Injury from Illumination

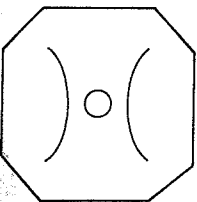
- If the light emitting portion of the scope distal end is allowed to come into close contact with the mucosa when the light level control is set to 'MANUAL', thermal injury to the tissue may result. The light level control must be used in the 'AUTO' position.
- When the scope is handled outside the body if the light is kept on, accidents due to the high temperatures near the scope tip may occur.

Shutter speed selection

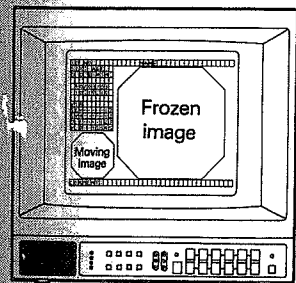
• Shutter OFF



• Shutter ON



Subscreen function



9 Adjustment of the Image Enhancement

Adjust the CV-100 image enhancement control as necessary to suit the particular examination conditions.

10 'Freeze' Observation

- ★ The bright areas of the image can sometimes become tinged with red or green. This is due to reflection from the mucous, and is not an indication of abnormality.
- ① The CV-100 mode switch is generally set to "FIELD"
 - ★ In 'FRAME' mode, the image may flicker when frozen.
 - ② To freeze the image, push the 'FREEZE' switch on the videoscope's control section.
 - ★ If 'FREEZE' has not previously been selected as a function of the remote switches, freezing cannot be done at this time.
 - ★ The operation of the angulation controls, or the use of the air feed and/or the suction control during times when the image is frozen can be dangerous.
 - ③ To cancel the freeze function, and restore movement to the monitor screen, push the button again.
 - ★ Pressing either the 'PRINT' or the 'RELEASE' switches while the image is frozen will cancel the freeze function.
 - ④ If the freeze switch is pressed while the CV-100 shutter switch is 'ON', the shutter time will be shortened in order to avoid blurring of the frozen image.
 - ★ Alteration of the shutter speed can be done either from the CV-100 front panel or the remote switches. In the latter case, prior selection of the appropriate function must have been done.
 - ★ It takes a moment for the freeze to take effect after the switch has been pressed.
 - ★ Due to shortened shutter speed, objects at far distances may become darkened.
 - ★ Vertical stripes may occur above and below the illuminated point. This is due to reflection from the mucous and is not an abnormal indication.
 - ★ When the light level control of the light source is in the 'MANUAL' position, the shutter function does not work normally. Select 'AUTO'.
 - ⑤ During use of the freezing mode, if the 'SUBSCREEN' switch of the CV-100 has been pre-selected, then a moving image is displayed as a 'daughter image' in the lower left corner of the screen.
 - ★ During use of this subscreen mode, at release time the daughter image disappears automatically, and thus does not appear in the picture.

Standard settings of the CV-100

- IRIS — AVERAGE
 - AGC — ON
 - Mode — FIELD
- Standard settings of the light source
- Light level control — AUTO
 - CINE/TV index number — 3

11 Recording the Frozen Image

- ★ Refer to section 5-2 **10** 'Printout to the Video Printer' for information on using the video printer. The following section describes use of recording devices other than printers.

- ① Select the desired recording device with the switch on the CV-100.
- ② Press the "RELEASE" switch on the control portion of the endoscope to make a record of the frozen image (except to the video printer).
 - ★ 'Release' must have previously been selected as a function of the remote switches.
 - ★ When the release switch is pressed, the freeze function is also automatically activated. As soon as the recording has taken place, the image returns to the normal mode. Refer to Section 5-2 **10** "Freeze Observation"
 - ★ In some models of still video recorder, remote control from the endoscope is impossible. Refer to the CV-100 instruction manual for further information.
 - ★ If desired, the CV-100 mode switch may be set to 'frame', to obtain more information. In this mode, the screen image may be liable to flicker, so avoid all possible motion, even asking the patient to stop breathing for a moment. If 'frame' mode is desired, first push the freeze switch, ascertain that the screen is not flickering, and then push the release switch.

12 Printout to the Video Printer

- ★ Refer to the manuals of the CV-100 and the Video printer. To print on the video printer, push the switch on the CV-100 front panel or the remote control section of the endoscope.
- ★ Remote control operation is only possible if the appropriate function has previously been selected for the switches.
- ★ Pushing the print switch will automatically activated the freeze function, and after a short time, a normal image will be restored. Printing may take quite some time, and during the printing process the print selection switch will not function.
- ★ Some models of video printer cannot be remote controlled from the CV-100 or the scope.
- ★ Some models of video printer have a multi-screen output function. Refer to the printer manual and the CV-100 manual for further information.

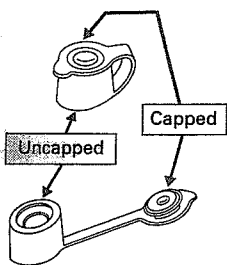
13 VTR Recording

- ① VTR recording is initiated by pushing either the switch on the CV-100 front panel, or the remote switch.
 - ★ Remote control operation is only possible if the appropriate function has previously been selected for the switches.
 - ★ Some models of VTR cannot be remote controlled from the scope of the CV-100. Controls differ from unit to unit. Refer to the CV-100 instruction manual.
- ② Pushing the VTR switch a second time will halt the recording.

14 Adding Written Comments to the Monitor Screen

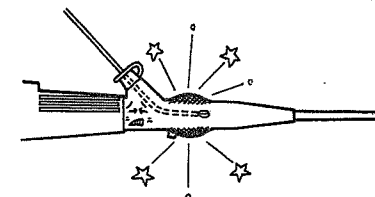
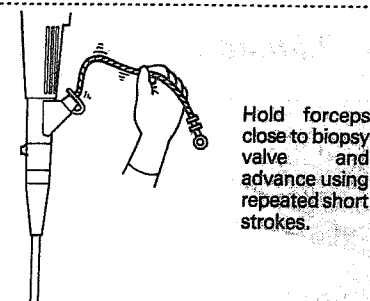
- ★ If desired, the keyboard may be used to add comments to the screen image.
- ★ Refer to the CV-100 instruction manual for details.

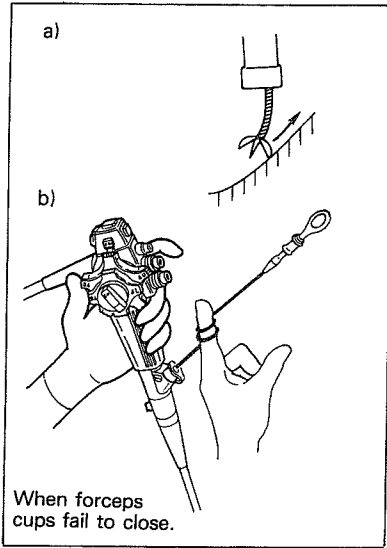
5-3 Biopsy



1 Inserting Biopsy Forceps

- ① While visualizing the area of interest, insert biopsy forceps straight into the instrument channel with its cups closed.
 - ★ If the forceps encounters resistance to passage through the bending section, decrease distal end angulation until smooth passage is possible. Application of the lubricant (MB-146) to the forceps prior to insertion into the videoscope will enhance passage.
 - ★ If the forceps channel is allowed to become soiled, insertion of forceps will become difficult. The forceps channel must be brushed after all cases, including those in which biopsies were not done. Refer to Section 6-3 2-10, "Cleaning Procedure" for details.
- ② Slowly advance the forceps using repeated short strokes, grasping the forceps approximately 4 cm from the biopsy valve. When the tip protrudes approximately 4 mm from the distal end, the forceps will come into view.
 - ★ If the biopsy valve leaks fluid or air, replace with a new one.

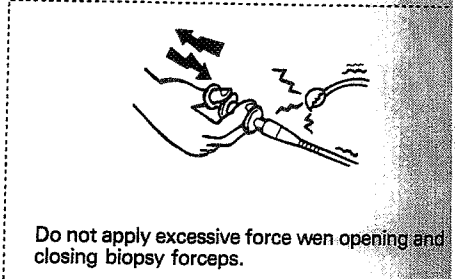
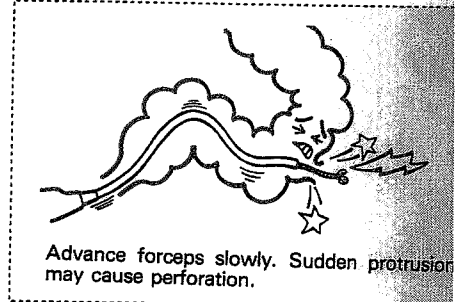




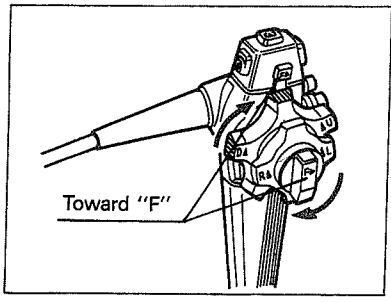
2 Biopsy Procedure

Tissue samples are obtained by grasping the mucosa in the biopsy cups and then gently pulling the forceps back until the specimen is removed.

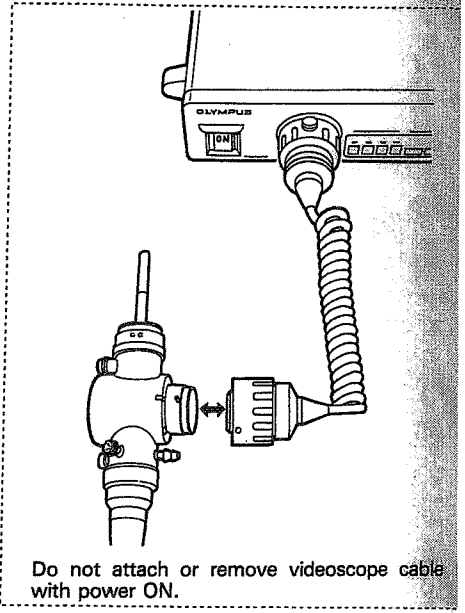
- ★ Do not attempt to cut through the tissue by applying excessive force. Withdraw forceps slowly with cups in a closed position.
- ★ In the event the cups of forceps fail to close when the slider is operated making it impossible to withdraw the forceps.
- a) Press the distal end of the forceps against the mucosa, and pull them into the scope with the distal end thus closed.
- b) If the above technique is ineffective, try forcing the tip closed by wrapping the portion of the forceps sheath extending from the scope around a finger, and then pulling it back into the



5-4 Withdrawing the Videoscope



- ① Before withdrawing the endoscope, aspirate accumulated air and be sure that up/down and right/left angulation locks are in the "Free" (F) position.
- ② Always view the monitor screen when withdrawing the videoscope.
 - ★ The endoscope must be cleaned immediately after withdrawal from the patient. (Refer to pages 26 through 29.)
 - ★ Always attach and remove the videoscope cable with the power switch OFF. If the power is left on, the CCD may be destroyed.



MAINTENANCE

6-1 Cleaning, Disinfection and Sterilization

Endoscopic instruments must be meticulously cleaned prior to disinfection or sterilization. The methods employed to achieve these conditions are left to the discretion of the endoscopist, hospital infection control committee, etc. Olympus instruments are made of materials and constructed in a manner which may not tolerate certain methods of cleaning, disinfection or sterilization. These procedures, as described on pages 20 through 31 of this manual, have been thoroughly tested and found to have no adverse effects on durability of the instrument. Strict adherence to these procedures is highly recommended.

Instruments		Videoscope	Accessories, and Water Container and Mouthpiece	Water- Resistant Cap	All-Channel Irrigator, AW Channel Cleaning Adapter, Channel Cleaning Brush and Adapter Auxiliary Water Tube	Small Items (biopsy valve, air/water, suction and valves distal hood)
Cleaning	Ultrasonic					
	Solutions	Note 1		Note 4		
Disinfectant	70% alcohol (wiping)					
	Solutions (immersion)	Note 1		Note 4		
Gas	Formalin					
	Ethylene Oxide Gas	Note 2				
Heat	Boiling		Note 3			
	Autoclave		Note 3			

Applicable

Not applicable

Note 1: The electrical connector is not waterproof and must be covered with the water resistant cap before washing/immersion. Repeated or extended immersion in disinfectant solutions will cause the internal humidity of the videoscope to rise, resulting in lens cloudiness, short-circuited wiring and loss of video signal transmission. An extended immersion longer than one (1) hour must not be attempted.

Note 2: The cap must be removed before ETO gas sterilization. Repeated ETO gas sterilization will gradually deteriorate the instrument. Do not ETO gas sterilize unnecessarily.

Note 3: Only those accessories identified by a Green Color or marked 'AUTOCLAVE' or 'AUTOCLAVABLE' may be autoclaved.

Note 4: Do not immerse the water resistant cap unless it is attached to the videoscope.

6-2 Cautions

1 General Precaution

- Before using any disinfectant solution not mentioned below, check with Olympus.
- Attach the water resistant cap to the electrical connector before washing or immersion. Remove the cap before ETO gas sterilization.
- Removable parts (e.g. biopsy valve, air/water and suction valves), as well as the areas on which these parts are mounted, should be thoroughly cleaned and disinfected (sterilized).
- The water container should be emptied, cleaned, and disinfected at the end of each day's procedures.

2 Disinfectant Solution

- Reference herein to solutions for disinfection is not an endorsement of their germicidal effectiveness. Qualified persons from the disinfectant manufacturer should be consulted if any questions exist on this subject.
- When the disinfectant solution has been in contact with the instrument for the recommended time, remove the instrument from the disinfectant and rinse thoroughly to remove all toxic residue and to prevent instrument deterioration. The recommended dilution percentage and contact time listed below should not be exceeded.
- Rubber gloves should be worn for protection against risk of infection or skin irritation.

In the Event of Water Infiltration into Electrical Connector

(In case uncovered electrical connector is dipped)
If the videoscope has been immersed in liquids inadvertently without being covered with the water resistant cap, take the following procedure, which may reduce repair costs.

- ① Immediately remove the instrument from the liquid and vigorously shake the connector section until no further water comes out of the electrical connector opening.
- ② Dry the connector at room temperature overnight with the connector opening facing downward.
- ③ After this emergency measure, return the instrument for repair.
★ The CV-100 will be damaged if connected with a wet electrical connector.

(In case a detached water resistant cap is dipped)
If the water resistant cap removed from the endoscope is dipped in water, immediately pick it up from water and dry:

- ① Shake the cap until no further water comes out of it. Wipe the internal and external surfaces with a piece of gauze.
- ② Without attaching the cap to the videoscope, pass air through the cap for 10 minutes, using the leakage tester (optional).
- ③ Check that there is no water inside the cap.

	MATERIAL	BRAND NAME	DISTRIBUTED BY	CONDITIONS
Disinfectant Solution	Alcohol 70% (Disinfectant Ethanol)			Wipe using alcohol dampened gauze
	Surgical scrub soap solution			Maximum Immersion: 30 Minutes
	Iodophor	Wescodyne (1.6%)	West Chemical Products (USA)	Dilution: 100X (0.0.16%) Max. Immersion: 20 Minutes
	Glutaraldehyde	Sporicidin (1:16) Cidex (2%) Sonacide (2%) Glutares (2%)	The Sporicidin Co. Surgikos (USA) Ayerst Labs (USA) 3-M Medical Products	Follow Manufacturer's Instructions
		Aldecyde 28 (2%)	Antiseptics Consultant Service (Australia)	

3 Ethylene Oxide Gas Sterilization

Prior to sterilizing the videoscope, check that the water-resistant cap has been removed from the electrical connector. Failure to remove the cap will prevent the air sealed inside the videoscope from escaping as a vacuum is created within the sterilization chamber. This will cause the rubber covering the bending section to rupture.

Before sterilization, the instrument must be thoroughly cleaned and dried as described in pages 25 through 27 of the manual. Failure to do so will inhibit sterilization.

The instrument must be properly aerated after ETO sterilization to remove all residual toxic gas.

Always use a biological indicator and follow the manufacturer's instructions for the particular gas sterilizer being used.

Repeated ETO sterilization procedure will gradually deteriorate the instrument. Do not unnecessarily ETO gas sterilize the videoscope.

Gas	Formaldehyde	Formalin gas (Formaldehyde 14%)		To be kept in sealed condition for 24 hours max.
	Ethylene Oxide Gas	Anprolene	H.W. Andersen Products (USA)	Follow Manufacturer's Instructions
		Gas sterilizer		Temperature 55°C (130°F) max. Pressure 0.11Mpa (1.1 kgf/cm ²), (16 psi) max. Humidity 55% max. Gas Concentration 12% Time 1-3/4 hours (105 minutes) max. Aeration Time: 7 days at room temperature or 12 hours in an aeration chamber between 50°C (122°F) and 55°C (130°F)

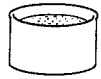
4 Autoclave

Only those accessories identified by a Green Color or marked "AUTOCLAVE/AUTOCLAVABLE" may be autoclaved. Meticulous mechanical cleaning followed by approximately 5 minutes of ultrasonic cleaning (at 40 kHz or higher frequency output) is mandatory prior to autoclaving. (Refer to Autoclavable Accessory Instruction Manual for details.) Standard autoclave cycles, including "flash" may be used provided the temperature does not exceed 134°C.

Head	Boiling Water	Maximum Immersion: 30 Minutes
	Autoclave	2 atmospheres of air pressure (134°C or 274°F) for 5 minutes or 1 atmosphere (121°C or 250°F) for 20 minutes

6-3 Cleaning, Disinfection and Sterilization Procedures

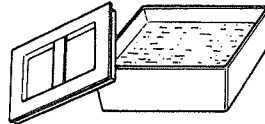
1 Supplies Needed



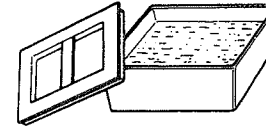
Cleaning solution



Disinfectant solution



Large basin for water



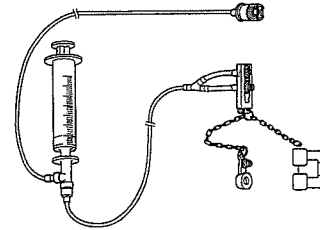
Large basin for disinfectant solution



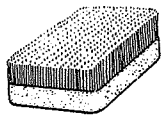
Rubber handgloves



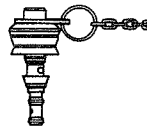
Semi-disposable
biopsy valve
(MB-358)



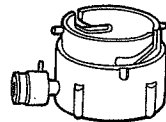
All-channel irrigator (CW-3)
with 30 cc syringe



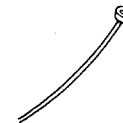
Scrub brush (soft)



Air/water channel cleaning adapter
(MB-107)



Water-Resistant cap
(MD-252)



Channel cleaning adapter
(MB-19)



Gauze pads
(Paper towels)



Channel cleaning
brush (BW-9T)



Auxiliary water tube (MB-1)
with syringe



Leakage Tester (MB-155, optional)

- To avoid extensive damage and costly repair, it is recommended that videoscope be tested for water leakage prior to immersion in cleaning solutions.
- To facilitate leak testing and cleaning procedures, the use of a leakage tester or endoscope washer (EW-20, EW-10) is recommended (optional items).
- Channel cleaning brush (BW-9T) is an expendable item. Replace with new one if it is old. Refer to the instruction manuals provided with these units.

CLEAN IMMEDIATELY AFTER PROCEDURE

1. Wipe insertion tube with gauze.
2. Cleaning of the auxiliary water inlet.
3. Turn OFF the air switch. Remove AIR/WATER SPRAY VALVE by slowly pulling out and place in cleaning solution.
4. Insert AIR/WATER CHANNEL CLEANING ADAPTER (blue collar). Turn ON air switch.
5. Alternately feed water and air for 10 seconds each. Turn OFF air switch.
6. Place distal end in water and suction for approximately 10 seconds. Then alternate aspirating of water and air several times. Turn OFF suction pump.
7. Remove AIR/WATER CHANNEL CLEANING ADAPTER, SUCTION VALVE and BIOPSY VALVE. Place in cleaning solution.
8. Attach water-resistant cap to electrical connector.
9. PERFORAM LEAK TEST PROCEDURE.
10. Immerse insertion tube in cleaning solution.
11. Insert channel cleaning brush through insertion tube, universal cord and channel opening to brush the entire suction channel.
12. Turn OFF suction pump and remove suction tube and channel cleaning adapter.
13. Immerse videoscope in cleaning solution. Scrub all external surfaces. Remove videoscope, place in clean water and rinse.
14. Using a soft brush, gently wash and rinse all valves.
15. Install AW CHANNEL CLEANING ADAPTER and SUCTION VALVE, and attach CHANNEL CLEANING ADAPTER.
16. Connect suction tube to suction connector on the videoscope. While holding the control section out of water, turn ON suction pump, making certain free end of the channel cleaning adapter remains in water. Aspirate water for approximately 10 seconds.
17. Remove entire videoscope from water. Continue to aspirate air for approximately 30 seconds. Turn OFF suction tube, and channel cleaning adapter.
18. Rinse and dry the videoscope taking Steps 1 and 6 through 10 in (DISINFECTION).

DISINFECTION

1. Connect All-Channel Irrigator (CW-3) to videoscope.
2. Attaching the auxiliary water feed tube.
3. Immerse endoscope and All-Channel Irrigator into disinfectant solution.
4. Inject solution into the auxiliary water channel.
5. Pump disinfectant solution through all channels.
6. Disconnect All-Channel Irrigator (CW-3) and allow videoscope to remain in disinfectant solution for recommended period of time.
7. Following disinfection, remove the videoscope from disinfectant solution and place in clean water.
8. Reattach All-Channel Irrigator. Place weighted end of blue intake tube in water.
9. Inject water and into the auxiliary water channel.
10. Flush all channels with clean water until thoroughly rinsed. Then, rinse the outside of the scope under running water. Remove All-Channel Irrigator from the scope while rinsing.
11. Remove weighted end of blue intake tube from water and repeat flushing process, forcing air through channels to expel water.
12. Gently detach water resistant cap and wipe external surfaces of the videoscope dry.
13. Connect videoscope to the light source and force air through all channels until moisture has been expelled and channels and channels are dry.

DISINFECTION COMPLETED

ETO GAS STERILIZATION

1. Remove Water-Resistant Cap.

Gas Sterilization Cycle

Aeration
2. Insert AIR/WATER VALVE, SUCTION VALVE and BIOPSY VALVE which have been sterilized and dried.

STERILIZATION COMPLETED



2 Cleaning/Disinfecting/Sterilizing the Videoscope

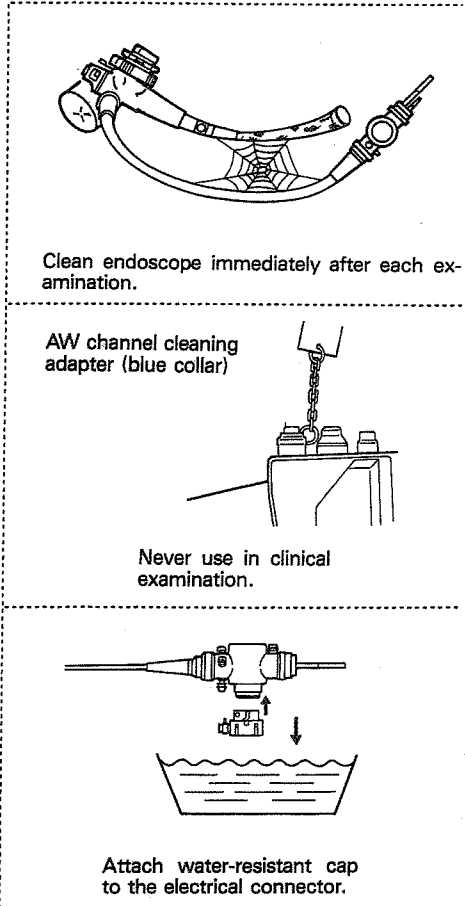
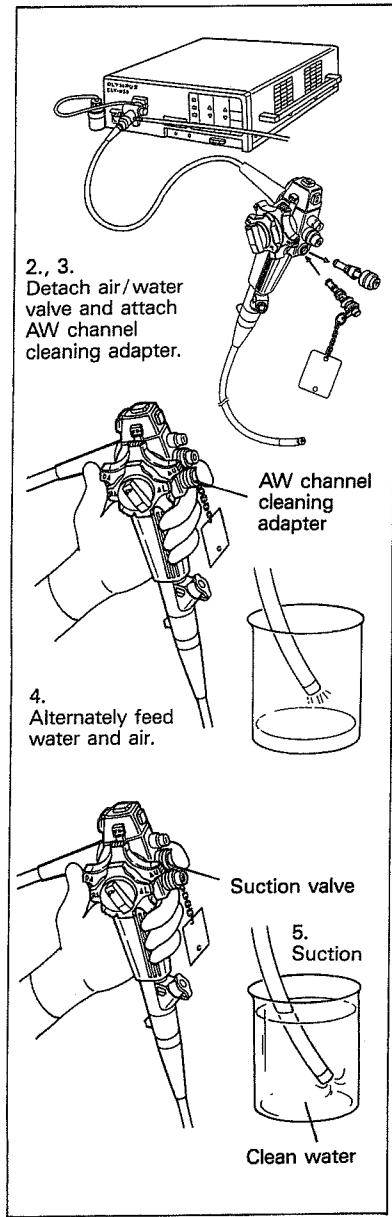
CLEAN IMMEDIATELY AFTER PROCEDURE

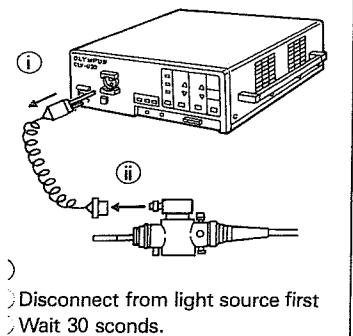
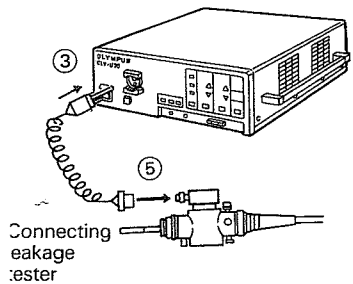
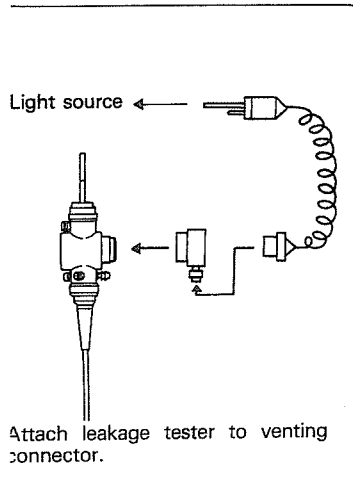
Initiate the following cleaning procedure immediately after each examination. Failure to do so may result in a malfunction of the videoscope.

1. Wipe insertion tube with gauze.
 - ★ Do not squeeze the bending section forcefully.
2. Cleaning of the auxiliary water inlet.
3. Turn OFF the light source's air switch.
 - Remove AIR/WATER VALVE by slowly pulling out and place in cleaning solution.
4. Insert AIR/WATER CHANNEL CLEANING ADAPTER (blue collar). Turn ON air switch. Set the air switch of the light source to "HIGH".
5. Alternately feed water and air for 10 seconds each.
 - ★ To avoid a blocked nozzle, the air/water channel must be cleaned with the AW channel cleaning adapter after every case.

Turn OFF the air switch.

 - ★ The Air/Water Channel Cleaning Adapter will feed water through both the air channel and water channel when depressed. It feeds air through both channels automatically when the valve is released.
6. Place distal end in water and suction for approximately 10 seconds. Then alternate aspirating of water and air several times by alternately dipping and removing the distal end of the videoscope.
 - Turn OFF the CV-100 power switch and the air feed control of the light source.
 - Remove the tube of the WATER CONTAINER, SUCTION, TUBE, and VIDEOSCOPE CABLE.
 - Disconnect the videoscope from the light source.
 - ★ Attachment and removal of the videoscope cable must be done with the CV-100 power OFF. If power is left on, the CCD may be destroyed.
 - ★ When the videoscope has just been removed from the light source, the light guide is hot, so avoid touching it.
7. Remove AIR/WATER CHANNEL CLEANING ADAPTER, SUCTION VALVE and BIOPSY VALVE. Place in cleaning solution.
8. Attach Water-Resistant Cap to the Electrical connector.
 - Check external surface of surface of the electrical connector, as well as the packing inside the water-resistant cap for foreign matter and scratches in order to ensure watertight connection. The cap interior must be dry.
 - ★ Do not touch the electrical contacts inside the Electrical connector, as the CCD may be destroyed.
 - Mate the eccentric groove of the water-resistant cap to the pin of the electrical connector and push straight as far as it will go. Finally turn the cap clockwise to ensure tight connection.



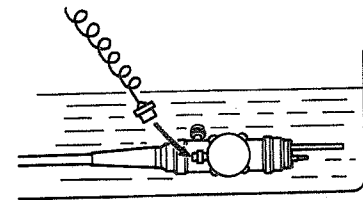


9. PERFORM LEAK TEST PROCEDURE.

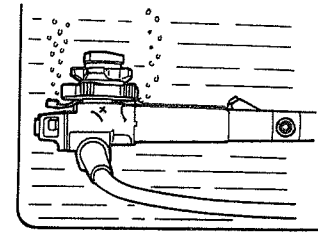
- ① Disconnect the videoscope from the light source.
- ② Disconnect the water container and suction tube from the videoscope.
- ③ Insert black end of the leakage tester into scope socket on the light source.
- ④ Turn ON the light source. Set the air switch to "HIGH".
 - ★ To ensure that air is being emitted from the leakage tester, lightly depress the pin inside the connector cap.
- ⑤ Attach leakage tester to venting connector on the water-resistant cap.
 - ★ Place the connector cap over the venting connector, aligning the pin on the connector with the keyway on the cap. Depress and rotate cap clockwise (approximately 90°) until no further rotation is possible.
 - ★ At this point, note expansion of the rubber covering of the bending section due to increased internal pressure. Incomplete connection will fail to pressurize the videoscope interior, making leak detection impossible. Also, a deformed water-resistant cap (such as caused by falling onto the floor) cannot be connected securely to the leakage tester and is unable to fulfill leak detection. If complete connection is not possible, the cap should be replaced with a new one.
- ⑥ Immerse entire videoscope in water.
 - Observe the videoscope carefully for about 30 seconds. If no bubbling is observed from the videoscope, the videoscope is watertight. Proceed to Step ⑦.
 - ★ Some initial bubbles may be observed due to air trapped in crevices on the videoscope's outer surface. This is normal.

- If continuous bubbling is observed from a given area, this indicates a leak. Remove the videoscope from water immediately.
- Turn OFF the light source and disconnect leakage tester from the light source.
- Wait approximately 30 seconds (or until rubber which covers the bending section returns to its normal shape); then disconnect opposite end of leakage tester from the videoscope.
- **DO NOT USE THE VIDEOSCOPE!** Reattach all valves and send to your nearest Olympus Service Center.

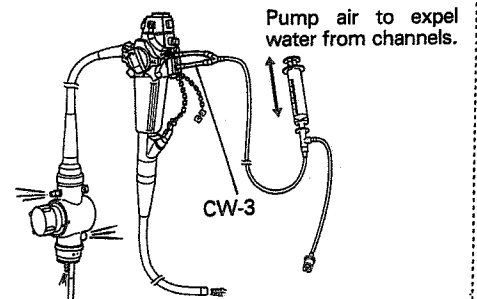
- ⑦ Remove the entire videoscope from the water and turn OFF the light source.
 - i Disconnect the leakage tester from the light source.
 - ii Wait approximately 30 seconds (or until the rubber which covers the bending section returns to its normal shape).
 - Disconnect the leakage tester from the venting connector on the water-resistant cap by depressing and rotating counterclockwise.
 - ★ Do not detach the leakage tester before the videoscope has been removed from water.
 - ★ When detaching the leakage tester, always disconnect from the light source first. Failure to follow this exact procedure will not allow the videoscope to depressurize and damage will result.
 - ★ Thoroughly dry the leakage tester.
10. Immerse insertion tube in cleaning solution.



Do not attach or remove the leakage tester while under water.

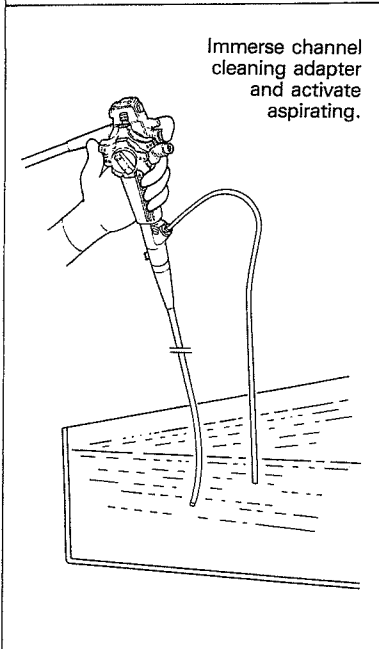
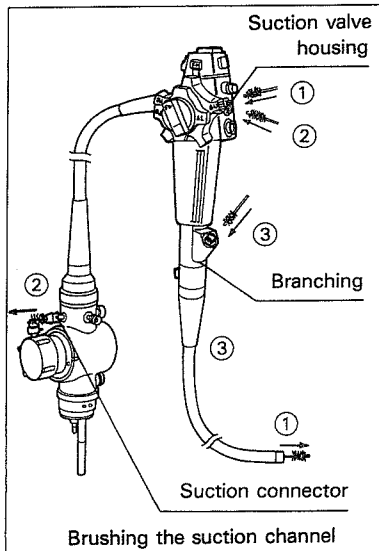


If continuous bubbling is observed from a given area, this indicates a leak.



If the videoscope is to be used for clinical procedure immediately after a leak test (without proceeding to the cleaning/disinfection process), rinse and dry the instrument taking Steps 1 and 6 through 15 in **DISINFECTION**, pages 30 and 31.

Water should be removed from air/water channel using the CW-3, before connecting the videoscope to the light source. If the videoscope is connected to the light source with water remaining in the air/water channel, the water may enter the light source and damage it.



11. Insert channel cleaning brush through insertion tube, universal cord and channel opening to brush the entire suction channel.

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

② Pass the channel 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.

★ If the forceps channel is not cleaned properly, it may cause not only infection, but difficulty in inserting accessories. It must be brushed after each case.

★ Worn out channel brushes must be replaced early.

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

★ Use only the channel cleaning brush (BW-9T) supplied with the videoscope.

★ When passing the channel cleaning brush after each procedure, make a line of the insertion tube and the universal cord as straight as possible. Small loops or sharply coil of them may cause inadequate clearliness of channels.

★ Clean thoroughly the insertion tube, universal cord and channel opening with channel cleaning brush after each procedure. Inadequate cleanlines of channels may cause problems with infection control and/or obstruction to pass the accessories through channel.

④ Attach the suction tube to the suction connector on the videoscope. Attach channel cleaning adapter to channel opening and place the free end in cleaning solution. Turn ON suction pump and cover suction valve housing with finger for approximately 10 seconds.

12. Turn OFF suction pump and remove suction tube and channel cleaning adapter.

13. Immerse entire videoscope in cleaning solution. Scrub all external surfaces. Remove videoscope, place in clean water and rinse.

14. Using a soft brush, gently wash and rinse all valves.

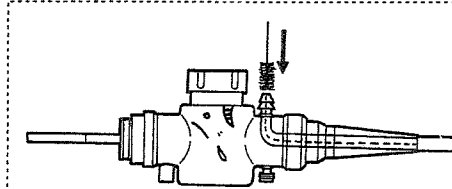
15. Install AW channel cleaning adapter and suction valve, and attach channel cleaning adapter.

16. Connect suction tube to the suction connector on the videoscope. While holding the control section out of water, turn ON suction pump, making certain free end of the channel cleaning adapter remains in water. Aspirate water for approximately 10 seconds.

17. Remove entire videoscope from water. Continue to aspirate air for approximately 30 seconds. Turn OFF suction pump, and disconnect suction tube and channel cleaning adapter.

18. Rinse and dry the videoscope taking Steps 1 and 7 through 10 in **DISINFECTION**.

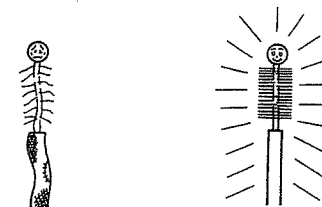
★ Do not touch contact pins in the electrical connector.



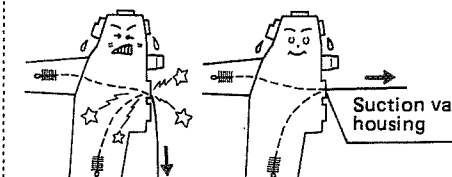
Do not attempt to pass channel cleaning brush in reverse direction: it may get caught making retrieval impossible.



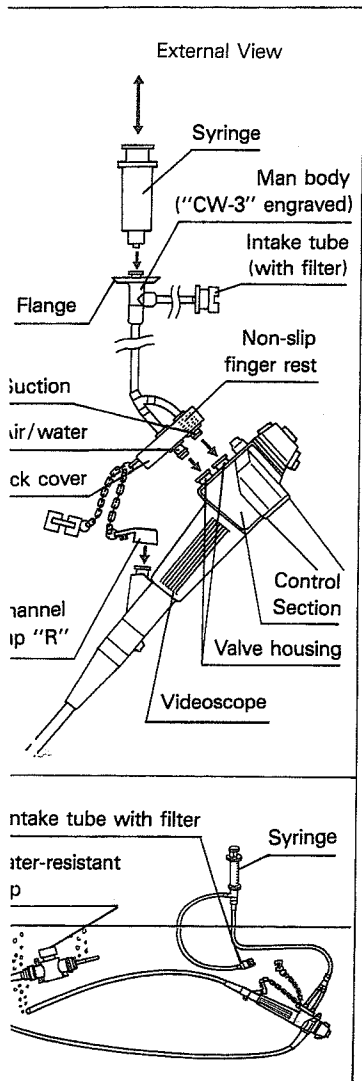
Feed air until no water comes out of nozzle.



Channel cleaning brush is a disposable item. Replace old brush with new one to avoid inadequate cleaning.



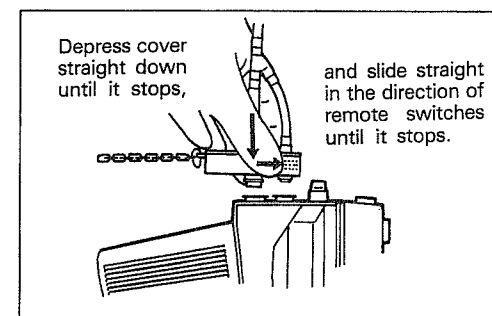
When withdrawing the channel cleaning brush, do not withdraw with the brush hit the channel opening. Hitting the opening may result in wearing of the opening. Withdraw the brush gently and straightly to the opening.

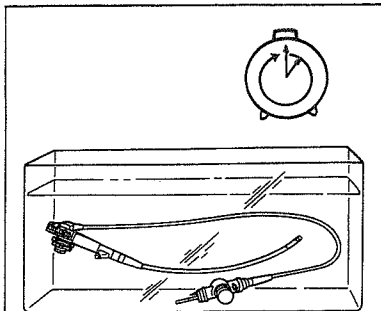


DISINFECTION

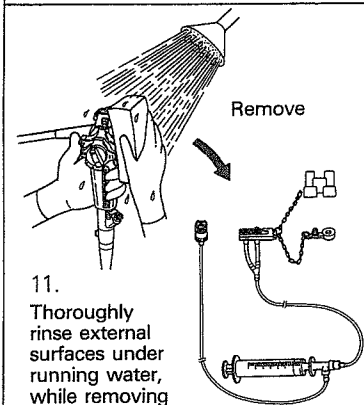
Videoendoscopes have been designed to withstand complete immersion in disinfectant solutions as designated by a blue ring around the control head. Prior to immersion, the following points must be noted:

- The electrical connector must be protected with the water-resistant cap.
 - The endoscope must be physically clean as outlined in the Cleaning Procedure.
 - The disinfectant solutions listed in 6-2-2 of this manual have been tested by Olympus and found to have no adverse effects on durability of the instrument when used in accordance with the disinfectant manufacturer's label instructions.
 - Remove all valves and place in disinfectant solution.
1. Connect All-Channel Irrigator (CW-3) to videoendoscope.
 - Aligning the plugs-valve housings, depress lock cover firmly against the control section and slide directly toward the remote switches until it stops.
 - ★ To ensure tight attachment, do not twist the cover, nor use excessive force. (To detach the cover, depress and slide in a reverse direction.)
 - Attach channel cap "R" to channel opening.
 - Insert 30 cc syringe into the CW-3 main body.
 2. Attaching the auxiliary water feed tube. Attach the auxiliary water feed tube to the socket on the cleaning tube.
 3. Immerse videoendoscope and All-Channel Irrigator into disinfectant solution.
 4. Inject solution into the auxiliary water channel.
 - Soak the tip of the videoendoscope in the solution, and then attach a syringe full of solution to the auxiliary water tube and slowly inject it. Repeat a few times until bubbling from the videoendoscope distal end stops.
 5. Pump disinfectant solution through all channels.
 - Be certain weighted end of blue intake tube is in solution and that the videoendoscope is disconnected from the light source.
 - Withdraw the plunger until syringe fills with disinfectant solution, grasping both the flange and the syringe with one hand.
 - ★ The Luer-lock syringe will provide a secure connection. However, do not use excessive force when connecting as the Luer-lock on the main body may be damaged.
 - Depress plunger forcing solution through the air/water nozzle and channel opening at the distal end of the insertion tube and through the water and suction connectors on the connector section. Repeat several times.

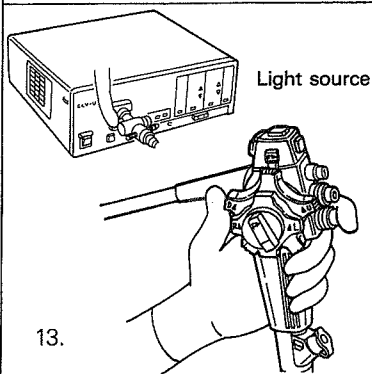




6. Immerse in disinfectant solution.



11. Thoroughly rinse external surfaces under running water, while removing the All-Channel Irrigator.



13.

6. Disconnect All-Channel Irrigator and allow videoscope to remain in disinfectant solution for recommended period of time.
7. Following disinfection, remove the videoscope from disinfectant solution and place in clean water.
8. Reattach All-Channel Irrigator. Place weighted end of blue intake tube in water.
9. Inject water and air into the auxiliary water channel. Using the procedure outlined in ⑬ above, inject clean water into the water feed channel to expel the solution.

★ Infuse enough clean water to remove all solution.

- Residual disinfectant in the channel is dangerous. While covering the water feed orifice of the videoscope with the finger, manipulate the AW channel cleaning adapter repeatedly.
10. Flush all channels with clean water until thoroughly rinsed. Then, rinse the outside of the videoscope under running water. Remove All-Channel Irrigator from the videoscope while rinsing.
 11. Reattach All-Channel Irrigator. Remove weighted end of blue intake tube from water and repeat flushing process, forcing air through channels to expel water.

12. Wipe external surfaces dry and gently detach water-resistant cap.

- Using a cotton-tip applicator, dry the distal end and valve housings. With gauze, dry the external surfaces of the electrical connector.

★ Do not touch contact pins in the electrical connector, as damage to the CCD chip may occur.

13. Connect instrument to light source and force air through all channels until moisture has been expelled and channels are dry.

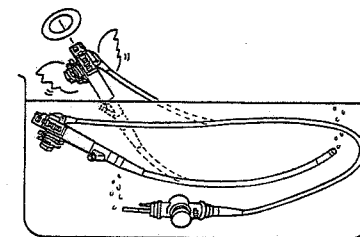
- ① Install Air/Water Channel Cleaning Adapter to air/water valve housing. Closing water container connector, depress Air/Water Channel Cleaning Adapter for approximately 30 seconds to force water through air/water channel. Release Adapter and allow air/water channel to be thoroughly dried.

- ② Attach a new biopsy valve to channel opening. Connect suction tube and turn ON suction pump. Close suction valve housing with a fingertip and air-dry suction channels.

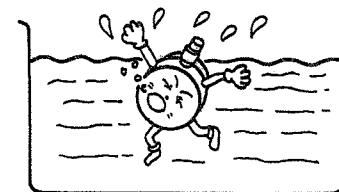
- Replace air/water valve and suction valve which have been previously disinfected, rinsed, dried and lubricated. (Do not attach the AW Channel Cleaning Adapter.)

- Wash, Rinse and Dry all cleaning equipment. Thoroughly dry the inside of the water-resistant cap taking care not to damage the packing. (Do not immerse the cap unless it is attached to the electrical connector, otherwise adhering water drops in the cap may be transferred to the connector.)

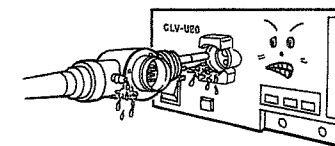
★ Before storage, completely dry the channel interior by passing plenty of air through it. Unremoved moisture may cause bacterial growth and, in sub-zero temperatures, a water leak from freezing.



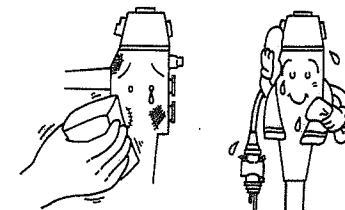
Do not exceed recommended period of time.



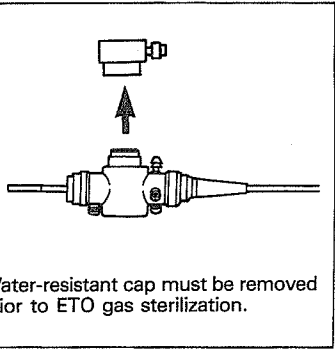
Do not immerse the Water-Resistant Cap individually in water.



Do not connect to the light source, unless water in the air/water channel has been expelled using the CW-3.



Do not use hard or abrasive scrub brush. After rinsing, thoroughly wipe dry.



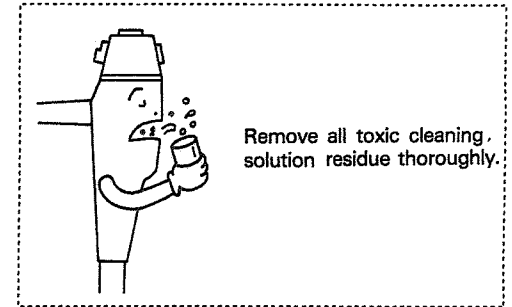
ETO GAS STERILIZATION

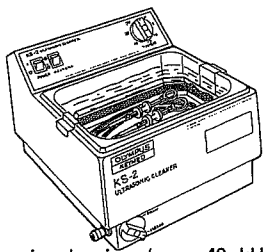
Videoscope have been designed to withstand Ethylene Oxide Gas Sterilization provided the following conditions are met prior to sterilization.

- The endoscope must be physically clean and thoroughly dried as outlined in steps 1 through 18 in the Cleaning Procedure.
- Air/Water, Suction and Biopsy Valves must be removed from the videoscope prior to sterilization.
- The water resistant cap **MUST** be removed from the electrical connector before the sterilization and aeration process.

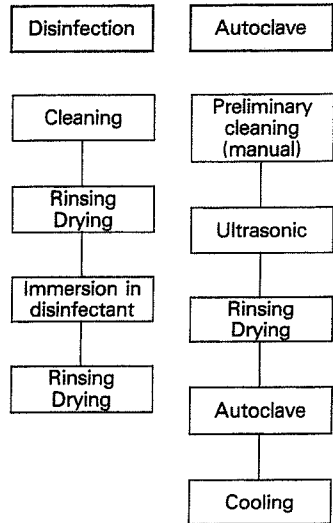
Sterilization and aeration must be performed under the conditions described in Section 6-2-3 of this manual.

To ensure that sterilization has been accomplished, always use a biological indicator and follow the manufacturer's instructions for the particular gas sterilizer being used.





Ultrasonic cleaning (over 40 kHz output frequency, approx. 5 minutes min.)



3 Cleaning/Disinfectin/Sterilizing the Biopsy Forceps

① Manual Cleaning

Thoroughly wash the biopsy forceps in cleaning solution using a soft brush to remove all debris. Particular care should be taken to remove all blood and secretions from difficult to clean areas such as the biopsy cups. After a through rinsing, wipe off all moisture.

★ Do not kink the forceps shaft.

★ When cleaning needle type forceps, wash carefully to avoid damage to the needle.

② Ultrasonic Cleaning

The use of an ultrasonic cleaner is desirable to aid in the removal of particulate matter. Ultrasonic cleaning is mandatory if the biopsy forceps are to be autoclaved.

- Clean the biopsy forceps immediately after use.
- Immerse in an ultrasonic cleaner with 40 kHz or higher output for approximately 5 minutes.
- Use only tap water in the ultrasonic cleaner. Some surfactants and other agents may cause the forceps to operate sluggishly.

③ Disinfection

- Prior to disinfection or sterilization, the biopsy forceps must be meticulously cleaned.
- Immerse in disinfectant solution for recommended time.
- Rinse thoroughly and dry.
- Lubricate cups with a medical grade silicone lubricant.

④ ETO Gas Sterilization

- Prior to ETO gas sterilization, the forceps must be meticulously cleaned and thoroughly dried. Accessories with palstic parts must be aerated following ETO gas sterilization.
- Lubricate forceps cups with a medical grade silicone lubricant.
- ★ Always use a biological indicator and follow the manufacturer's instructions for the particular gas sterilizer being used.

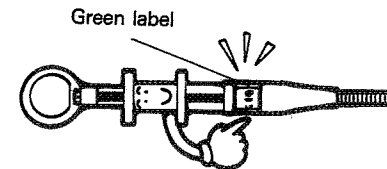
⑤ Autoclave

- Prior to steam autoclaving, the biopsy forceps must be meticulously cleaned and have undergone approximately 5 minutes of ultrasonic cleaning.
- Autoclave under the following conditions:

Temperature: 134°C (274°F)	or	Temperature: 121°C (250°F)
Pressure: 2 atmospheres		Pressure: 1 atmosphere
Time: 5 minutes		Time: 20 minutes

- Lubricate forceps cups with a medical grade silicone lubricant.

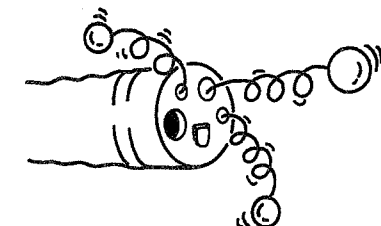
★ Only those accessories identified by a green color or marked "AUTOCLAVE/AUTOCLAVABLE" may be autoclaved.



Only those accessories identified by a green color or marked "AUTOCLAVE/AUTOCLAVABLE" may be autoclaved.

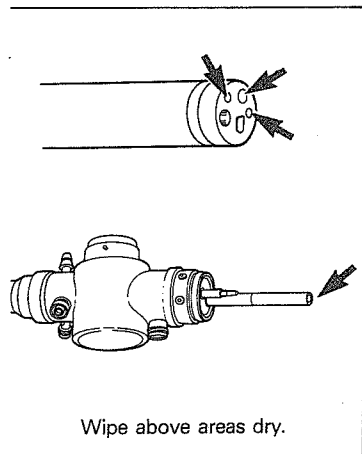


Do not apply excessive force.



Never autoclave or boil the videoscope, nor use ultrasonic cleaner with it.

6-4 Storage



1 Care for Storage

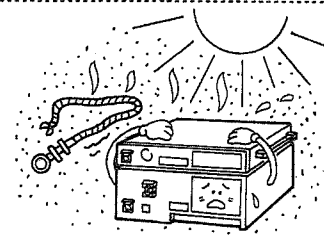
- ① The videoscope must be dried thoroughly prior to storing. Take special care to dry the distal end and all lenses.
Use a dry cotton swab to dry carefully the objective lens and light guide on the distal end. Apply lens cleaner to a piece of clean gauze and lightly wipe the lens surface. This will prevent residue in tap water from leaving a film cover the lens.
★ Do not wipe off the lens cleaner.
★ Do not touch the electrical contacts inside the electrical connector as the CCD may be destroyed.
- ② The storage location must be clean, dry, well ventilated and maintained at a normal temperature. Avoid direct sunlight, high temperature, high humidity and X-ray exposure.
- ③ The videoscope should be stored with the insertion tube as straight as possible. Release all angulation locks. If it must be coiled for storage, do not coil insertion tube tighter than its condition when in the carrying case.
- ④ Do not use the carrying case for storage. The carrying case is designed for shipping purpose only. Routine storage of the videoscope in a humid, dark, non-ventilated environment, such as the carrying case, may cause problems with infection control. Accessories (e.g. biopsy forceps) must also be dried thoroughly before storage. Do not coil tightly.

2 Videoscope Repair

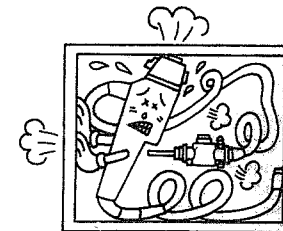
- ① Should the videoscope require repair, it should be shipped to the nearest Olympus service center in its original carrying case, along with a description of the videoscope malfunction or damage. Include the name and telephone number of the individual most familiar with the videoscope problem and a repair purchase order.
- ② Minor problems with the operation of the videoscope may be correctable by the endoscopist or assistant. Refer to Section 10 TROUBLESHOOTING GUIDE.
All other repairs should be made only by an authorized Olympus Service Center. In no event will Olympus be liable for any injury or damage due to repairs performed by non-Olympus personnel.
★ Do not touch contact pins inside the electrical connector. Discharge of static voltage may cause damage to the CCD chip in the distal end.

NOTICE

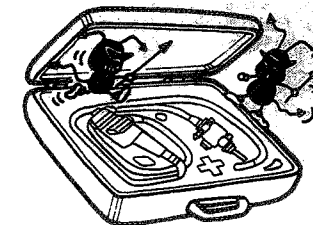
For the purpose of infection control, and for the safety of all those who will handle the equipment, before returning any instrument to Olympus, the instrument must be thoroughly cleaned and subjected to a high-level disinfection procedure.



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

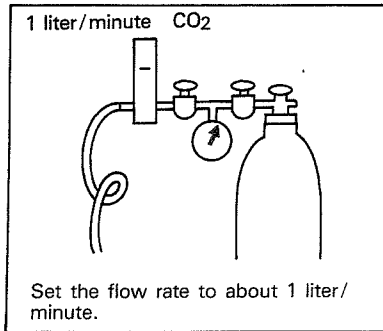


Do not sharply bend.



Do not store in the carrying case.

7 USE OF NON-COMBUSTIBLE GASES



Non-combustible gas use

- By using CO₂ gas instead of air during endoscopic examinations of the colon and rectum, etc. post-examination pain can be reduced.
- On occasions of inflammable gas generation, when electro cauterization or lasers are in use, exchange the intestinal gas with air or a non-combustible gas.

In addition to this information, refer to the instruction manual of the gas and water valve set (MD-413, optional accessory).

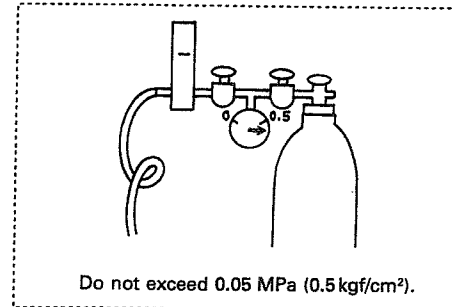
★ The gas and water valve set (MD-413) consists of three items: a gas/water valve (MD-410), the gas tube (MD-411), and the water container (MD-412). These three items must be used in combination.

1 Preparation of the Gas Cylinder

- ① Prepare a standard gas cylinder (with regulator and release valve) which meets medical safety requirements.
- ② Adjust the relief pressure of the relief valve of the cylinder to 0.05 MPa (0.5 kgf/cm²).
★ Refer to the instruction manual of the valve set (MD-413).

2 Connection, Adjustment and Inspection

- ① Remove the air/water valve on the endoscope control section, and attach the MD-410 gas/water valve.
- ② Fill the water container (MD-412) about 2/3 full of clean water, then firmly insert the water container connector into the videoscope water inlet.
- ③ Connect the end of the gas tube (MD-411) to the gas cylinder and attach it firmly with the clamp.
- ④ Fasten the other end of the gas tube to the connector on the videoscope.
- ⑤ While plugging the small hole of the gas/water valve with the finger, push it one stop, and open the regulator of the cylinder gradually until the flow rate becomes about 1 liter/minute.
- ⑥ Place the distal end of the videoscope into clean water and ensure that gas is emitting from the nozzle.
- ⑦ With the tip of the videoscope more than 10 cm deep in the water, release the finger from the valve and ensure that gas delivery stops.
★ At this time, ensure that no gas is leaking from the small hole.
- ⑧ Set the air feed pressure level of the light source to high or 3.
- ⑨ When the gas/water valve is depressed two stops, ensure that water is properly delivered, and that it stops when the finger is released.

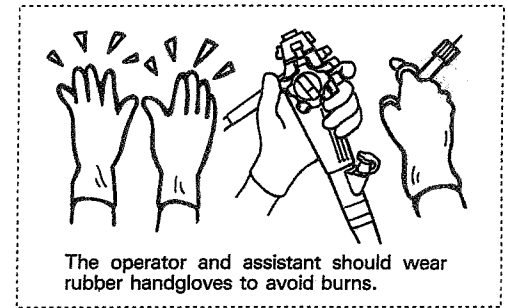
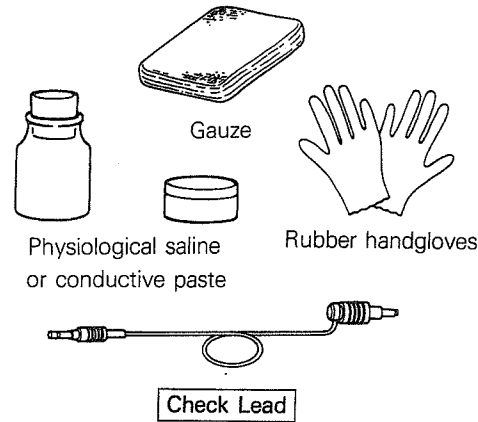
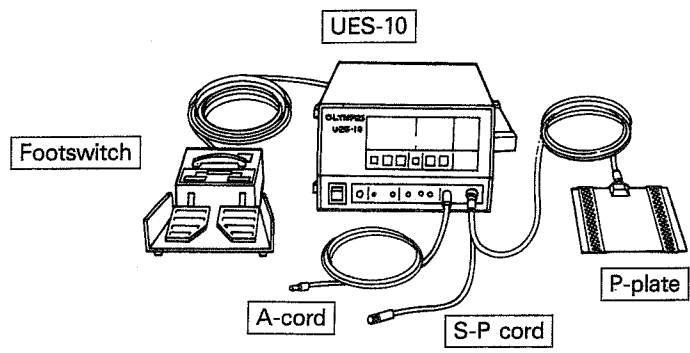


ELECTROSURGERY

Extensive training and experience in Endoscopic Electrosurgery is necessary before attempting electrosurgical procedures through the videoscope. The endoscopist must determine the technical, as well as clinical details of the procedure from a professional medical viewpoint. Improper technique, faulty equipment and the use of improper or incompatible ancillary equipment can all result in electrosurgical accidents. Refer to the instruction manual pertaining to each piece of equipment used.

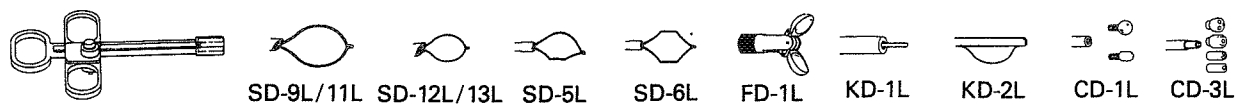
The following Olympus equipment is safe and compatible with this videoscope:

- Olympus electrosurgical accessories
- Olympus Electrosurgical Units (PSD- and UES-series)



The operator and assistant should wear rubber handgloves to avoid burns.

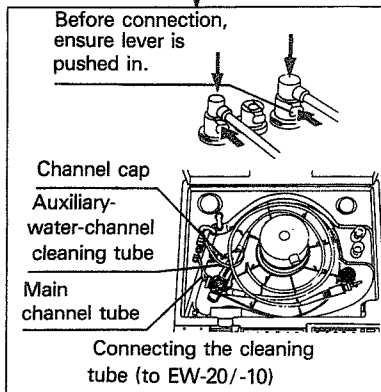
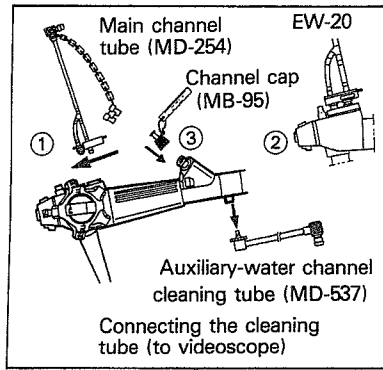
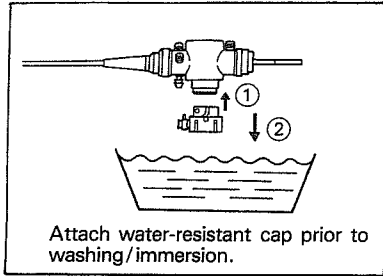
Electrosurgical Accessories



- ★ The S-cord must be connected to the S-cord connector mounted on the connector section; otherwise the videoscope and CV-100 will be damaged.
- ★ Electrosurgical 'noise' may disturb the video picture.

9 WASHING AND DISINFECTION EQUIPMENT

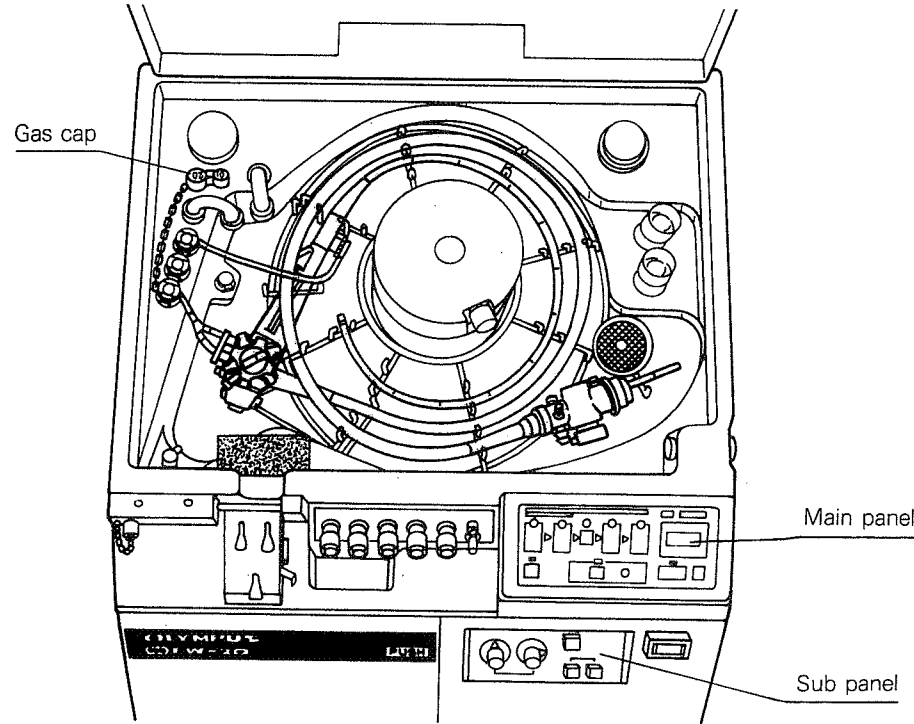
Refer to EW-20 (EW-10) instruction manual for detailed operation.



1 Setup of the Endoscope

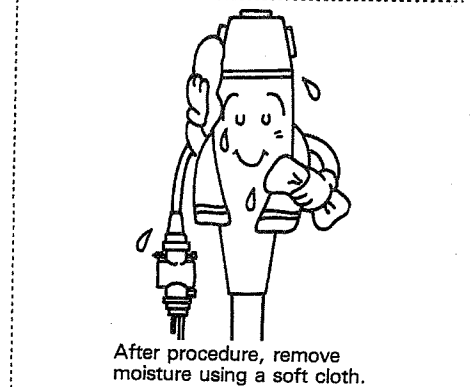
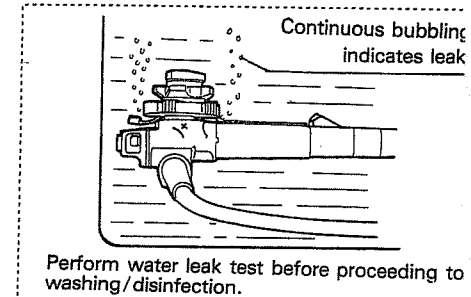
The entire endoscope is cradled in the tub in the washer.

- ★ The electrical connector is not waterproof and must be protected with the water-resistant cap.
- ★ Do not immerse over one hour.
- ★ Use the main channel tube (MD-254), and CF auxiliary water channel cleaning tube (MD-537).
- ★ Always put the gas cap on the periphery of the OES endoscope washer. If put it into the tub, draining may be obstructed.



2 Operation

- Press either detergent switch or disinfectant switch on main panel.
- Adjust wash time selector (and disinfectant time selector) on sub panel. Push START switch.
- At the end of the cycle, the washer stops automatically, the FINISH lamp lights and a buzzer sounds momentarily.



10 TROUBLESHOOTING GUIDE

	Symptom	Possible Problem	Remedy
General	Absent video picture	Disconnected or misconnected cables	Check connection of cables between CV-100 and video accessories. Plug endoscope connector firmly into CV-100 scope socket. Check that SCOPE button (lower right corner) of CV-100 is illuminated.
		CV-100 not operating. Videoscope cable is not connected. Improper video monitor adjustment	Turn ON power switch. Check circuit breaker on the rear panel of CV-100. Connect videoscope cable. Readjust video monitor.
Image Quality or Brightness	Image is not clear, too dark or too bright.	Improper video monitor adjustment Improper light source settings Old or improperly installed lamp. Dirty objective lens	Readjust video monitor. Adjust brightness control. Properly install lamp. Replace old lamp. Clean LG connector and distal end with gauze moistened with alcohol. Feed water to remove mucus, etc. from objective lens.
		Internal fluid damage CV-100 shutter is in "ON" position. IRIS switch is turned to "PEAK" position.	Moisture within the videoscope will permanently cloud the objective lens. Send the videoscope for repair. Close shutter. Turn IRIS switch to "AVERAGE" position.
	Abnormal color	Incorrect filter setting on light source White balance adjustment on CV-100 is not correct. Color tone switch improperly setted.	Select correct filter. Adjust white adjustment correctly. Adjust as necessary.

	Symptom	Possible Problem	Remedy
Air/Water	Absent or insufficient air or water feeding	Air/Water nozzle is clogged. Open circuit breaker for water container. Improper fitting of water feed tube to water container Uncapped water container Air/water nozzle missing or deformed. Air/water valve is dirty. Air pump not operating. Water container cap is loose.	Soak distal end in warm soapy water. Use all-channel irrigator (CW-3) and a small syringe to flush debris from the air/water nozzle. Routine use of the air/water channel cleaning adapter will eliminate this problem. Reset circuit breaker. Fit water feed tube securely. Cap water container securely. Send videoscope for repair. Remove valve. Clean and lubricate with silicone oil. Turn ON air switch on the light source. Tighten cap.
	No water feeding	Water container either empty or too full.	Fill 2/3 full.
	Sticky air/water valve	Valve is dirty.	Remove valve. Clean and lubricate with silicone oil (MB-146).
	Constant air feeding	Air/water valve is dirty.	Remove valve. Clean and lubricate with silicone oil (MB-146).
Suction	Absent or insufficient suction	Suction channel obstructed. Dirty suction valve Biopsy valve leaks or is improperly attached. Suction pump is OFF or not connected. Improperly semi-disposable biopsy valve installed. Worn semi-disposable biopsy valve	Remove suction valve and pass cleaning brush through suction channels in both insertion tube and universal cord. Remove valve. Clean and lubricate with silicone oil (MB-146). Check and replace with new valve if necessary. Turn ON pump and check suction tube connections. Install semi-disposable biopsy valve correctly. Replace semi-disposable biopsy valve, if necessary.

	Symptom	Possible Problem	Remedy
Suc- tion	Sticky suction valve	Valve is dirty.	Remove valve. Clean and lubricate with silicone oil (MB-146).
Angulation	Resistance when rotating angulation control knobs.	Angulation locks engaged. Internal problem	Place locks in "Free" position. Send videoscope for repair.
	Distal end deflection is not normal.	Amount of distal end deflection is less than specifications.	Send videoscope for repair.
Accessory	Accessory does not pass through channel smoothly.	Forceps shaft is bent or kinked. Instrument channel is obstructed.	Discard and replace with new forceps. When inserting accessories, use repeated short strokes, grasping accessory close to biopsy valve. Pass cleanig brush through instrument channel. If unable, send videoscope for repair.
	Accessory cannot be inserted.	Accessory is too large for instrument channel.	Check accessory chart. Use only recommended accessories.
	Forceps do not operate smoothly.	Forceps shaft is bent or kinked. Forceps cups are dirty.	Discard and replace with new forceps. 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 cup hinges is recommended if problem persists. Lubricate forceps with silicone oil (MB-146).

11 ENDOSCOPIC SYSTEM CHART

CF TYPE 100S

MB-107
AW Channel
Cleaning
Adapter

BW-9T
Channel Cleaning
Brush

MB-358
Semi-Disposable
Biopsy Valve

MB-19
Channel Cleaning
Adapter

CW-3
All-Channel Irrigator

MB-1 Auxiliary
Water Tube

MB-622
Distal Hood

MA-2
Lens Cleaner

KV-2/SSU-2
Olympus
Suction Pump

MD-431
Water
Container

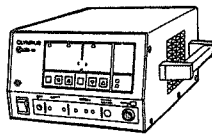
MD-252
Water-Resistant Cap

MB-155
Leakage Tester

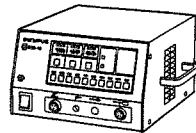
MU-1
Maintenance Unit

Aspirator

Electrosurgical Unit.



UES-10



PSD-10

*CO₂
Gas Cylinder

MD-413
Gas/Water
Valve Set
consists of; gas/water valve (MD-410),
gas tube (MD-411) and water container (MD-412)

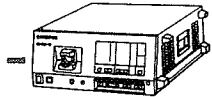
Endoscope Tr

TC-E1
Compact
EVIS
Trolley

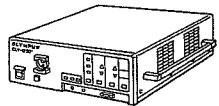
Chart below indicates ancillary equipment compatible with the CF-TYPE100S.
Use of other equipment is not recommended.



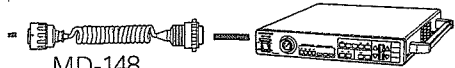
CLV-F10
OES Xenon Light
Source with Flash



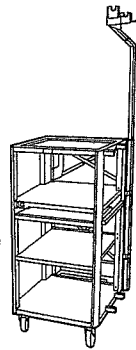
CLV-10
OES Xenon Light Source



CLV-U20
EVIS Universal Light
Source

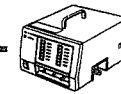


MD-148
Videoscope
Cable 100 CV-100 EVIS
Video System Center



Upper part:
MD-497
Trolley Extension
Unit A

Lower part:
TC-V1
Compact Video
Trolley



HPU
Heat Probe Units

Forceps, Brush, etc.

BIOPSY FORCEPS						CYTOLOGY BRUSH	GRASPING FORCEPS			
Fenestrated	Ellipsoid with needle	Fenestrated with needle	Alligator type	Alligator jaws	Rat tooth	Standard type	W-shape	Alligator jaws	Rat tooth	Sharp tooth
FB-25K	FB-24E	FB-23K	FB-11K	FB-36K	FB-37K	BC-2J	FG-3K	FG-6L	FG-8L	FG-32L
GRASPING FORCEPS			SUTURE CUTTING FORCEPS	SURGICAL SCISSORS	WASHING PIPE		INJECTOR	INJECTOR Disposable type	HEAT PROBE	CLIP FIXING DEVICE
Tripod type	Basket type	Rubber tips			Standard type	Spray type				
FG-15L	FG-16L	FG-21L	FS-1K	FS-3L	PW-1H	PW-5L	NM-1K/4L-12L	NM-13L-17L	CD-20Z	HX-3L

Electrosurgical Accessory

DIATHERMIC SNARE				COAGULATION ELECTRODES		HOT BIOPSY FORCEPS	DIATHERMIC CUTTER	
Oval	Mini oval	Crescent	Hexagonal	Ball Point	Suction type		Needle type	Wire type
SD-9L/11L	SD-12L/13L	SD-5L	SD-6L	CD-1L	CD-3L	FD-1L	KD-1L	KD-2L

Ultrasonic Cleaner

KS-2
Ultrasonic Cleaner

Endoscope Washer

EW-20 TD-20
Endoscope Washer Manual Disinfector

*Commercially available