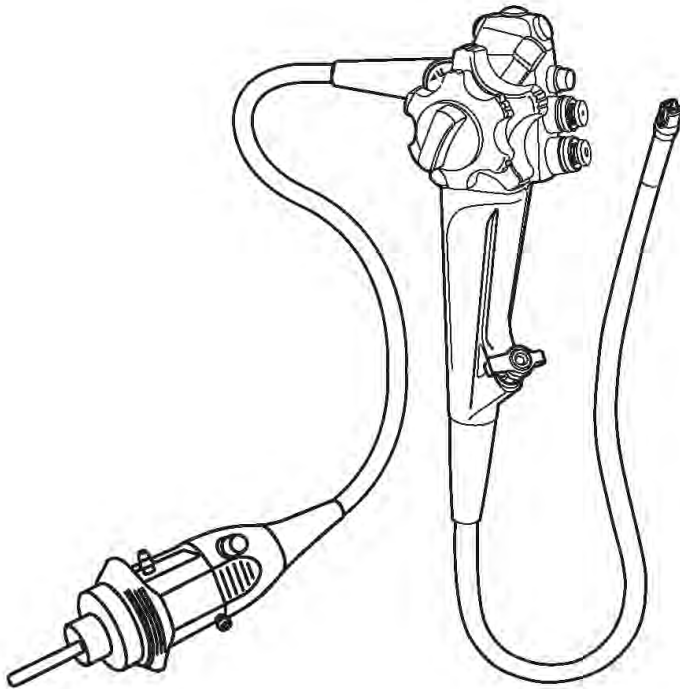


# REPROCESSING MANUAL

## EVIS EXERA III DUODENOVideoscope OLYMPUS TJF-Q190V



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### Accessories for Reprocessing



**Channel  
plug  
(MH-944)**



**ETO cap  
(MB-156)**



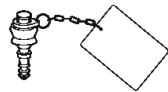
**Injection  
tube  
(MH-946)**



**Suction  
cleaning  
adapter  
(MH-856)**



**Distal-end  
flushing  
adapter  
(MAJ-2319)**



**AW channel  
cleaning  
adapter  
(MH-948)**



**Channel  
cleaning  
brush  
(BW-20T)**



**Channel-  
opening  
cleaning brush  
(MH-507)**



**Single use  
combination  
cleaning brush  
(BW-412T)**

### Accessories for Procedure



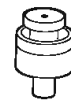
**Mouthpiece  
(MA-392)**



**Air/water  
valve  
(MH-438)**



**Biopsy  
valve  
(MB-358)**



**Suction  
valve  
(MH-443)**

Refer to the endoscope's companion manual, the "OPERATION MANUAL" with your endoscope model listed on the cover, for operation information.

**⚠ CAUTION**

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

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## 1.1 Instructions

### 1.1.1 About this manual

- This manual provides detailed instructions for reprocessing the EVIS EXERA III DUODENOVideoscope OLYMPUS TJF-Q190V and accessories listed below.

#### **Accessories for Reprocessing:**

- Suction cleaning adapter (MH-856)
- Injection tube (MH-946)
- ETO cap (MB-156)
- Channel cleaning brush (BW-20T)
- Distal-end flushing adapter (MAJ-2319)
- Channel plug (MH-944)
- AW channel cleaning adapter (MH-948)
- Channel-opening cleaning brush (MH-507)
- Single use combination cleaning brush (BW-412T)

#### **Accessories for Procedure:**

- Biopsy valve (MB-358)
- Air/water valve (MH-438)
- Suction valve (MH-443)
- Mouthpiece (MA-392)

- This instruction manual contains essential information on reprocessing endoscopes and accessories safely and effectively.
- Before reprocessing, thoroughly review this manual and the manuals for the reprocessing equipment and chemicals that will be used for reprocessing. Reprocess all the devices as instructed.
- The accessories listed cannot be refurbished or repaired. The accessories need to be replaced once they show any signs of wear and tear. Should any irregularity be observed, use a replacement accessory instead. Using defective accessories may cause equipment malfunction, reduce the efficacy of reprocessing, present a risk to patients and/or operators, or damage the endoscope and/or accessories.

- The “Reprocessing” manual (this manual) and the “Operation” manual together form the complete set of instructions for the EVIS EXERA III DUODENOVideoscope Olympus TJF-Q190V and the listed accessories. Both manuals accompanied the endoscope at shipment.
- Keep this manual and all related manuals in a safe and accessible location (e.g., in the reprocessing area).
- If you have any questions or comments about any information in this manual, or if a problem occurs while reprocessing, contact Olympus. Refer to the contacts listed on the last page.

### 1.1.2 User qualification

All individuals engaged in reprocessing must receive the reprocessing training with training materials of TJF-Q190V provided by Olympus and this manual. Each institution is responsible for ensuring that only appropriately trained personnel perform reprocessing. For further details about training, contact Olympus.






### 1.1.3 Terms used in this manual

<p><b>AER/WD</b></p>	<p>AER and WD are abbreviations for Automated Endoscope Reprocessor and Washer-Disinfector, which are used for reprocessing endoscopes and accessories.</p>
<p><b>Disinfection</b></p>	<p>Some countries classify the disinfection level and define “high-level disinfection”, and other countries do not. In the manual, the term “disinfection” includes the meaning for “high-level disinfection”.</p> <p>For more information about disinfectant solution, read the instructions as described in Chapter 3.4, “Disinfectant solution”.</p>

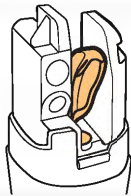
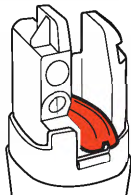
## 1.1.4 Symbols used in this manual

The table below lists symbols that appear in this manual. These symbols may also be accompanied by a word or short phrase, and are meant to visually reinforce specific statements and/or conditions.

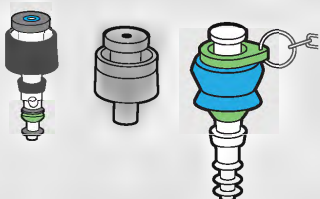
Symbol	Description	What the symbol indicates
	Safety symbol	Indicates Warnings and Cautions, which include a safety message.
	Check mark	Indicates a condition or action that should occur, or part that is compatible (i.e., can be used).
	Red X mark	Indicates a part that should not or is not compatible (i.e., should not be used).
	Do Not	Indicates a condition or action that should not occur.
	No damage	Indicates that there should be no damage.
	No debris	Indicates that there should be no debris.
	No bristle damage	Indicates that there should not be any loose, missing, or damaged bristles.
	No water (or fluid)	Indicates that there should be no water (or fluid) (e.g., on a component or connector).
	No air bubbles	Indicates that there should be no air bubbles.
	Within 1 hour	Indicates that manual cleaning should be started within 1 hour after patient procedure.

	Keep endoscope immersed	Indicates that the endoscope should be kept immersed.
	Keep accessories immersed	Indicates that the accessories should be kept immersed.
	Specific timer	Indicates the amount of time a condition or action should last. The "--" will be replaced with the amount of time in seconds (sec.) or hours (hr) (e.g., 10 sec., 15 sec., 30 sec., 2 hr).
	General timer	Indicates that a condition or action should last a specified time that might vary depending on information outside of this manual (e.g., described in another manual).
	Number of times	Indicates the number of times an action should be conducted. The "--" will be replaced with the number of times (e.g., 1, 3, 5, 6).

### 1.1.5 Highlight colors used in this manual

Example	Highlight color	What the highlight color indicates
	Light Orange	The component of attention. The light orange highlighted component is the component with which you will interact with in this step.
	Red	Incorrect position. The red highlighted component shows how you should not position the component of attention.

#### NOTE



In some images, this manual uses colors such as dark grey, green, blue, and the red dot on Suction valve (MH-443), only as a convenient way to visually distinguish some component parts that have these colors.

## 1.2 Importance of reprocessing

The medical literature reports incidents of cross-contamination resulting from improper reprocessing. It is strongly recommended that all individuals engaged in reprocessing closely observe all instructions described in this manual and the manuals for all ancillary equipment.

All individuals engaged in reprocessing should have a thorough understanding of the following items:



- Professional health and safety policies of your healthcare facility
- Instruction manuals for the endoscope, accessories, and all the other reprocessing equipment
- The construction and handling of the endoscope and accessories
- Handling of pertinent chemicals.

When selecting appropriate methods and conditions for cleaning, disinfection, and sterilization, always follow:

- The policies at your institution
- Applicable national laws and standards
- Professional society guidelines and recommended practices
- The instructions given in this manual.

## 1.3 Signal words

The following signal words are used throughout this manual:

 <b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices or potential equipment damage.
<b>NOTE</b>	Indicates additional helpful information.

## 1.4 Safety Precautions



### WARNING

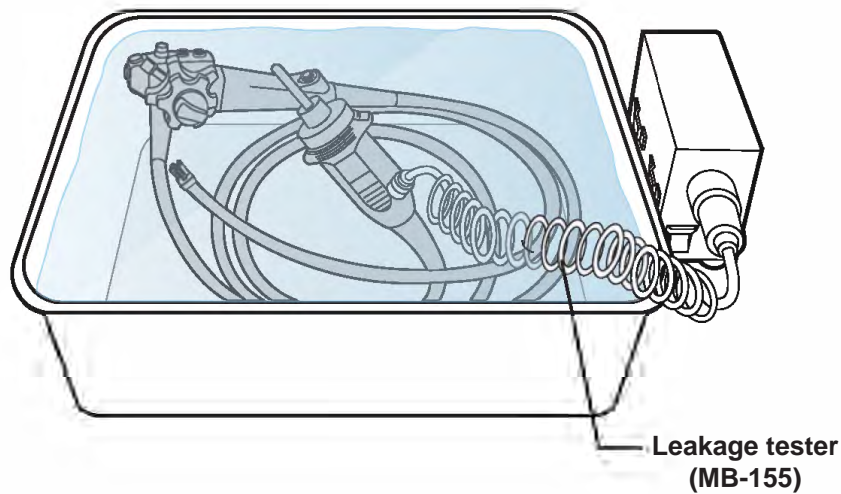
- An insufficiently reprocessed endoscope and/or accessory may pose an infection control risk to patients and/or operators.
- Equipment used in conjunction with reprocessing the endoscope and accessories may pose an infection control risk. These can include:
  - The endoscope reprocessor
  - Video system center
  - Light source
  - Front panels of other equipment
  - Tap and/or basin

Properly replace, clean and/or disinfect these items as described in their manuals.

- All disinfection methods (manually or by using an AER/WD) and all sterilization methods (using ethylene oxide gas or steam) require thorough prior cleaning of the instruments being reprocessed. If the instruments are not adequately cleaned prior to disinfection/sterilization, these processes will be ineffective.
- Pre-clean the endoscope and the accessories at the bedside immediately after each patient procedure. If the endoscope and accessories are not immediately cleaned after each patient procedure, residual organic debris will begin to dry and solidify, thereby hindering reprocessing efficacy.
- Reprocess all channels of the endoscope, including the instrument channel, and all accessories after each patient procedure, even if the channels or accessories were not used during the patient procedure. Insufficient reprocessing of these components may pose an infection control risk to patients and/or operators.
- Rinse all external surfaces and channels of the endoscope and accessories thoroughly with water to remove any residual solution after disinfection or cleaning. Residual disinfectant and detergent solution may cause adverse reactions in patients.
- The results of sterilization depend on various factors. These factors include how the equipment was packaged and the placing and loading of the package in the sterilization device. Verify the sterilization process using biological and/or chemical indicators. Follow the guidelines for sterilization issued by national authorities, professional organizations, and infection control professionals, including the frequency of the above verification, as well as the instruction manual for the sterilization device.

**! WARNING**

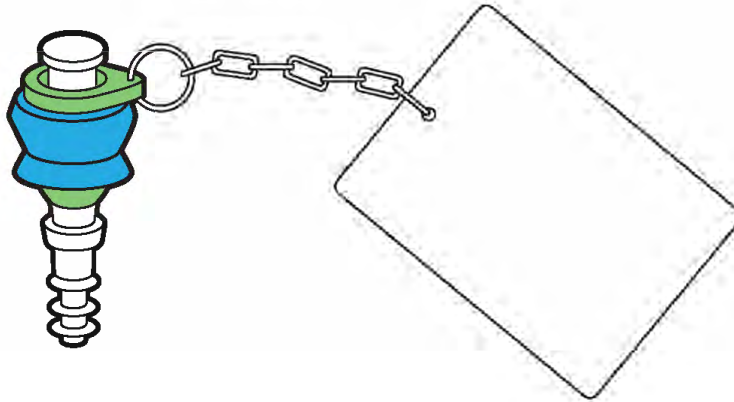
- Clearly identify contaminated endoscopes and accessories from the reprocessed endoscopes and accessories to prevent mix-ups and cross-contamination. Some national or professional guidelines recommend separating the dirty (contaminated) area, clean area, and storage area. Touching a reprocessed endoscope and/or accessories with contaminated gloves or placing them on a contaminated hanger or surface, including touching the floor, will recontaminate the endoscope and/or accessories.
- Prior to each patient procedure, confirm that the endoscope and accessories have been properly reprocessed and stored. If there are any doubts or questions, reprocess them again before the patient procedure, following the instructions given in this manual.
- Perform the leakage test after each precleaning procedure. Confirm there is no leak from the forceps elevator, while raising and lowering the forceps elevator. Do not use the endoscope if a leak is detected. Using an endoscope with a leak may cause loss of the endoscopic image, damage to the bending mechanism or other malfunctions, and may also pose an infection control risk.



- Store alcohol in an airtight container. Alcohol stored in an open container may cause a fire hazard and may result in a loss of efficacy due to evaporation.

**! WARNING**

- Do not use the AW channel cleaning adapter (MH-948) for patient procedures. It will cause continuous insufflation and could result in patient injury.



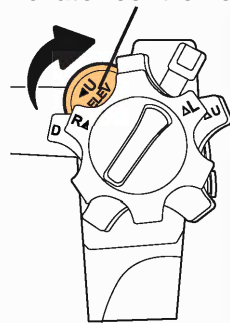
**AW channel cleaning adapter (MH-948)**

- The accessories listed in Chapter 1.1.1, “About this manual” cannot be refurbished or repaired. The accessories need to be replaced once they show any signs of wear and tear. Should any irregularity be observed, use a replacement accessory instead. Using defective accessories may cause equipment malfunction, reduce the efficacy of reprocessing, present a risk to patients and/or operators, or damage the endoscope and/or accessories.
- Single use brushes, such as the single use combination cleaning brush (BW-412T), are designed to clean one endoscope and related accessories. Dispose of the single use brush immediately after use. If a single use brush is used to clean multiple endoscopes and/or accessories, it may reduce the efficacy of preprocessing and may damage the brush. A damaged brush may break, which may damage the endoscope or accessories.
- Patient debris and used reprocessing chemicals pose infection control risks. Always wear appropriate protective equipment during reprocessing to protect yourself from dangerous chemicals and potentially infectious material. Protective equipment should include appropriate eyewear, face mask, cap, moisture-resistant clothing, shoe covers, and chemical-resistant gloves that fit properly and are long enough to prevent skin exposure.
- The reprocessing room must be adequately ventilated to minimize the risks from chemical vapors.
- Always remove contaminated personal protective equipment before leaving the reprocessing area to prevent contamination from spreading.
- Only use Olympus AERs. If you use an AER that is not distributed by Olympus, the AER manufacturer is responsible for validating compatibility with each Olympus endoscope and accessory.

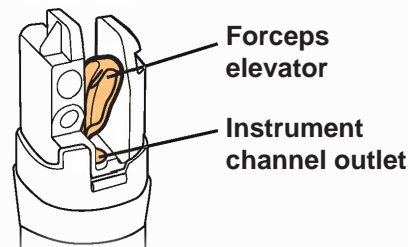
**! WARNING**

- Confirm that the AER/WD is able to reprocess the endoscope, including all channels and the forceps elevator recess, and accessories. If these items are insufficiently reprocessed, it may pose an infection control risk. If you are uncertain about the ability of your AER/WD, contact the manufacturer of the AER/WD for specific instructions and information on compatibility and the required connectors. Always conduct all steps of precleaning and manual cleaning as instructed in this manual, even if you are using an AER/WD that has instructions that state you can skip some steps.
- If using an Olympus OER-AW, OER-Pro, or OER-Elite, ensure that the distal end's instrument channel outlet is open. If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops. Then, attach the dedicated connecting tube to the endoscope's distal end, and set in your OER-AW, OER-Pro, or OER-Elite according to the manufacturer's instructions.

Elevator control lever



Open



- Do not use this manual to reprocess an Olympus endoscope that has been repaired by a non-Olympus facility. The reprocessing instructions have not been validated for endoscopes repaired by a non-Olympus facility. Contact the repair facility for the appropriate reprocessing instructions.
- Prions, which are the pathogenic agents of the Creutzfeldt-Jakob disease (CJD), cannot be destroyed or deactivated by the reprocessing methods described in this manual. If you have a patient with CJD or variant CJD, only use the endoscope and accessories for these types of patients or dispose of the endoscope and accessories immediately after the patient procedure. Make sure to dispose of the equipment in an appropriate manner, to prevent the usage of exposed endoscopes and accessories on other patients. Handle CJD and variant CJD according to the guidelines in your country.

 **WARNING**

- Reprocessing methods that destroy or deactivate prions may damage the endoscope and accessories. Olympus cannot guarantee the effectiveness, safety, and durability of reprocessing methods not described in this reprocessing manual. Contact Olympus for more information about the durability of Olympus equipment when using a different reprocessing method.
- If you use a different reprocessing method, the local institution and physicians are responsible for the safety and efficacy of the Olympus equipment. Carefully inspect all equipment for irregularities (damage) prior to each patient procedure. Do not use the equipment if any irregularity is observed.
- Good quality control practices require appropriate documentation as they are conducted. This can include, among other practices:
  - Local SOPs (Standard Operating Procedures)
  - Confirmation of operator training
  - Routine testing of the disinfectant's MEC (Minimal Effective Concentration),
  - Confirmation of the disinfectant's use-life
- If you perform any test on the endoscope using extraction fluid (e.g., a microbial), reprocess the endoscope again according to this "REPROCESSING MANUAL" before the patient procedure.

 **CAUTION**

- Confirm that the ETO cap (MB-156) is not attached to the endoscope, before immersing the endoscope in reprocessing fluids. If the ETO cap is attached, reprocessing fluids will enter the endoscope, causing damage to the endoscope.
- When aerating or irrigating the endoscope channels, the air or water pressure must not exceed 0.5 MPa (5 kgf/cm<sup>2</sup>, 72 psig). Higher pressures may damage the endoscope.
- DO NOT remove spare accessories from their original package until they are needed.
- To prevent damage, do not apply excessive force to the endoscope and accessories during reprocessing.
- Vapors from disinfectant solution and alcohol may damage electronic devices such as computers. Properly manage the quality and durability of the devices used in reprocessing rooms and the ventilation performance of the rooms.

## 1.5 Reprocessing before first use

New endoscopes, repaired endoscopes, new accessories, and the carrying case for endoscopes are not reprocessed prior to shipping from Olympus. Whether that equipment is for new purchase, demo, or loaner purposes, always reprocess the endoscope and accessories received from Olympus as described in this manual before storage or a patient procedure.

## 1.6 Reprocessing before patient procedure



### WARNING

Improper handling of a reprocessed endoscope and/or accessories, will recontaminate the endoscope and/or accessories. Improper handling can include:

- Touching a reprocessed endoscope and/or accessories with contaminated gloves
- Placing reprocessed equipment on a contaminated hanger or surface
- Equipment touching the floor.

If the endoscope has been improperly handled, reprocess the equipment again before storage or patient procedure.

### NOTE

Some national or professional guidelines recommend reprocessing endoscopes prior to their first use of the day.

Confirm that the endoscope and accessories have been properly reprocessed and stored following their last use:

- Storage period of reprocessed endoscopes (storage period depends of your facility's equipment and processes)
- There is no surface contamination (e.g., dust)
- Expiration date marked on all items is not past due
- There are no tears or breaches in sterile packaging

If there are any doubts or questions concerning whether a device is contaminated, reprocess it again following the instructions given in this manual.

## 1.7 Reprocessing and storage after use



### WARNING

- Do not reuse detergent solution.
- Do not reuse rinse water.
- Disinfectant solution is only effective when used according to the disinfectant manufacturer's instructions. Follow the manufacturer's instructions regarding activation (if required), concentration, temperature, contact time and use life required to achieve disinfection.
- If the disinfectant solution is reused, always check the efficacy recommended by the disinfectant manufacturer before reprocessing the endoscope.
- Do not reuse alcohol.
- Alcohol is not a sterilant or high-level disinfectant.
- To maintain sterility of equipment following sterilization, use sterilization pouches and wraps according to national guidelines.
- Store the endoscope and accessories in a proper storage cabinet, following the policies at your institution, applicable national laws and standards, and professional society guidelines and recommended practices.

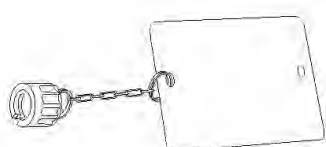
# Chapter 2

## Function and Inspection of the Accessories for Reprocessing

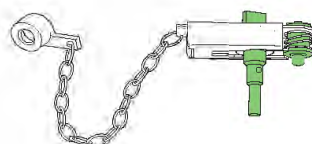
This chapter describes the function of the accessories needed for reprocessing and how to inspect them before reprocessing.

### 2.1 Accessories

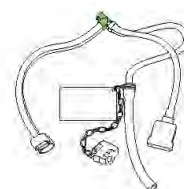
Below is a list of the accessories and the subchapters in which they are described:



**ETO cap (MB-156)**  
See Chapter 2.2



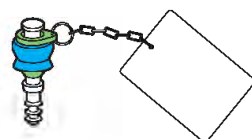
**Channel plug (MH-944)**  
See Chapter 2.3



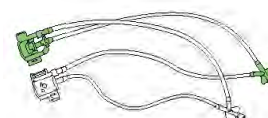
**Injection tube (MH-946)**  
See Chapter 2.4



**Suction cleaning adapter (MH-856)**  
See Chapter 2.5



**AW channel cleaning adapter (MH-948)**  
See Chapter 2.6



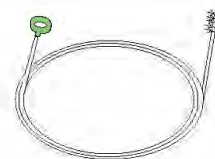
**Distal-end flushing adapter (MAJ-2319)**  
See Chapter 2.7



**Single use combination cleaning brush (BW-412T)**  
See Chapter 2.8



**Channel-opening cleaning brush (MH-507)**  
See Chapter 2.9



**Channel cleaning brush (BW-20T)**  
See Chapter 2.10

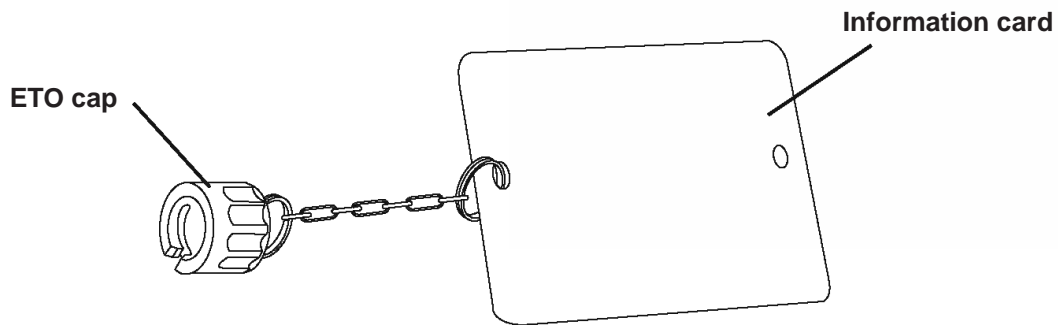
### NOTE

Chapter 2.11 provides a table describing which brushes can be used for different parts of the endoscope.

## 2.2 ETO cap (MB-156)

### 2.2.1 Function

The ETO cap (MB-156) is used for ethylene oxide gas sterilization of the endoscope.

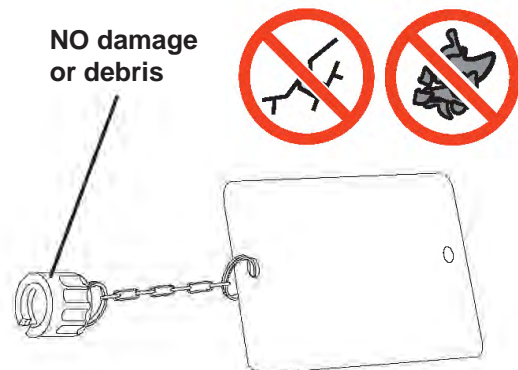


#### **⚠ CAUTION**

Attach the ETO cap to the venting connector on the endoscope connector prior to ethylene oxide gas sterilization. If the ETO cap is not attached to the venting connector during the ethylene oxide gas sterilization, the air inside the endoscope will expand and could rupture the bending section cover and/or damage the angulation mechanism.

### 2.2.2 Inspection

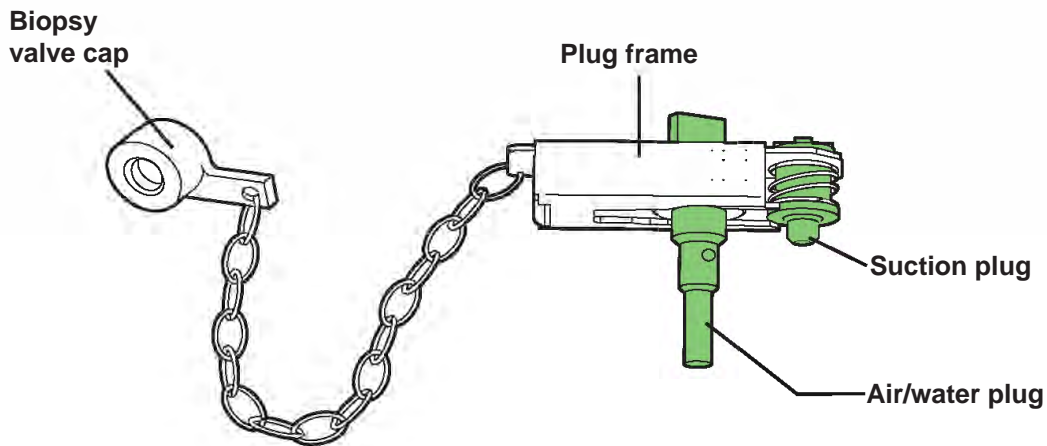
Confirm that the ETO cap is free from damage and debris.



## 2.3 Channel plug (MH-944)

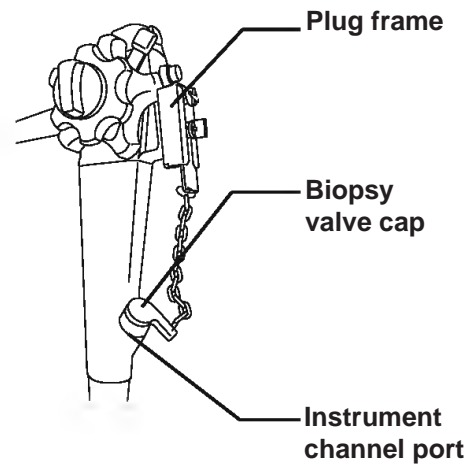
### 2.3.1 Function

The channel plug is used to plug the openings of the endoscope's instrument channel port and the suction and air/water cylinders.



The channel plug will be attached to the endoscope whenever the injection tube (MH-946) is used to flush the endoscope's suction and air/water channels with reprocessing fluids.

Channel plug attached to endoscope



### NOTE

The channel plug is designed to allow a small amount of fluid to exit the openings of the endoscope, when attached to the endoscope. This enables reprocessing fluids to contact the endoscope openings.

## 2.3.2 Inspection

Confirm that the suction plug, air/water plug, and the biopsy valve cap of the channel plug are free from damage and debris.



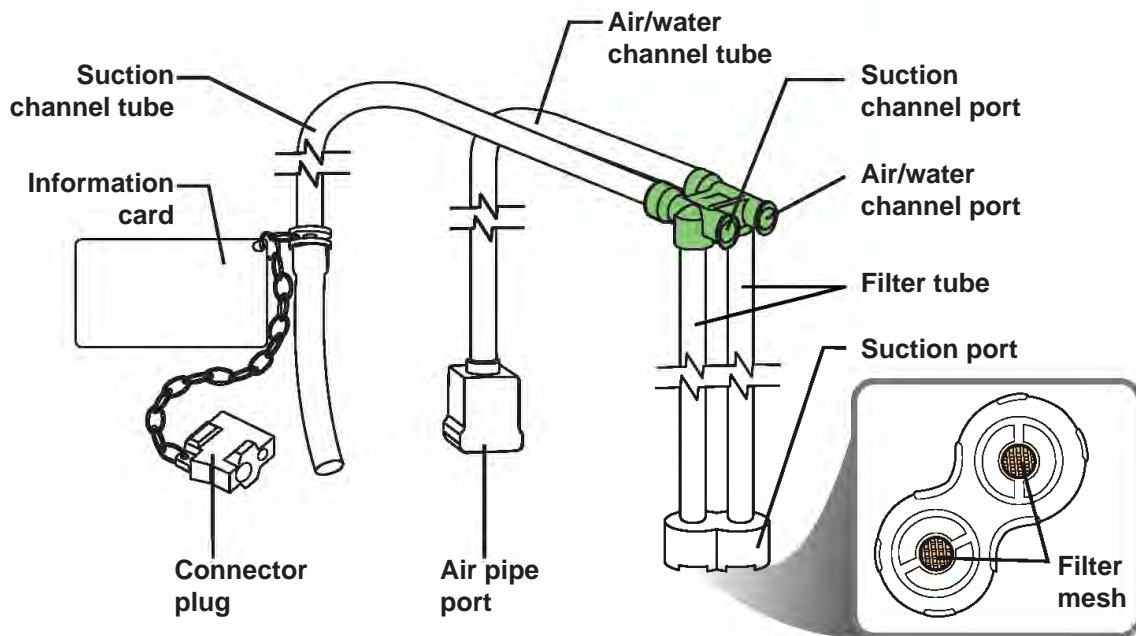
### NOTE

The channel plug does not need to be reprocessed prior to its first use.

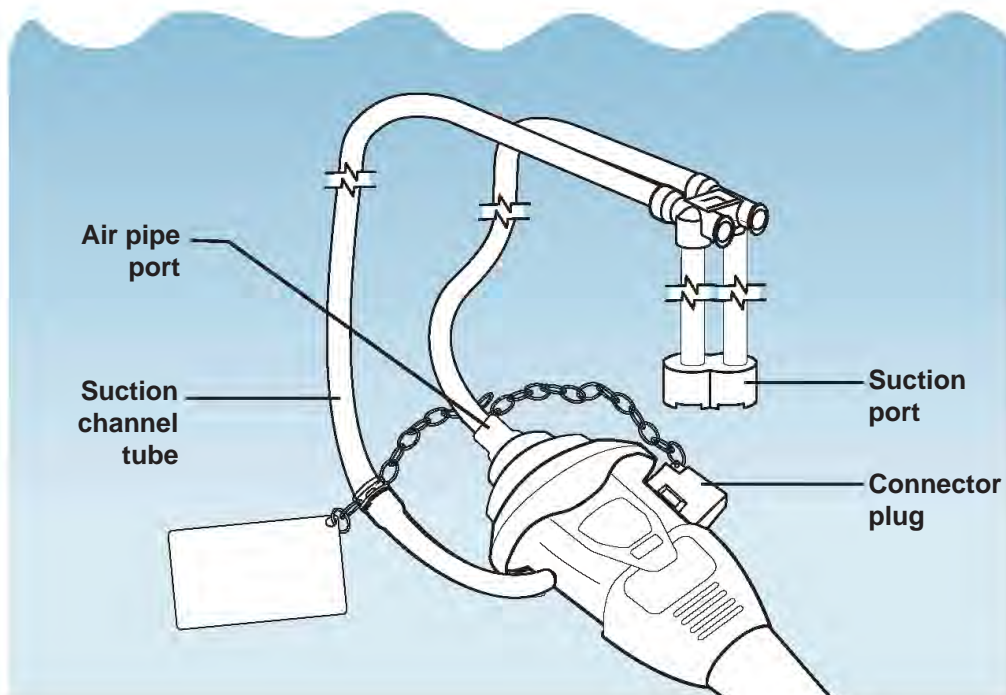
## 2.4 Injection tube (MH-946)

### 2.4.1 Function

The injection tube is used to inject reprocessing fluids into the instrument channel, suction channel, and air/water channels of the endoscope. It is also used to flush air through these channels to expel fluids.

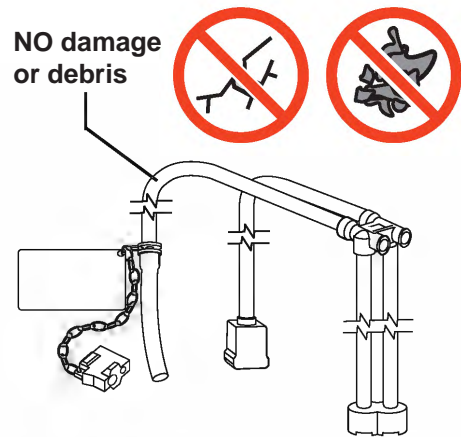


Injection tube attached to endoscope

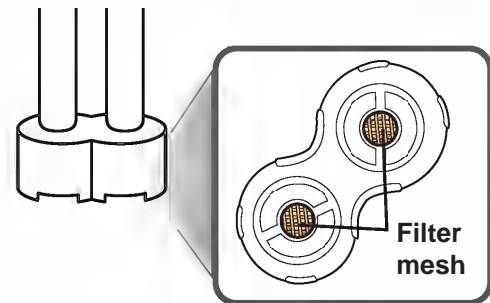


## 2.4.2 Inspection

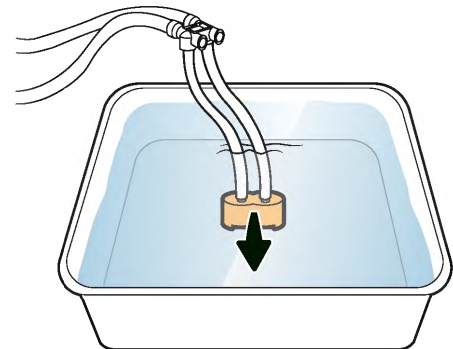
1. Confirm that all components of the injection tube are free from damage and debris.



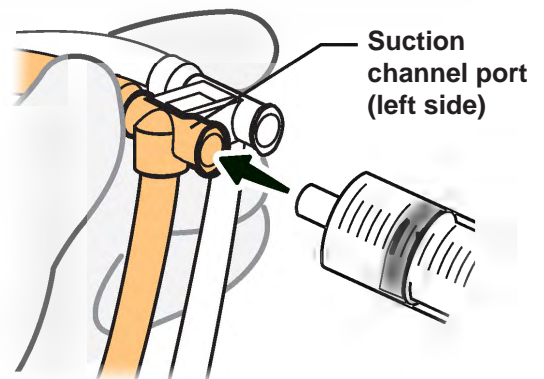
2. Confirm that the filter mesh is in the suction port of the injection tube.



3. Completely immerse the injection tube's suction port in the water.

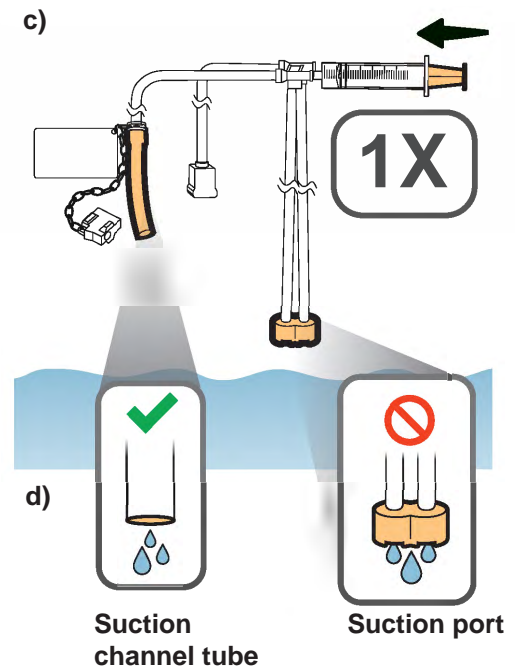
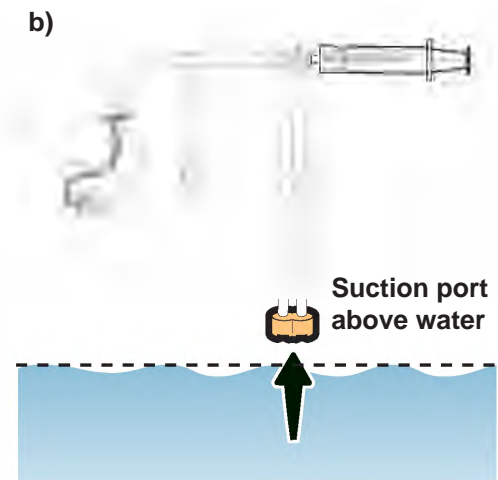
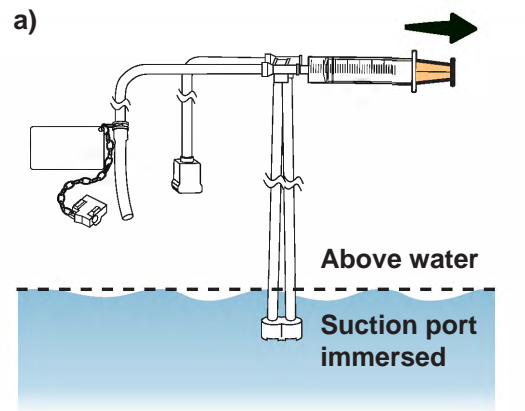


4. Attach a clean 30 mL syringe to the suction channel port (port on the left) of the injection tube.

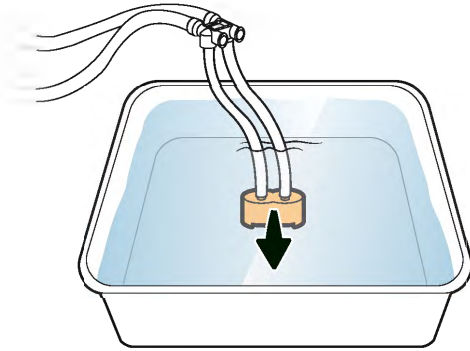


**5.** Keeping the 30 mL syringe attached, flush the suction channel tube, as follows:

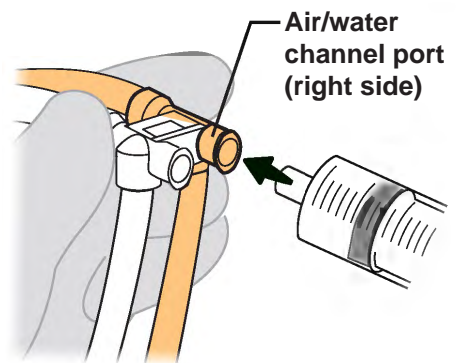
- Slowly pull the syringe plunger to fill the syringe with water;
- Lift the suction port out of the water;
- Then forcefully flush with 30 mL of water;
- Confirm that water comes out of the suction channel tube and confirm that no water comes out of the suction port during the flush.



6. Completely immerse the injection tube's suction port in the water.



7. Move the syringe from the suction channel port to the injection tube's air/water channel port (port on the right).

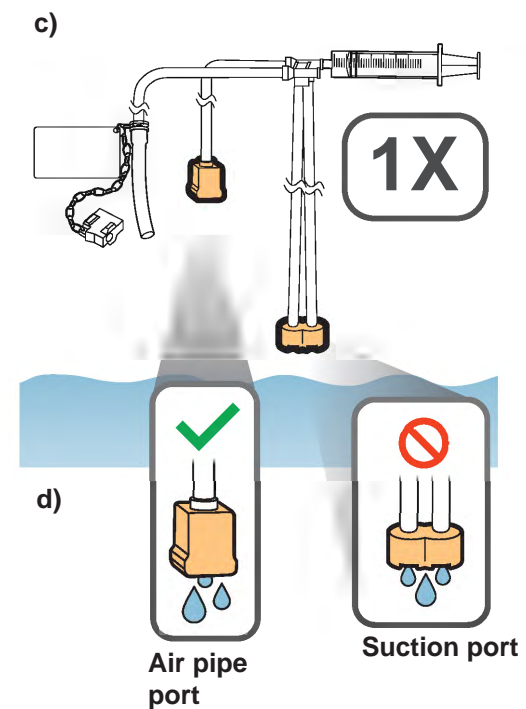
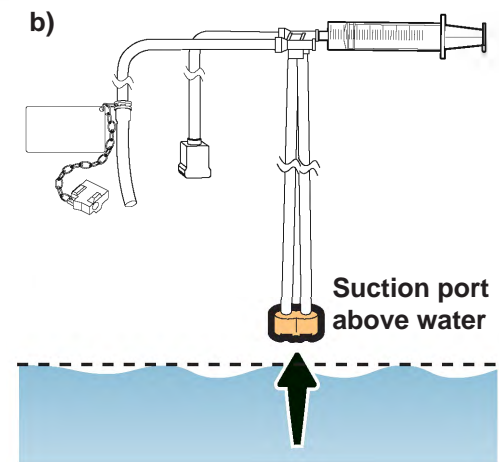
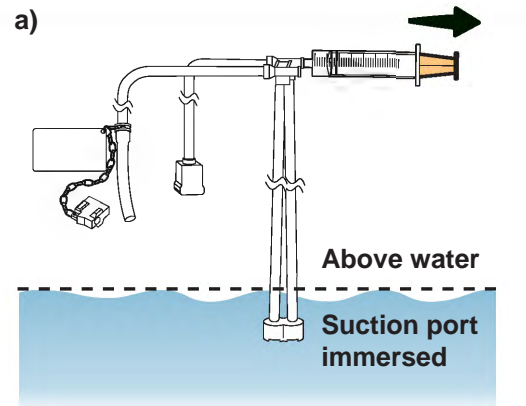


**8.** Keeping the 30 mL syringe attached, flush the air/water channel tube, as follows:

- Slowly pull the syringe plunger to fill the syringe with water;
- Lift the suction port out of the water;
- Then forcefully flush with 30 mL of water;
- Confirm that water exits from the air pipe port and confirm that no water comes out of the suction port during the flush.

### NOTE

The injection tube does not need to be reprocessed prior to its first use.



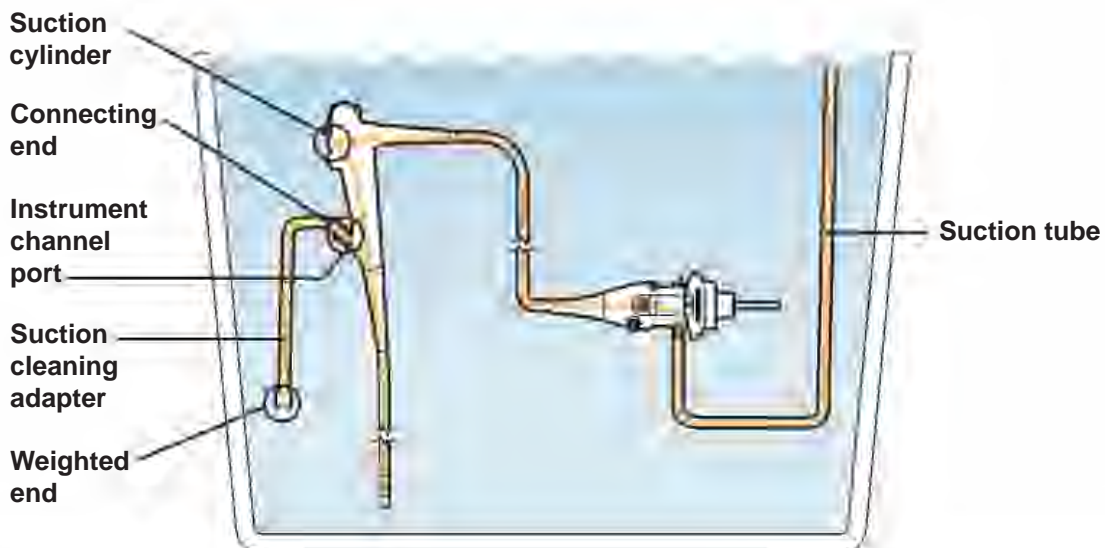
## 2.5 Suction cleaning adapter (MH-856)

### 2.5.1 Function

The suction cleaning adapter is used to aspirate detergent solution through the endoscope's instrument channel port.

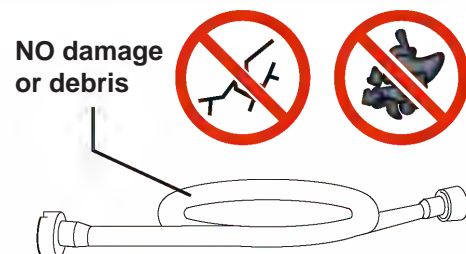


Suction cleaning adapter attached to endoscope



### 2.5.2 Inspection

Confirm that the suction cleaning adapter is free from damage and debris.



### NOTE

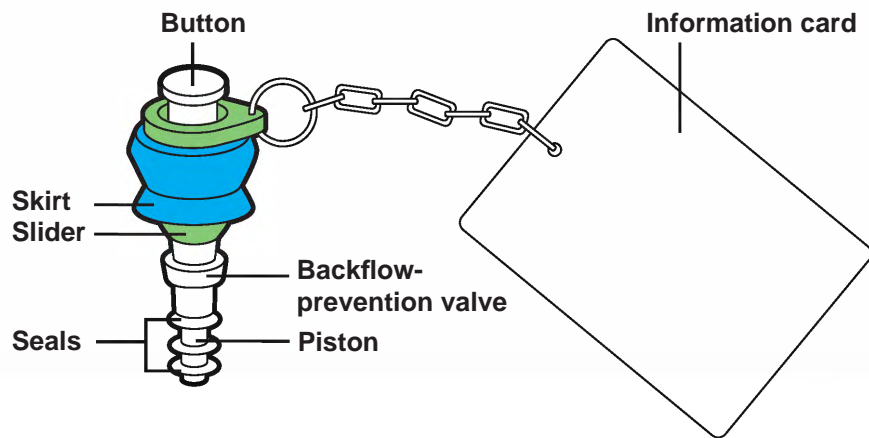
The suction cleaning adapter does not need to be reprocessed prior to its first use.

## 2.6 AW channel cleaning adapter (MH-948)

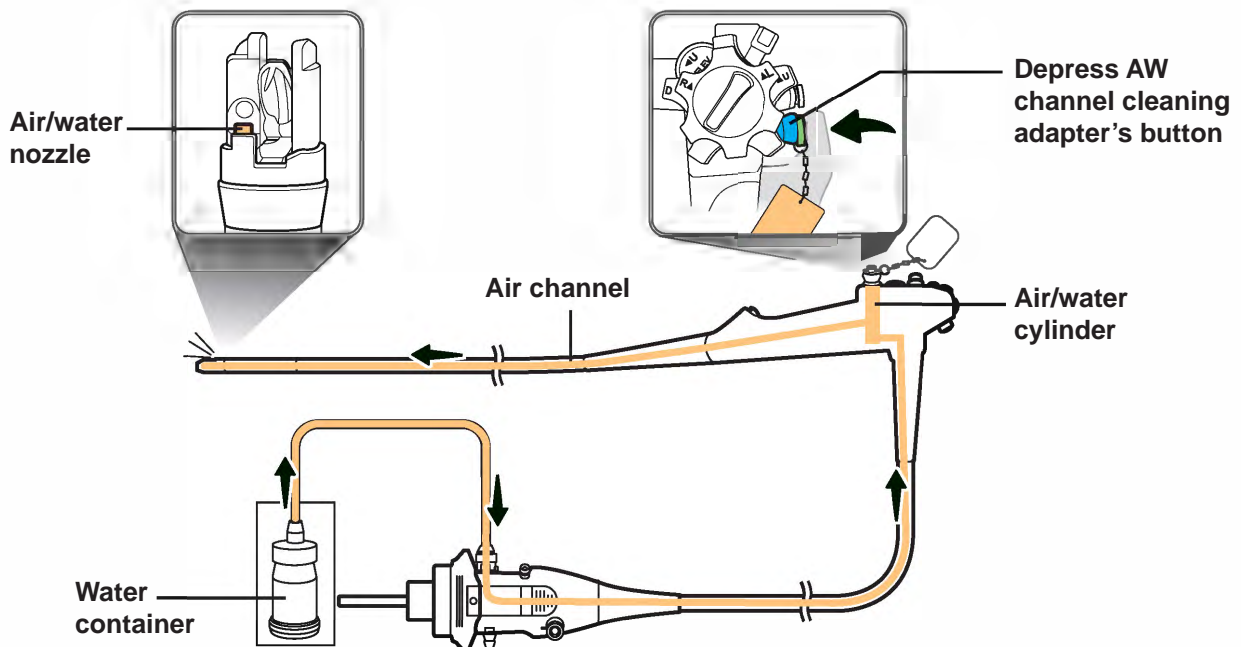
### 2.6.1 Function

During precleaning, the AW channel cleaning adapter is attached to the endoscope's air/water cylinder. When the AW channel cleaning adapter's button is depressed, water from the water container is fed through the air channel of the insertion section and emitted from the air/water nozzle.

If the button is not depressed, air is continuously fed through the air/water channels of the insertion section.



AW channel cleaning adapter attached to endoscope, cleaning the nozzle and air channel



## 2.6.2 Inspection

Confirm that the AW channel cleaning adapter is free from damage and debris.



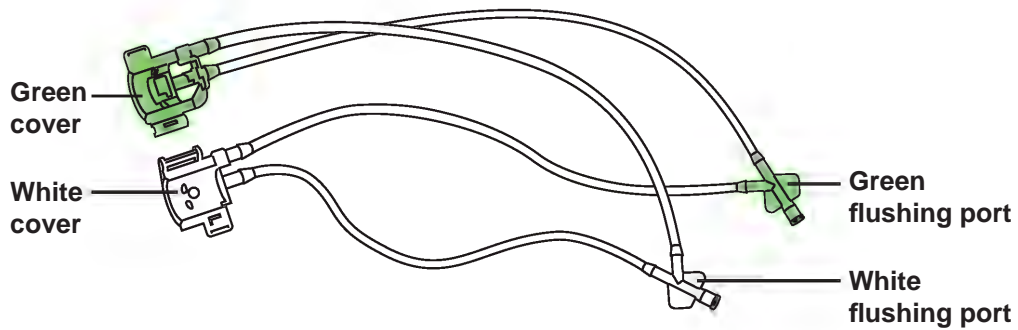
### NOTE

The AW channel cleaning adapter does not need to be reprocessed prior to its first use.

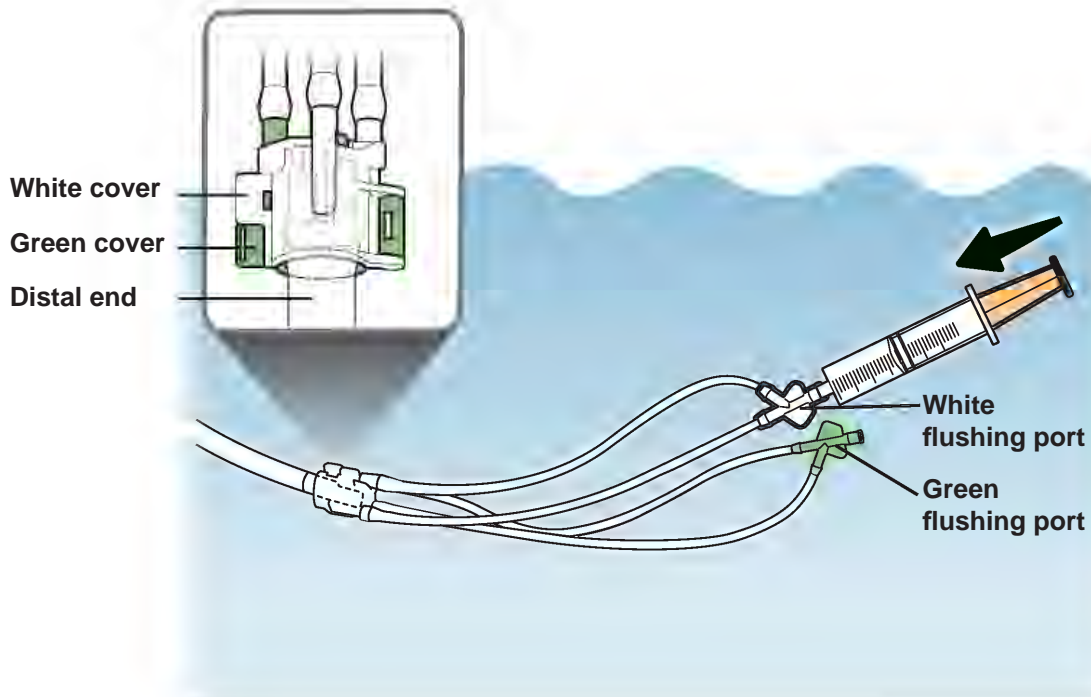
## 2.7 Distal-end flushing adapter (MAJ-2319)

### 2.7.1 Function

The distal-end flushing adapter is used to flush the endoscope's distal end with reprocessing fluids.

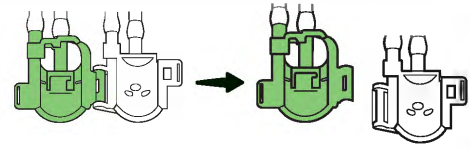


Distal end flushing adapter attached to the endoscope's distal end

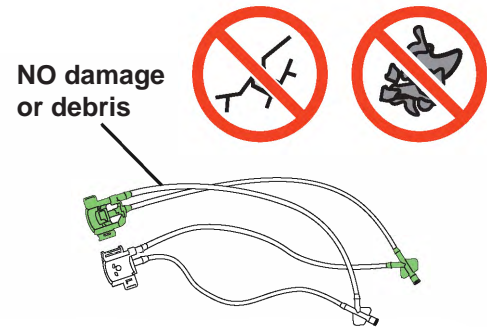


## 2.7.2 Inspection

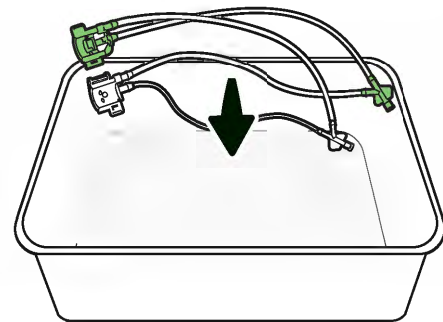
1. Separate the white and green covers, if they are assembled together.



2. Confirm that all components of the distal-end flushing adapter are free from damage and debris.

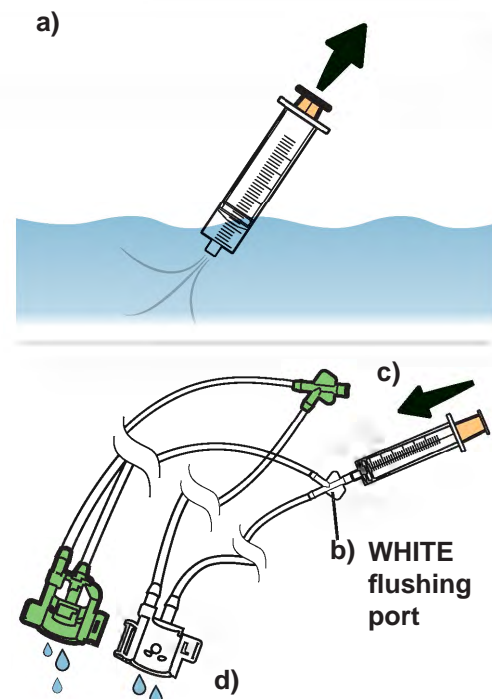


3. Place the distal-end flushing adapter in a clean basin (without water).

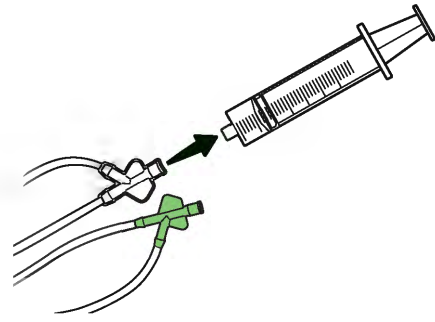


4. Use a 30mL syringe to flush water through the WHITE flushing port, as follows:

- a) Before attaching the syringe to the white flushing port (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with water;
- b) Attach it to the white flushing port of the distal-end flushing adapter;
- c) Then forcefully flush the distal end with 30 mL of water;
- d) Confirm that water is emitted from openings in both the white and green covers.

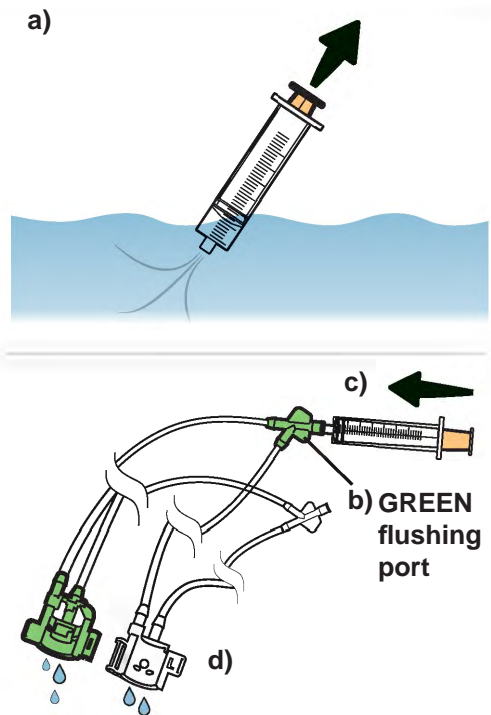


5. Detach the syringe from the distal-end flushing adapter.



6. Use the 30 mL syringe to flush water through the GREEN flushing port, as follows:

- Before attaching the syringe to the green flushing port (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with water;
- Attach it to the green flushing port of the distal-end flushing adapter;
- Then forcefully flush the distal end with 30 mL of water;
- Confirm that water is emitted from openings in both the white and green covers.



## NOTE

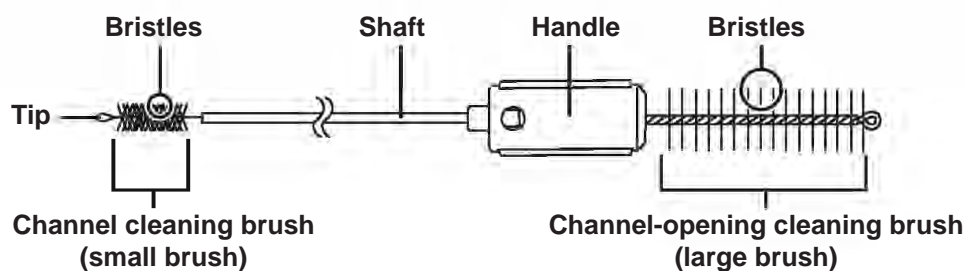
The distal-end flushing adapter does not need to be reprocessed prior to its first use.

## 2.8 Single use combination cleaning brush (BW-412T)

### 2.8.1 Function

The single use combination cleaning brush has two different brushes, one at each end:

- Channel cleaning brush part (small brush)
- Channel-opening cleaning brush part (large brush with handle)



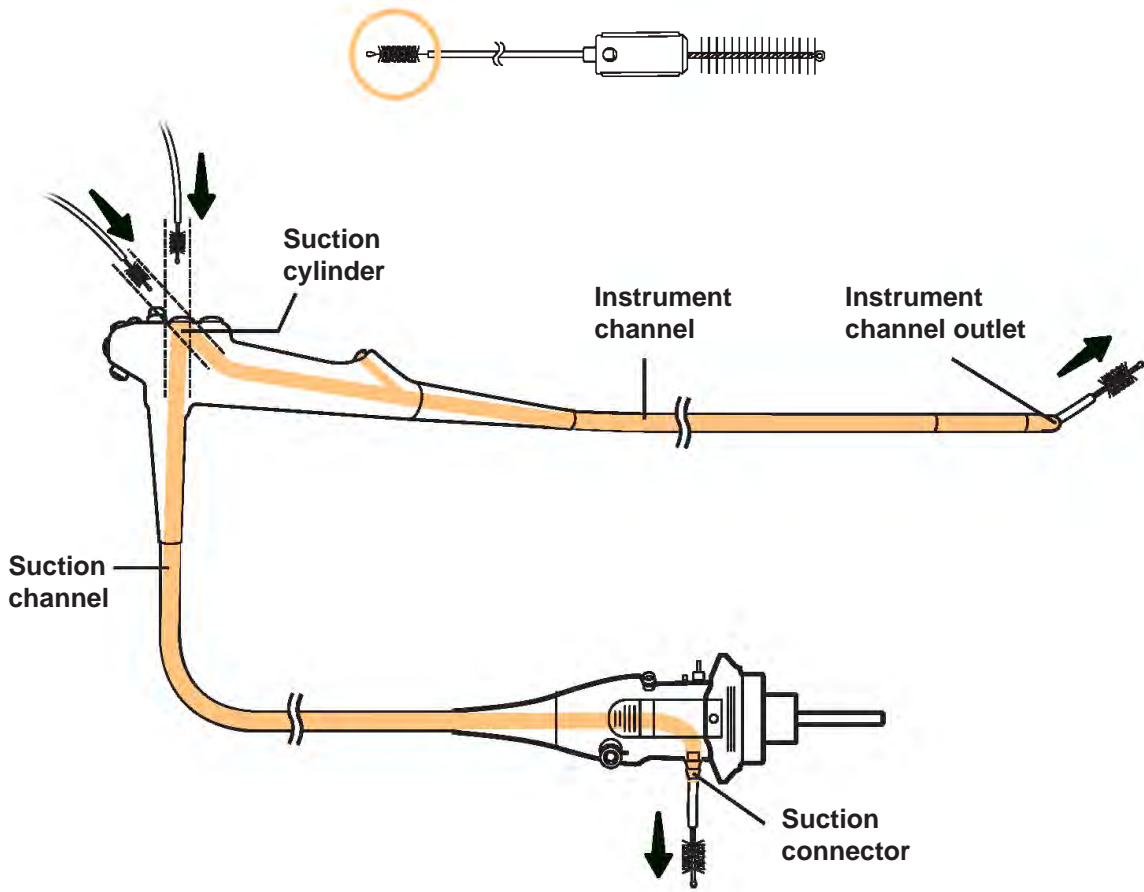
The small brush without a handle is similar to the channel cleaning brush (BW-20T) and is used to brush similar areas:

- Inside of the instrument channel and suction channel of the endoscope
- Holes of the suction valve (MH-443)
- Holes of the air/water valve (MH-438)
- The hole and the slit of the biopsy valve (MB-358)

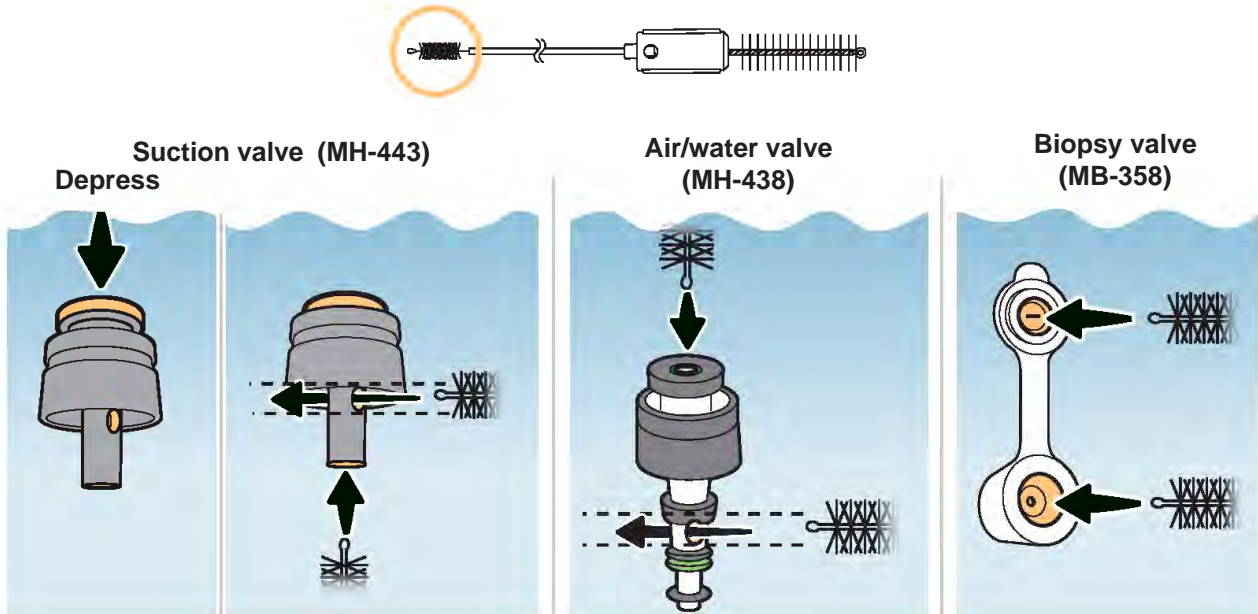
The large brush with a handle is similar to the channel-opening cleaning brush (MH-507) and is used to brush similar areas:

- Suction cylinder
- Instrument channel port
- Distal end
- Distal ring
- Forceps elevator and the forceps elevator recess

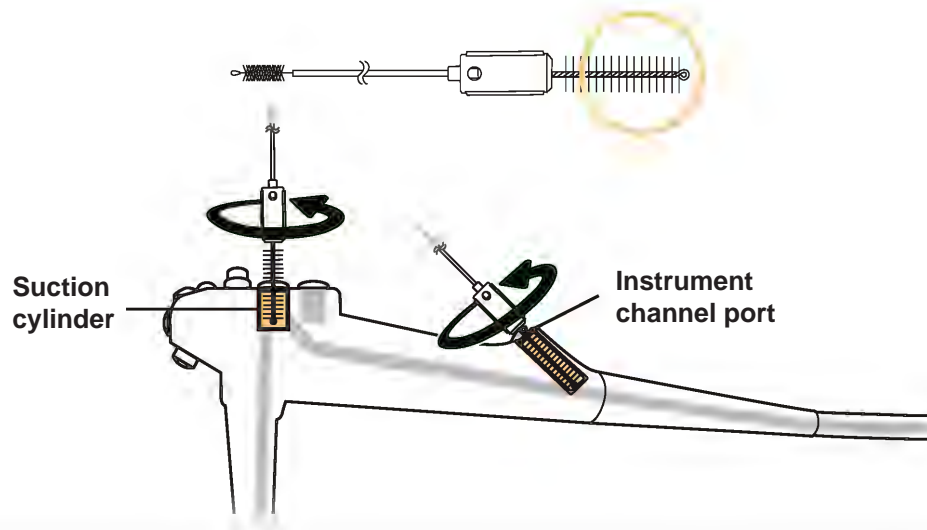
Channel cleaning brush (small brush) used to clean the endoscope's suction and instrument channel



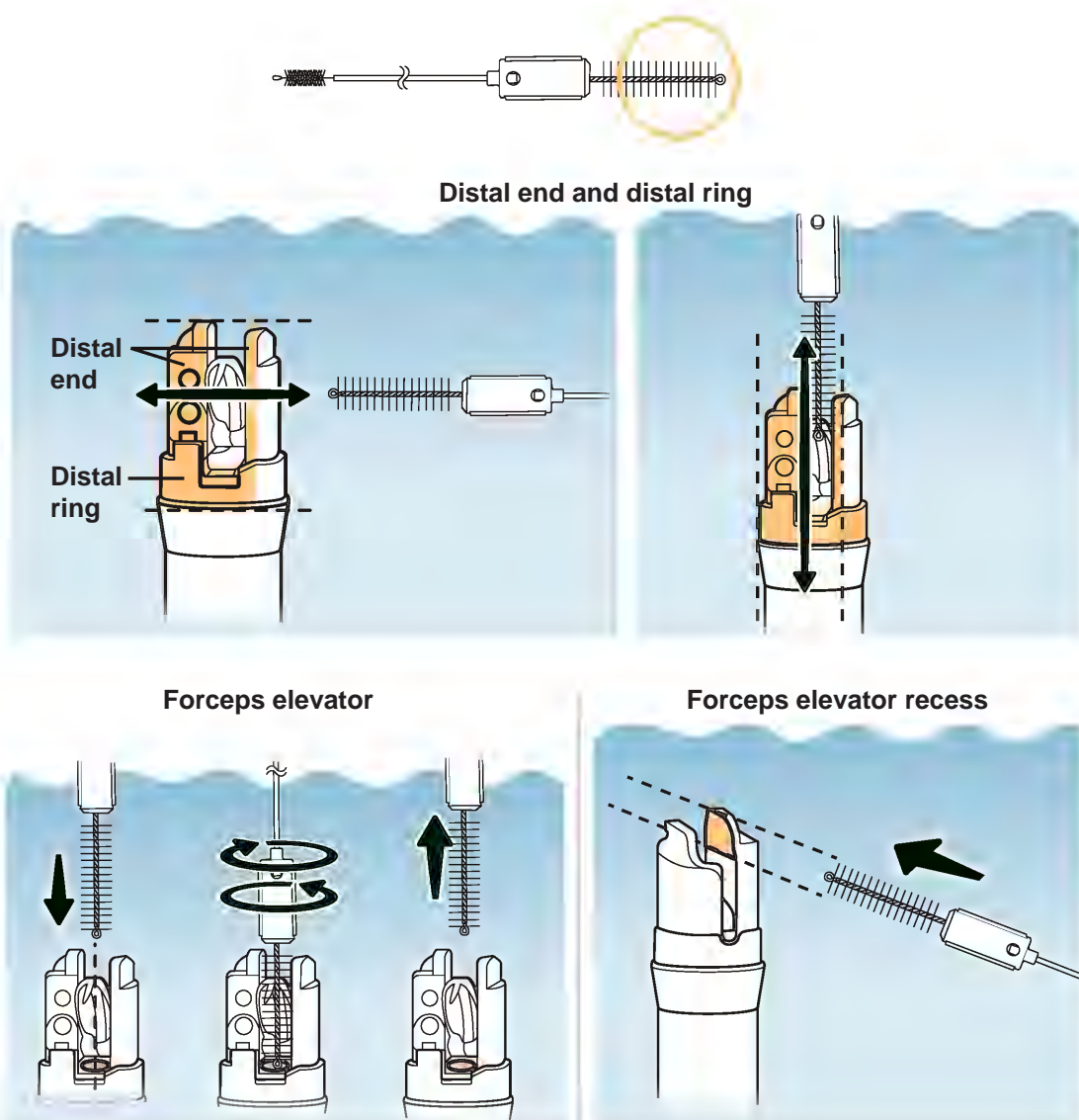
Channel cleaning brush (small brush) used to clean the suction valve, air/water valve and biopsy valve.



Channel-opening cleaning brush (large brush) used to clean the suction cylinder and instrument channel port.



Channel-opening cleaning brush (large brush) used to clean the distal end, distal ring, forceps elevator and the forceps elevator recess.

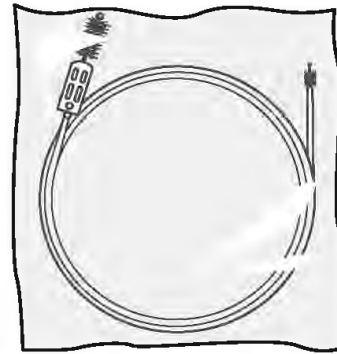


## 2.8.2 Inspection

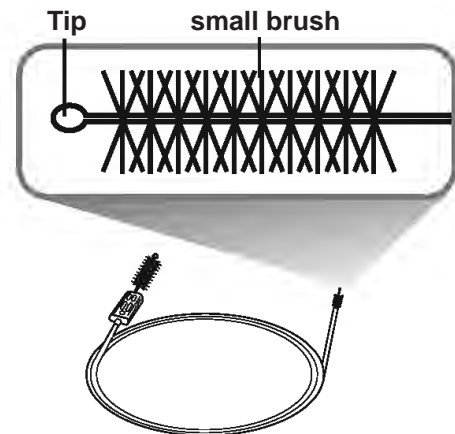
### CAUTION

Do not reprocess the single use combination cleaning brush prior to use.  
The brush may be damaged.

1. Keep the brush in its package until you are ready to use it.



2. Confirm that the small brush and the tip are securely attached.



3. Confirm that there are no loose, missing, or damaged bristles on both ends:

- small brush without a handle
- large brush with handle



4. Confirm that the shaft is free from damage.

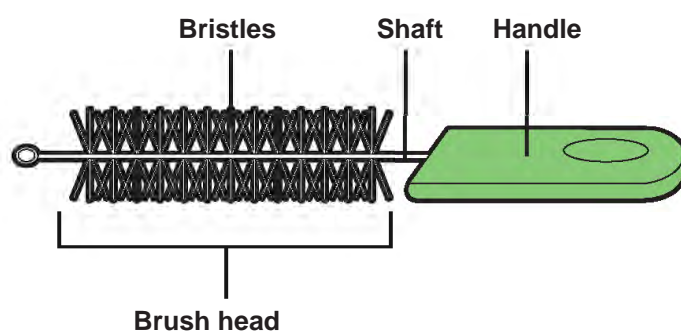


## 2.9 Channel-opening cleaning brush (MH-507)

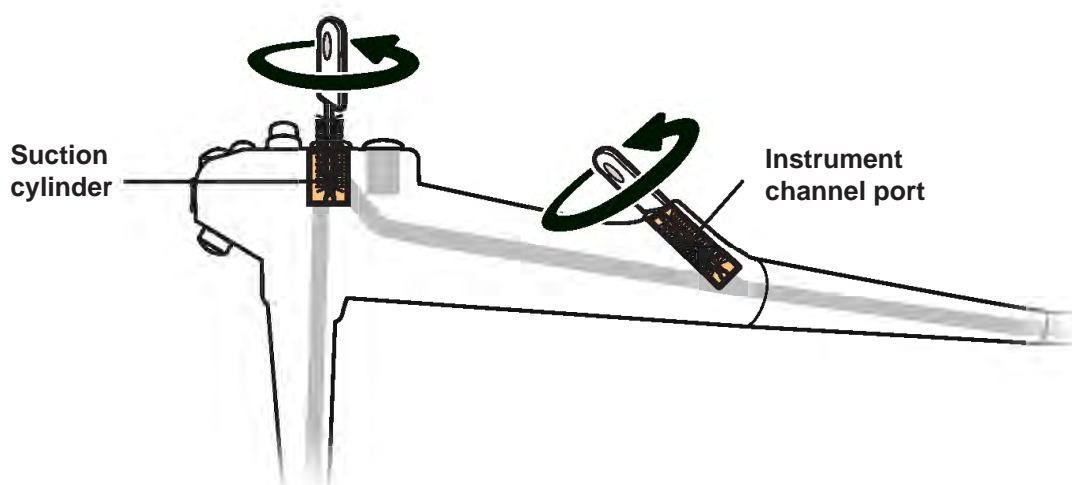
### 2.9.1 Function

The channel-opening cleaning brush is used to brush the endoscope's:

- Suction cylinder
- Instrument channel port
- Distal end
- Distal ring
- Forceps elevator and the forceps elevator recess

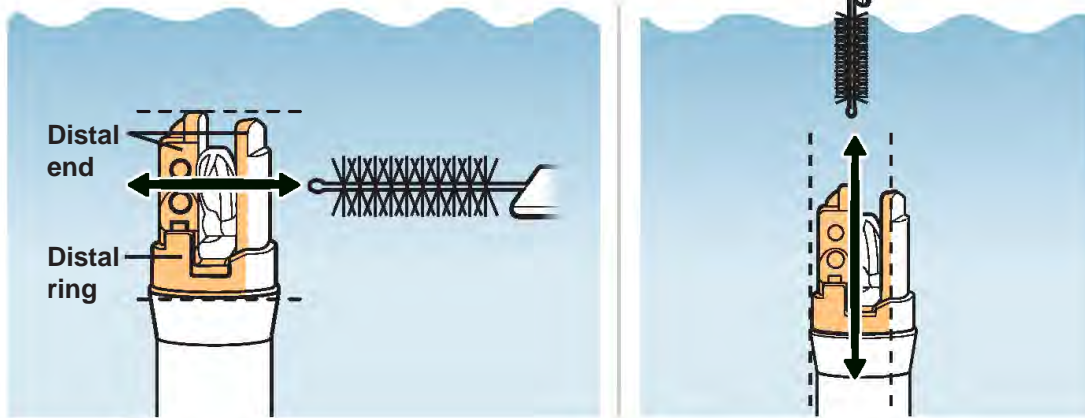


Channel-opening cleaning brush used to clean the suction cylinder and instrument channel port.

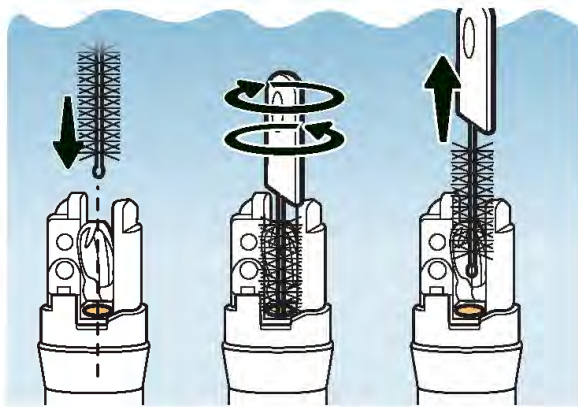


Channel-opening cleaning brush used to clean the distal end, distal ring, forceps elevator and the forceps elevator recess.

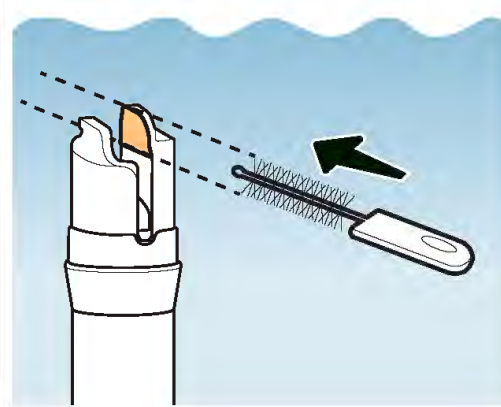
Distal end and distal ring



Forceps elevator



Forceps elevator recess

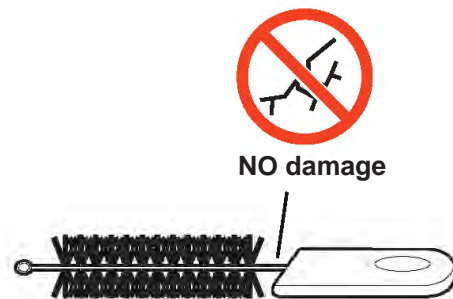


## 2.9.2 Inspection

1. Confirm that there are no loose, missing, or damaged bristles.

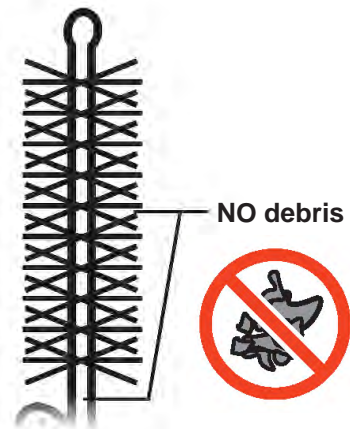


2. Confirm that the shaft is free from damage.



3. Confirm that the shaft and bristles are free from debris.

**If there is debris on the brush, reprocess the brush according to Chapter 6, “Reprocessing the Accessories”.**



### NOTE

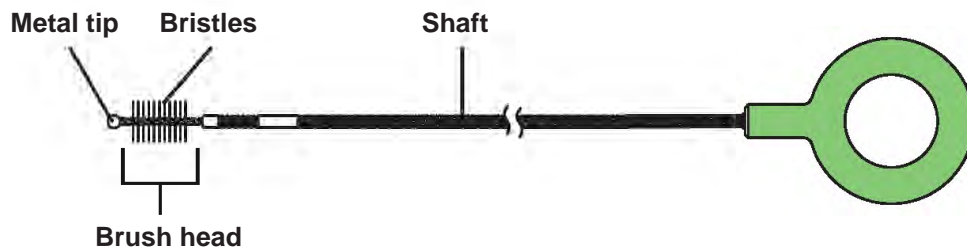
The channel-opening cleaning brush does not need to be reprocessed prior to its first use.

## 2.10 Channel cleaning brush (BW-20T)

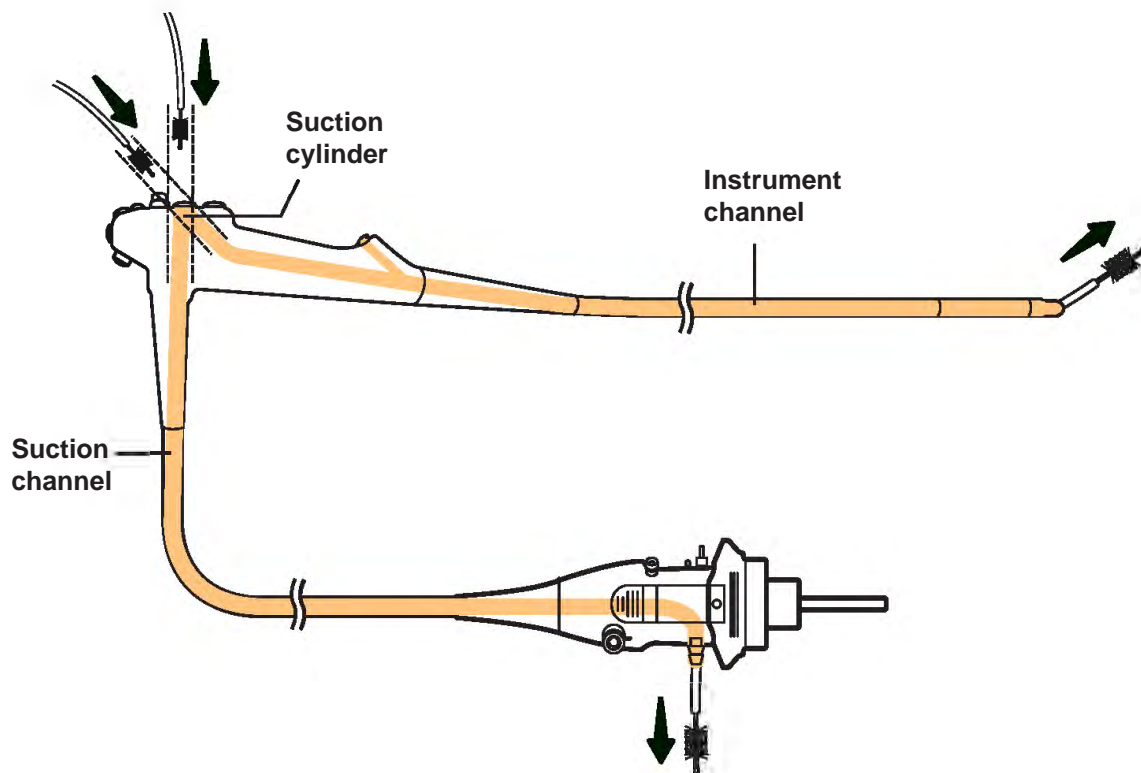
### 2.10.1 Function

The channel cleaning brush is used to brush:

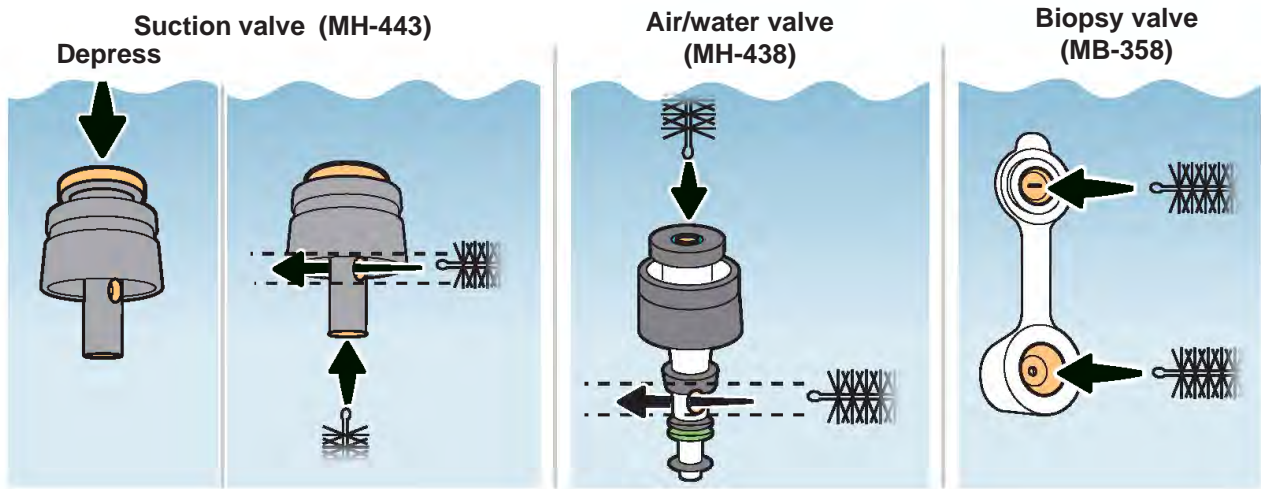
- Inside of the endoscope's instrument channel and suction channel
- Holes of the suction valve (MH-443)
- Holes of the air/water valve (MH-438)
- The hole and the slit of the biopsy valve (MB-358)



Channel cleaning brush used to clean the endoscope's suction and instrument channel

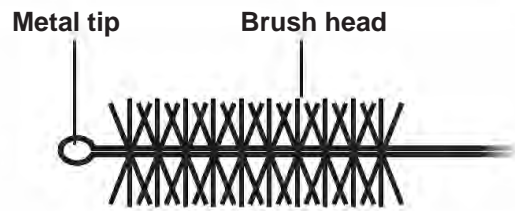


Channel cleaning brush used to clean the suction valve, air/water valve and biopsy valve.



## 2.10.2 Inspection

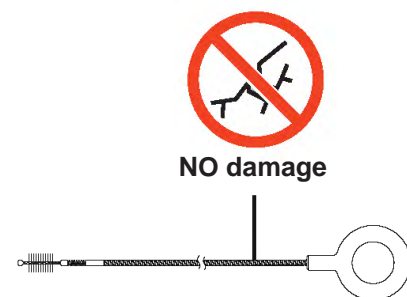
1. Confirm that the brush head and the metal tip are securely attached.



2. Confirm that there are no loose, missing, or damaged bristles.

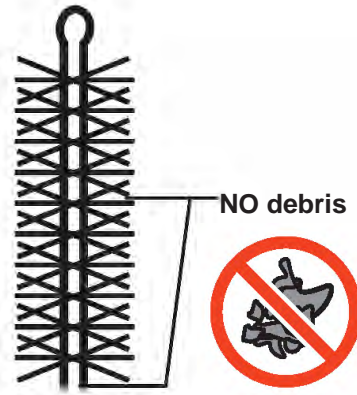


3. Confirm that the shaft is free from damage.



4. Confirm that the shaft and bristles are free from debris.

If there is debris on the brush, reprocess the brush according to Chapter 6, “Reprocessing the Accessories”.



## NOTE

The channel cleaning brush does not need to be reprocessed prior to its first use.

## 2.11 Brush overview

The following table describes which brushes can be used for different parts of the endoscope and accessory valves.

		Channel-opening cleaning brush (MH-507)	Single use combination cleaning brush (BW-412T)		Channel cleaning brush (BW-20T)
			Large brush	Small brush	
Endoscope	Suction valve (MH-443)			✓	✓
	Air/water valve (MH-438)			✓	✓
	Biopsy valve (MB-358)			✓	✓
	Instrument channel			✓	✓
	Suction channel			✓	✓
	Instrument channel port	✓	✓		
	Suction cylinder	✓	✓		
	Forceps elevators	✓	✓		
	Forceps elevators recess	✓	✓		
	Distal end	✓	✓		
Distal ring	✓	✓			

### 3.1 Compatibility summary

The endoscope and accessories are compatible with several methods of reprocessing. Reprocessing with incompatible methods can cause equipment damage even if the number of reprocessing cycles is small. For appropriate reprocessing methods, see Table 3.1 to 3.4.

Follow the policies at your local institution when choosing a reprocessing method listed in Table 3.1 to 3.4.

#### CAUTION

Repeated use and reprocessing of endoscopes and accessories lead to gradual wear and tear. To ensure best performance:


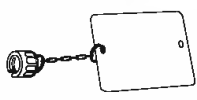

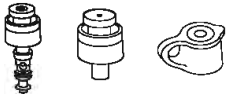
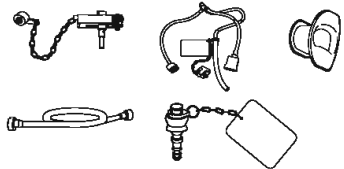
- Use the methods listed in Table 3.1 to 3.4 for routine use only when you can do so according to the manufacturer's instructions.
- Keep in mind that reprocessing methods that employ higher temperatures and more caustic/corrosive materials may lead to faster deterioration. In general, sterilization processes are harsher on equipment than disinfection processes.
- Before each patient procedure, inspect the endoscope and accessories for damage, according to the instructions described in this manual and its companion "OPERATION MANUAL".

 **CAUTION**

The instructions provided in this manual regarding reprocessing methods and chemical agents are not valid for Olympus devices repaired by a non-Olympus facility. Please note that:

- Olympus repairs devices to manufacturer's specifications using original equipment manufacturer's (OEM) materials.
- The use of non-OEM materials to repair an Olympus device may affect the material compatibility and reprocessing efficacy of the device with certain reprocessing chemicals or methods.
- In the event that your device has been repaired by a non-Olympus facility, contact the repair facility for instructions regarding compatible reprocessing methods and chemical agents.




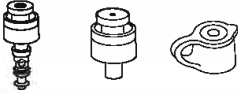
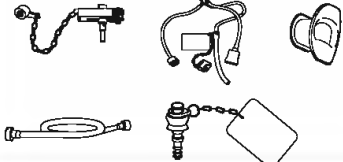
Table 3.1

Compatibility for cleaning	Detergent solution	Ultrasonic cleaning
Endoscope 	✓	✗ <sup>*1</sup>
ETO cap (MB-156) 	✗	✗
Channel cleaning brush (BW-20T) Channel-opening cleaning brush (MH-507) Distal-end flushing adapter (MAJ-2319) 	✓	✓
Air/water valve (MH-438) Suction valve (MH-443) Biopsy valve (MB-358) 	✓	✓
Channel plug (MH-944) Injection tube (MH-946) AW channel cleaning adapter (MH-948) Suction cleaning adapter (MH-856) Mouthpiece (MA-392) 	✓	✓

✓ compatible      ✗ not compatible




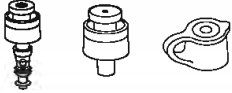
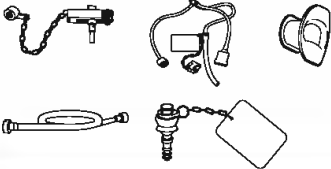
\*1 The endoscope is only compatible with ultrasonic cleaning as performed in an Olympus-recommended reprocessor, such as OER-AW, OER-Pro, and OER-Elite (OER-AW, OER-Pro, and OER-Elite may not be available in some areas). When using an AER/WD that is recommended by Olympus other than listed above, contact Olympus.

Table 3.2

<p><b>Compatibility for alcohol flush</b></p>	<p>70% ethyl or 70% isopropyl alcohol</p>
<p>Endoscope</p> 	<p>✓</p>
<p>ETO cap (MB-156)</p> 	<p>✗</p>
<p>Channel cleaning brush (BW-20T)</p> <p>Channel-opening cleaning brush (MH-507)</p> <p>Distal-end flushing adapter (MAJ-2319)</p> 	<p>✓</p>
<p>Air/water valve (MH-438)</p> <p>Suction valve (MH-443)</p> <p>Biopsy valve (MB-358)</p> 	<p>✓</p>
<p>Channel plug (MH-944)</p> <p>Injection tube (MH-946)</p> <p>AW channel cleaning adapter (MH-948)</p> <p>Suction cleaning adapter (MH-856)</p> <p>Mouthpiece (MA-392)</p> 	<p>✓</p>

 compatible
  not compatible

Table 3.3

<b>Compatibility for disinfection</b>	ACECIDE disinfectant solution *2	2.0 - 3.5% glutaraldehyde
Endoscope 	✓	✓
ETO cap (MB-156) 	✗	✗
Channel cleaning brush (BW-20T) Channel-opening cleaning brush (MH-507) Distal-end flushing adapter (MAJ-2319) 	✗	✓
Air/water valve (MH-438) Suction valve (MH-443) Biopsy valve (MB-358) 	✓	✓
Channel plug (MH-944) Injection tube (MH-946) AW channel cleaning adapter (MH-948) Suction cleaning adapter (MH-856) Mouthpiece (MA-392) 	✗*3	✓

✓ compatible ✗ not compatible




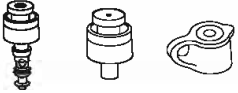
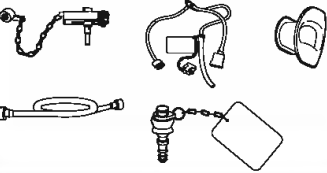
\*2 ACECIDE disinfectant solution is exclusively for an Olympus-recommended endoscope reprocessor, such as OER-AW, OER-Pro, and OER-Elite (ACECIDE may not be available in some areas).

OER-AW: This product is available in some areas other than the USA.

OER-Pro, OER-Elite: These products are available in the USA and some areas.

\*3 The AW channel cleaning adapter (MH-948) is compatible with only OER-Elite.

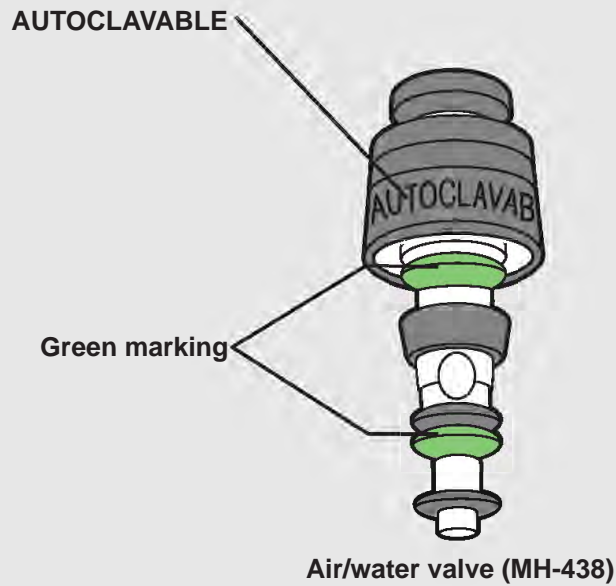
Table 3.4

<p><b>Compatibility for sterilization</b></p>	<p>Steam sterilization (autoclaving)</p>	<p>Ethylene oxide gas sterilization (gas mixture: 20% ethylene oxide gas /80% CO<sub>2</sub> for countries other than the USA)</p>	<p>Ethylene oxide gas sterilization (100% ethylene oxide gas)</p>
<p>Endoscope </p>	<p>✗</p>	<p>✓</p>	<p>✓</p>
<p>ETO cap (MB-156) </p>	<p>✗</p>	<p>✓</p>	<p>✓</p>
<p>Channel cleaning brush (BW-20T) Channel-opening cleaning brush (MH-507) Distal-end flushing adapter (MAJ-2319) </p>	<p>✓</p>	<p>✗</p>	<p>✗</p>
<p>Air/water valve (MH-438) Suction valve (MH-443) Biopsy valve (MB-358) </p>	<p>✓</p>	<p>✓</p>	<p>✗</p>
<p>Channel plug (MH-944) Injection tube (MH-946) AW channel cleaning adapter (MH-948) Suction cleaning adapter (MH-856) Mouthpiece (MA-392) </p>	<p>✓</p>	<p>✓</p>	<p>✓</p>

✓ compatible      ✗ not compatible

## NOTE

Accessories that are marked by the words “AUTOCLAVE” or “AUTOCLAVABLE”, or with green markings (such as a green component or label) are compatible with steam sterilization (autoclaving).



## 3.2 Water (for reprocessing)

Water is used for precleaning, leakage testing, and manual cleaning of the endoscope and accessories. For these purposes, use either:

- Fresh, drinkable tap water
- Processed water (e.g., filtered, deionized\*<sup>1</sup>, or purified, to improve its chemical and/or microbiological quality)

Consult with your healthcare facility's infection control committee.

When rinsing the endoscope and accessories following disinfection, use the water as described in Chapter 3.5, "Rinse water".

\*<sup>1</sup> Deionized means to remove ionized salts from the water by using specially manufactured ion-exchange resin.

## 3.3 Detergent solution



### WARNING

- Excessive foaming prevents detergent solution from properly contacting the surfaces and channel walls of the endoscope and accessories, and may impair effective cleaning.
- Do not reuse detergent solution.

Use a low-foaming and neutral pH detergent that is labeled for use on medical device, which may or may not contain enzymes. Follow the instructions provided by the detergent manufacturer regarding concentration, temperature, contact time, and expiration date, unless otherwise instructed by Olympus. Contact Olympus for the names of specific brands of detergent solution that have been tested for compatibility with endoscopes and accessories.

## 3.4 Disinfectant solution



### WARNING

If the disinfectant solution is reused, check its efficacy by proper methods, such as using a test strip, according to the disinfectant manufacturer's recommendations prior to use.

Use a disinfectant cleared/approved by your national regulatory agency for use in reprocessing flexible endoscopes. If national or professional guidelines applicable to your institution define "high-level disinfection" and require using a high-level disinfectant for the flexible endoscopes, follow the requirement. Follow the disinfectant manufacturer's instructions regarding activation (if required), concentration, temperature, contact time, and expiration date.

For further information regarding the compatibility of glutaraldehyde-based or non glutaraldehyde-based disinfectant solution, contact Olympus.

## 3.5 Rinse water

### **WARNING**

Do not reuse rinse water.

There are various national or professional guidelines that provide different recommendations for rinsing the endoscope and accessories.

For example, some national or professional guidelines recommend:

- Using sterile water for rinsing endoscopes and accessories. If sterile water is not available, these guidelines recommend to:
  - Rinse with fresh, drinkable tap water. You may use fresh, drinkable tap water or water that has been processed (e.g., filtered, deionized\*<sup>1</sup>, or purified) to improve its chemical and/or microbiological quality.
  - After rinsing, flush the channels and accessories with medical-grade 70% ethyl or 70% isopropyl alcohol.

Other national or professional guidelines recommend:

- Removing disinfectant solution with at least drinking quality water, then conducting a final rinse with sterile water. You may use sterile water and/or fresh, drinkable tap water or water that has been processed (e.g., filtered, deionized\*<sup>1</sup>, or purified) to improve its chemical and/or microbiological quality.
- Drying the endoscope channels with compressed filtered air at each reprocessing procedure and with alcohol at the end of the day.

Consult with your healthcare facility's infection control committee regarding local policies on water quality and the use of alcohol.

\*<sup>1</sup> Deionized means to remove ionized salts from the water by using specially manufactured ion-exchange resin.

## 3.6 Alcohol



### WARNING

- Do not reuse alcohol.
- Alcohol is not a sterilant or high-level disinfectant.

Use medical-grade 70% ethyl or 70% isopropyl alcohol.

## 3.7 Ethylene oxide gas sterilization

### CAUTION

Exceeding the recommended parameters may cause equipment damage.

### 3.7.1 Parameters for 100% ethylene oxide gas sterilization cycles

The endoscope and accessories listed as compatible with ethylene oxide gas sterilization in Table 3.4 can be sterilized by 3M™ Steri-Vac™ 5XL or STERIS Amsco® Eagle® 3017 ethylene oxide gas sterilizers with the “55°C cycle” given in Table 3.5, and aerated with 12 hours or more at 55°C (130°F). When performing ethylene oxide gas sterilization, follow all national, professional, and institutional reprocessing protocols as well as the instructions provided by the manufacturer of your sterilization equipment.

Table 3.5

Process phase	Parameter	Value
Sterilization	Temperature	55°C (130°F)
	Relative humidity	50 - 80%
	Ethylene oxide gas concentration	0.735 - 0.740 mg/cm <sup>3</sup> (735 - 740 mg/L)
	Exposure time	60 minutes
Aeration	Minimum aeration parameters	12 hours in an aeration chamber at 55°C (130°F)

### 3.7.2 Parameters for 20% ethylene oxide gas/ 80% CO2 gas sterilization cycles for countries other than the USA

The endoscope and accessories listed as compatible with ethylene oxide gas sterilization in Table 3.4 can be sterilized by ethylene oxide gas and aerated within the parameters given in Table 3.6. When performing ethylene oxide gas sterilization, follow all national, professional, and institutional reprocessing protocols as well as the instructions provided by the manufacturer of your sterilization equipment.

Table 3.6

Process phase	Parameter	Value
Sterilization	Temperature	55°C (130°F)
	Relative pressure	0.1 - 0.17 MPa
	Relative humidity	35 - 85%
	Ethylene oxide gas concentration	0.6 - 0.7 mg/cm <sup>3</sup> (600 - 700 mg/L)
	Exposure time	2 - 4 hours
Aeration	Minimum aeration parameters	12 hours in an aeration chamber at 50 - 57°C (122 - 135°F) or 7 days at room temperature

## 3.8 Steam sterilization (autoclaving)

The accessories listed as compatible with steam sterilization in Table 3.4 can be sterilized by steam within the parameters given in Table 3.7. When steam sterilizing, follow all national, professional, and institutional reprocessing protocols as well as the instructions provided by the manufacturer of your sterilization equipment.

### CAUTION

- Do not steam sterilize the endoscope. Steam sterilization will cause severe damage.
- If the setting parameters of the steam sterilization exceed the parameters (i.e., 134°C (274°F), 5 minutes) given in Table 3.7, the accessories may be damaged.
- Actual maximum temperature of the accessories should not exceed 137°C (279°F) during the sterilization.

### 3.8.1 Parameters for prevacuum steam sterilization cycle

Parameters for prevacuum steam sterilization cycle

Table 3.7

Process phase	Parameter	Value	
			For countries other than the USA
Prevacuum steam sterilization cycle	Setting temperature	132°C (270°F)	134°C (274°F)
	Setting exposure time	4 minutes	3 minutes
Drying	Setting drying time	A minimum of 20 minutes	
		<ul style="list-style-type: none"> <li>• If the sterilization pouch of accessory taken out of the sterilizer is wet, sterilization effect may not be maintained. Reconsider conditions such as drying time and sterilize again.</li> <li>• Drying time depends on various factors including kinds of sterilizer, type of sterilization pouch and volume of loading. Confirm the appropriate drying time beforehand.</li> </ul>	

### 4.1 Summary of reprocessing workflows

This chapter provides charts depicting the workflows for reprocessing the endoscope and accessories. The charts list the component and the sequence of chapters in this manual that you will follow to reprocess each component.

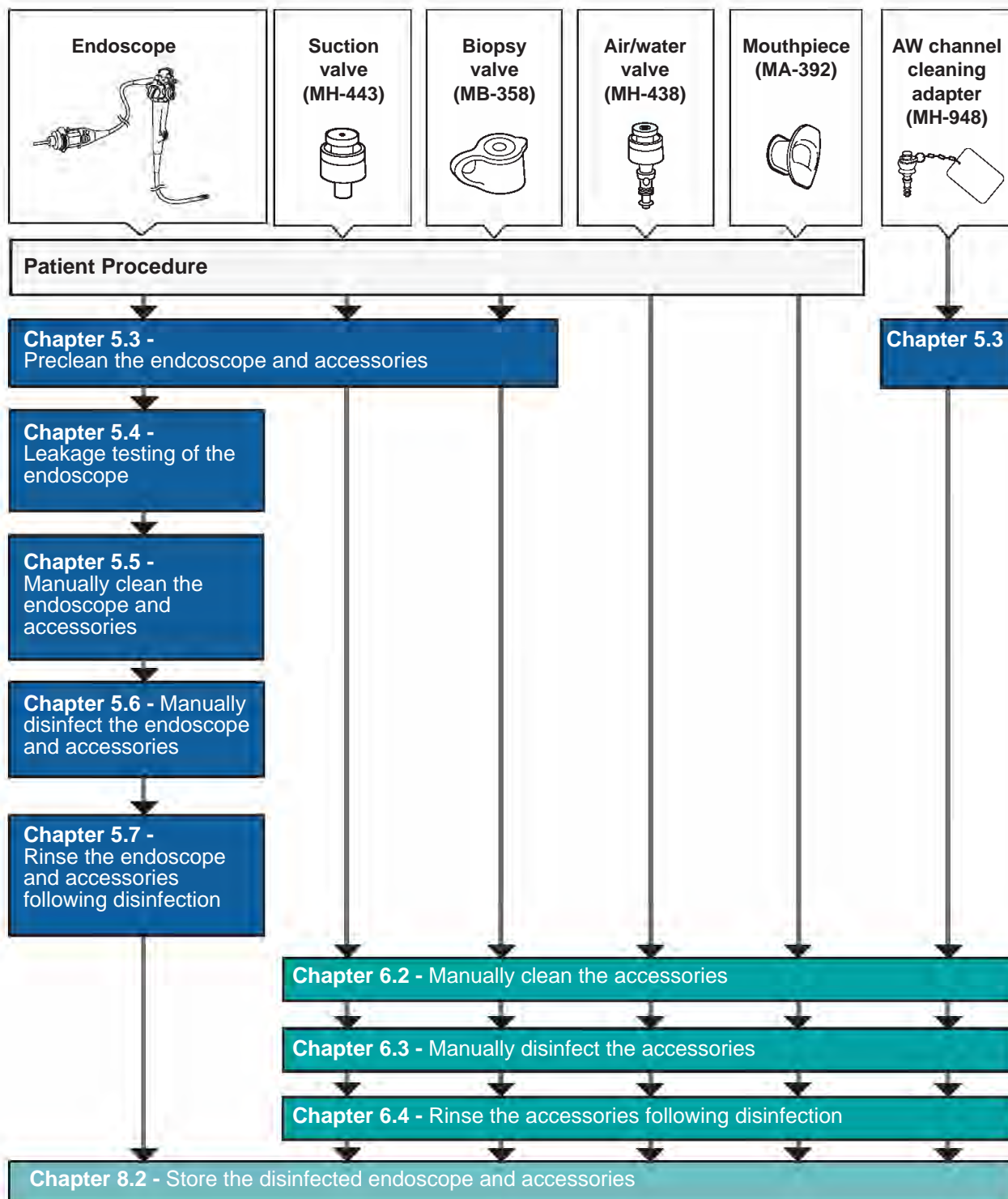


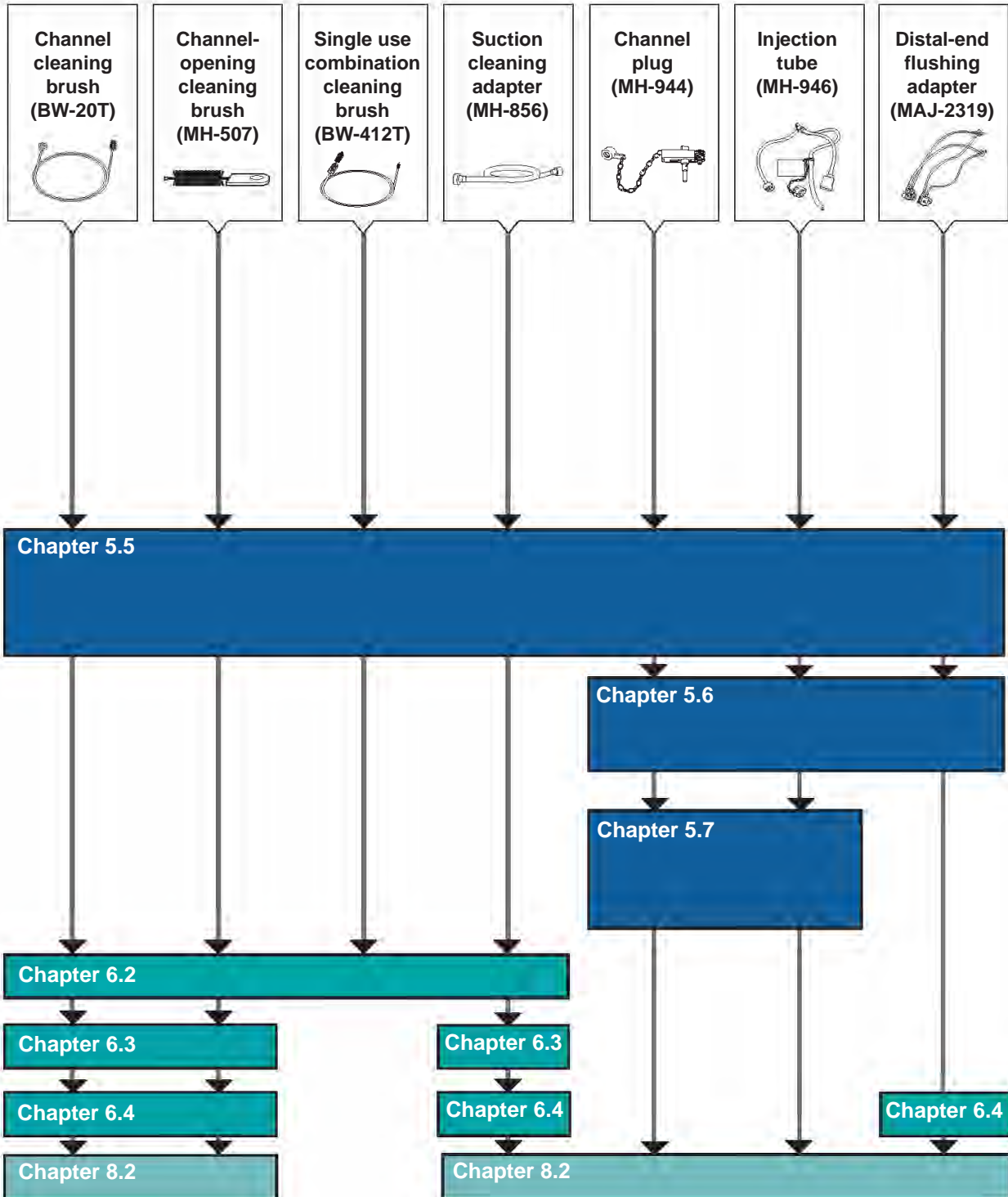
#### **WARNING**

Deviation from the recommended workflow may pose an infection control risk.

## 4.2 Workflow for manually cleaning and disinfecting endoscopes and accessories

Workflow for manually cleaning and disinfecting endoscopes and accessories





## 4.3 Workflow for cleaning and disinfecting endoscopes and accessories using an AER/WD

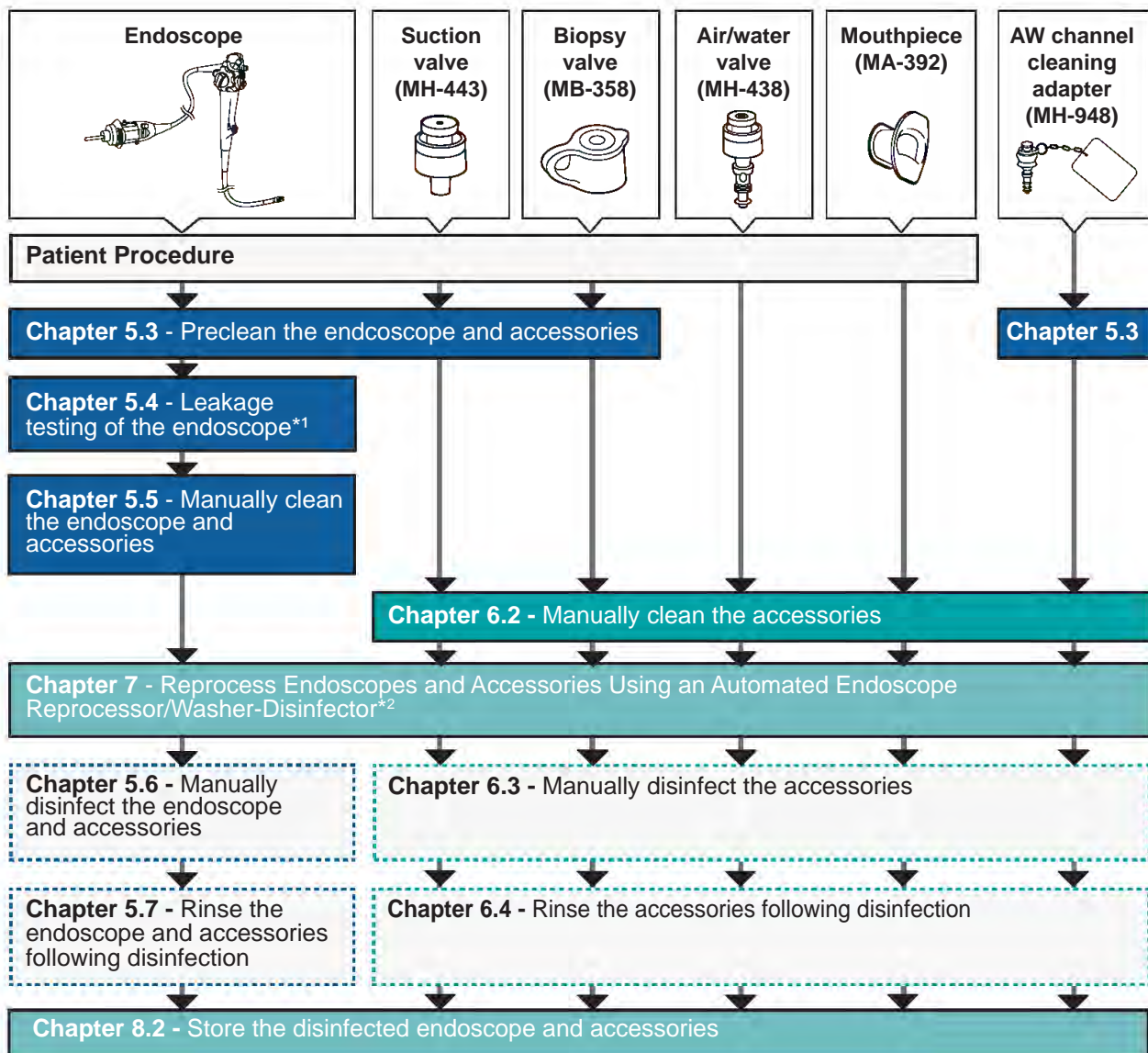
Workflow for cleaning and disinfecting endoscopes and accessories using an AER/WD

Some endoscopes and accessories cannot be cleaned and disinfected with an AER/WD, and must be manually disinfected. Endoscopes and accessories that can be cleaned and disinfected with an AER/WD vary, based on the AER/WD model. Check the AER's/WD's instruction manual to confirm which endoscopes can be cleaned and disinfected in the AER/WD.

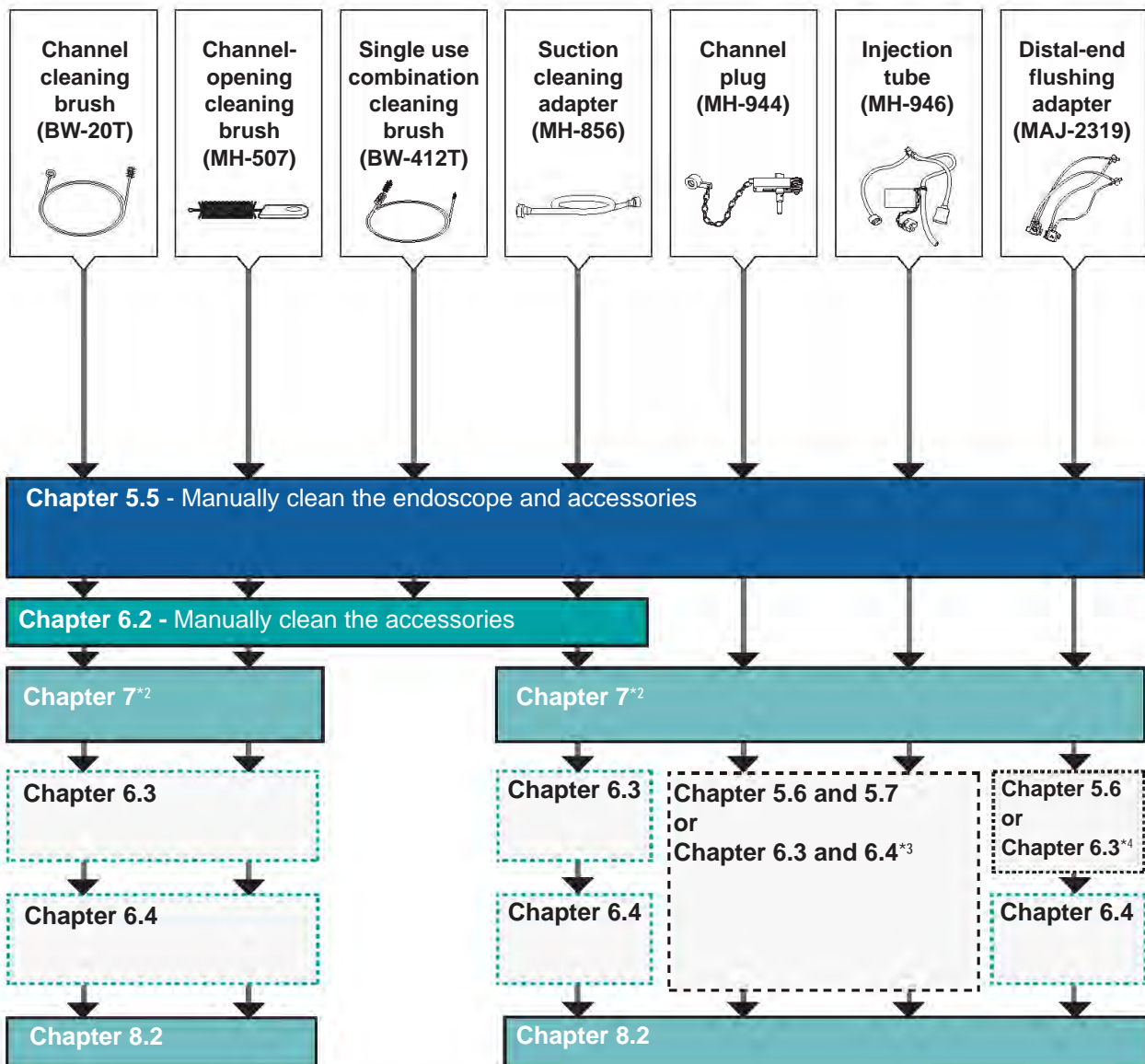


### WARNING

Conduct all steps of precleaning and manual cleaning as instructed in this manual even when you use an AER/WD that has instructions that would allow you to skip some steps in precleaning and manual cleaning of endoscopes.



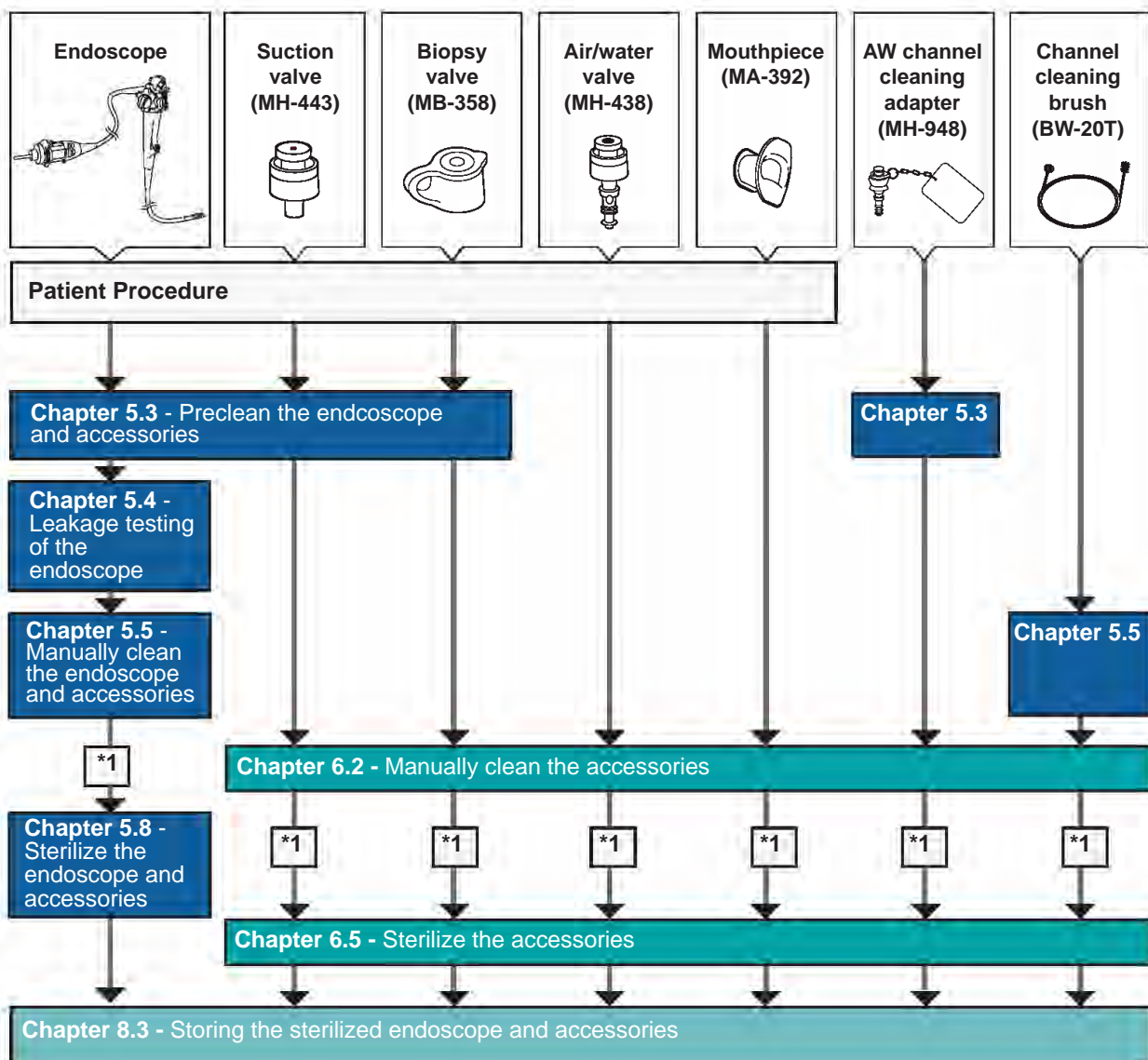
- \*1 Check the instruction manual for the AER/WD to determine how to test the endoscope for leakages using the AER/WD. When leakage testing an endoscope within an AER/WD basin, it may be difficult to fully angulate the bending section and move the elevator control lever. Perform leakage testing in the AER/WD and/or manually while angulating the bending section and moving the elevator control lever.
- \*2 If the endoscope and/or the accessories are compatible with the AER/WD, clean and disinfect them in the AER/WD, following the AER's/WD's instruction manual. If the endoscope and/or the accessories are not compatible with the AER/WD, manually disinfect and rinse them following the instructions of this manual, as shown in the dotted boxes.
- \*3 If the endoscope and the accessories are not compatible with the AER/WD, manually disinfect and rinse them as described in Chapters 5.6 and 5.7. If the endoscope is compatible and the accessories are not compatible, manually disinfect and rinse the accessories as described in Chapters 6.3 and 6.4.
- \*4 If the endoscope and the distal-end flushing adapter are not compatible with the AER/WD, manually disinfect them as described in Chapter 5.6. If the endoscope is compatible and the distal-end flushing adapter is not compatible, manually disinfect the distal-end flushing adapter as described in Chapter 6.3.

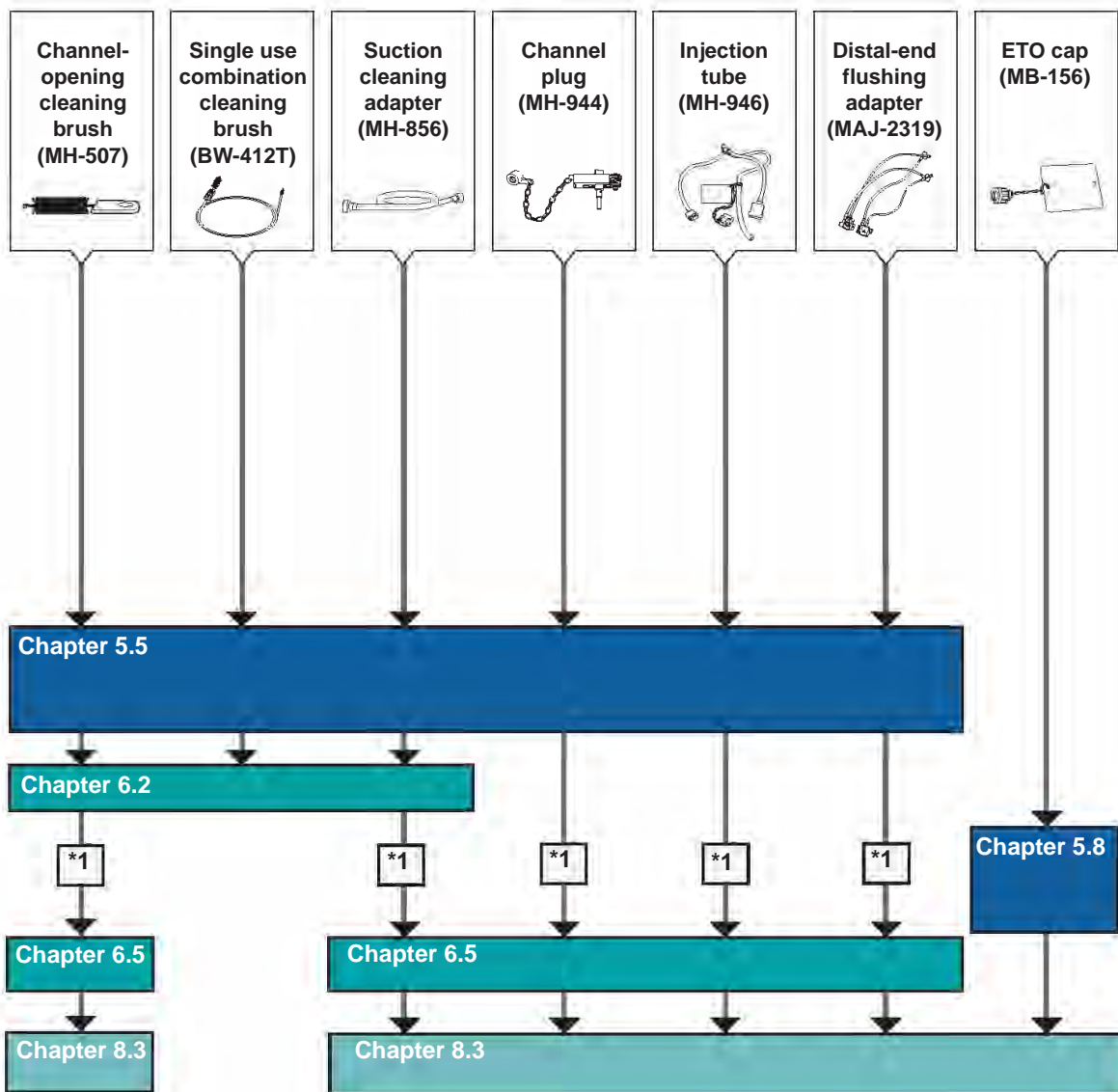


## 4.4 Workflow for manually cleaning and sterilizing endoscopes and accessories

Workflow for manually cleaning and sterilizing endoscopes and accessories

\*1 If required by the local policy of your institution, disinfect and rinse the endoscope and accessories manually, or clean and disinfect them with an AER/WD between the manual cleaning and sterilization.





## Chapter

## 5

## Reprocess the Endoscope (and related reprocessing accessories)

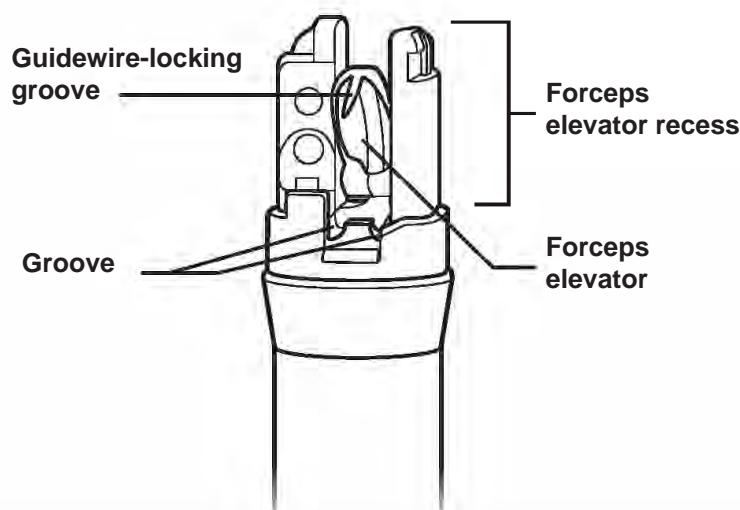
## 5.1 Summary

Some accessories are reprocessed with the endoscope, and others are reprocessed independently. You will find different instructions for reprocessing in chapters 4, 5, and 6:

- Chapter 4, “Reprocessing Workflows”, provides an overview workflow diagram of the reprocessing steps for the endoscope and all accessories.
- (This chapter) Chapter 5, “Reprocess the Endoscope (and related reprocessing accessories)”, provides detailed instructions for reprocessing the endoscope and the accessories needed to reprocess the endoscope.
- Chapter 6, “Reprocess the Accessories”, provides detailed instructions for reprocessing accessories that are reprocessed independently.

### WARNING

The surface and surrounding area of the TJF-Q190V endoscope’s forceps elevator has a complex shape, featuring the groove, guidewire-locking groove, and forceps elevator recess. Reprocess these parts and areas carefully, following the steps in Chapter 5, “Reprocess the Endoscope (and related reprocessing accessories)”. Insufficient reprocessing may pose an infection control risk to the patient and/or operators.



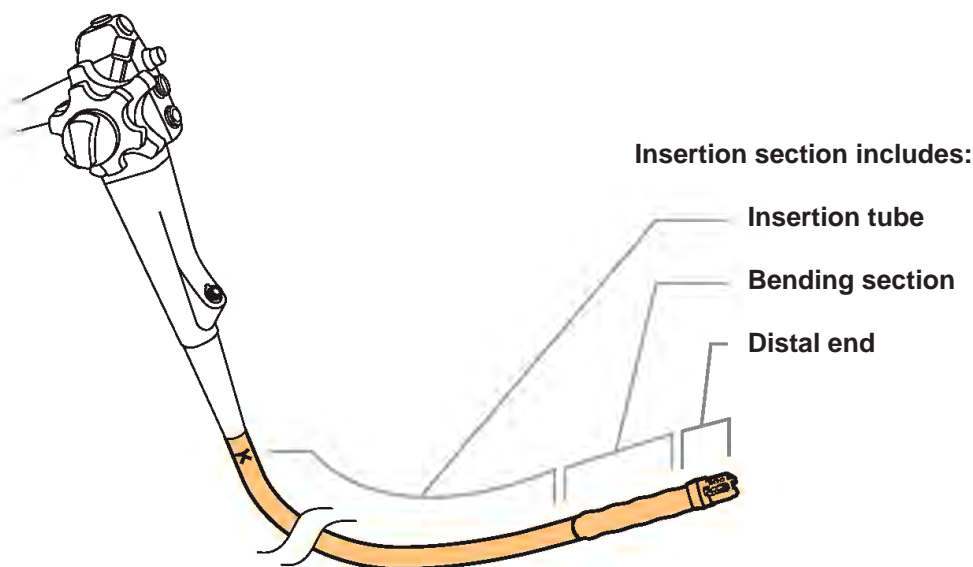
## CAUTION

Improper handling may damage the endoscope and/or cause the endoscope to leak.

To prevent damage to the entire endoscope:

- Do not immerse the endoscope with objects other than the required reprocessing equipment.
- Do not coil the insertion tube or the endoscope's universal cord with a diameter of less than 12 cm.

The insertion section of the endoscope is composed of the insertion tube, the bending section, and the distal end. The bending section is covered by a thin, easily damaged elastic covering.



To prevent damage to the endoscope's insertion section:


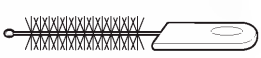
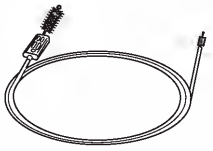


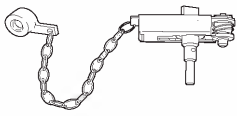
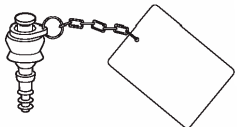
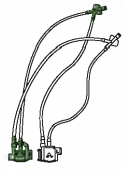

- Do not allow reprocessing equipment to forcefully contact the bending section.
- Do not allow any sharp edges, such as the distal ends of endoscopic therapy accessories (e.g., needles, forceps, snares, etc. used in the instrument channel of the endoscope) to contact the bending section.
- Handle the insertion section carefully. Tightly gripping, or bending the insertion tube or the bending section at a sharp angle can stretch or severely damage the insertion tube and/or the covering of the bending section.

## 5.2 Prepare equipment for reprocessing

### 5.2.1 Equipment needed

The following accessories and equipment are required to perform the reprocessing steps described in this chapter.

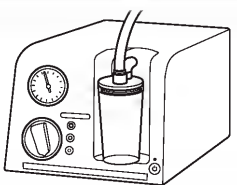
**Accessories for reprocessing:**

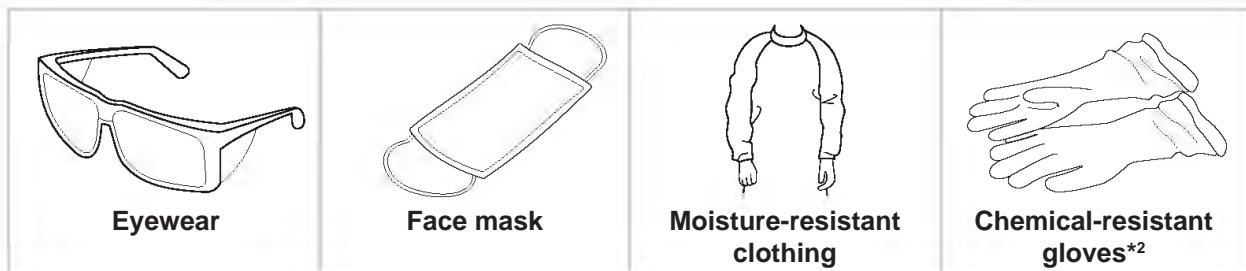
 <p><b>Channel cleaning brush (BW-20T*1)</b></p>	 <p><b>Channel-opening cleaning brush (MH-507*1)</b></p>	 <p><b>Single use combination cleaning brush (BW-412T*1)</b></p>
 <p><b>Suction cleaning adapter (MH-856)</b></p>	 <p><b>Injection tube (MH-946)</b></p>	 <p><b>Channel plug (MH-944)</b></p>
 <p><b>AW channel cleaning adapter (MH-948)</b></p>	 <p><b>Distal-end flushing adapter (MAJ-2319)</b></p>	 <p><b>ETO cap (MB-156)</b></p>

**Accessories and equipment for leakage testing:**

 <p><b>Maintenance unit (MU-1) (Sold separately. Refer to its instruction manual.)</b></p>	 <p><b>Leakage tester (MB-155) (Sold separately. Refer to its instruction manual.)</b></p>
---	--

**Equipment:**

	<p><b>Suction pump (KV-6, KV-5, SSU-2) and suction tube (Sold separately. Refer to its instruction manual.)</b></p>
---	---

**Personal protective equipment:****Fluids used for reprocessing:**

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Detergent solution (Refer to Chapter 3.3, “Detergent solution”)</li> <li>• Rinse water (Refer to Chapter 3.5, “Rinse water”)</li> <li>• 70% ethyl or 70% isopropyl alcohol (Refer to Chapter 3.6, “Alcohol”)</li> </ul> | <ul style="list-style-type: none"> <li>• Water (for reprocessing) (Refer to Chapter 3.2, “Water (for reprocessing)”)</li> <li>• Disinfectant solution (Refer to Chapter 3.4, “Disinfectant solution”)</li> </ul> |
|--|--|

**Other:**

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Clean 2000 mL containers</li> <li>• Clean lint-free cloths*<sup>3</sup></li> <li>• Clean sponges</li> <li>• Clean, soft brushes</li> <li>• Clean 30 mL (30 cc) syringes</li> <li>• Sterile lint-free cloths*<sup>3</sup>, *<sup>4</sup></li> <li>• Sterile cotton swabs*<sup>4</sup></li> <li>• Sterile 30 mL (30 cc) syringes*<sup>4</sup></li> <li>• Sterilization pouches*<sup>5</sup></li> <li>• Sterilization wraps*<sup>5</sup></li> </ul> | <ul style="list-style-type: none"> <li>• Clean, large basins with tight-fitting lids (size: 40 (W) × 40 (D) × 25 (H) cm or more)</li> <li>• Clean, large basins (size: 40 (W) × 40 (D) × 25 (H) cm or more)</li> <li>• Sterile, large basins*<sup>4</sup> (size: 40 (W) × 40 (D) × 25 (H) cm or more)</li> <li>• Sterile, small basins with tight-fitting lids*<sup>4</sup> (size: 25 (W) × 10 (D) × 25 (H) cm or more)</li> <li>• Air compressor (Filtered)</li> <li>• Stainless steel wire mesh basket (size: 50 (W) × 30 (D) × 10 (H) cm or more)</li> </ul> |
|---|---|

\*<sup>1</sup> Prepare a single use combination cleaning brush (BW-412T) OR prepare a channel cleaning brush (BW-20T) and channel-opening cleaning brush (MH-507).

\*<sup>2</sup> Long sleeve gloves are recommended to prevent skin exposure.

\*<sup>3</sup> Lint-free cloths are recommended for reprocessing to prevent lint or cloth fibers from lodging or being trapped in the endoscope’s components such as channels or air/water nozzle.

\*<sup>4</sup> Following disinfection, it is very important not to recontaminate the endoscope and accessories with potentially infectious microorganisms. When rinsing and drying the endoscope and accessories following disinfection, the use of sterile equipment (basins, cloths, syringes, etc.) is recommended. If sterile equipment is not available, use clean equipment that does not recontaminate the endoscope and accessories with potentially infectious microorganisms. Consult with your healthcare facility’s infection control committee regarding local policies or requirements regarding reprocessing equipment.

\*<sup>5</sup> For U.S. customers: Use legally U.S. marketed sterilization wraps and sterilization pouches.

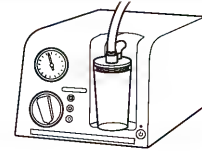
## 5.3 Preclean the endoscope and accessories

### Workflow for precleaning the endoscope and accessories:

#### Prepare equipment

5.3.1 Equipment needed

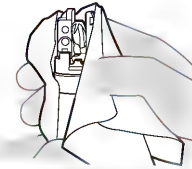
5.3.2 Prepare for precleaning



#### Wipe external surfaces

5.3.3 Wipe the insertion section

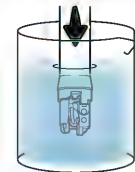
5.3.4 Detach the single use distal cover (MAJ-2315)



#### Flush channels

5.3.5 Aspirate water and air through the suction/instrument channel

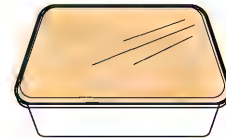
5.3.6 Flush the air/water channel with water and air



#### Detach equipment

5.3.7 Detach the suction tube and the water container's metal tip

5.3.8 Detach the endoscope from the light source



### WARNING

Preclean the endoscope and the accessories at the bedside immediately after each patient procedure. If the endoscope and accessories are not immediately cleaned after each patient procedure, residual organic debris will begin to dry and solidify, thereby hindering reprocessing efficacy.

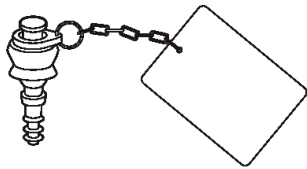
### NOTE

Some national or professional guidelines recommend using a detergent solution for precleaning. Consult with your healthcare facility's infection control committee regarding use of a detergent solution.

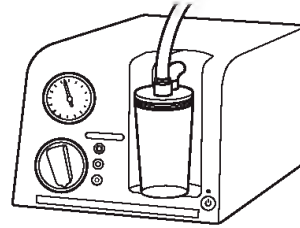
## 5.3.1 Equipment needed

Prepare the following equipment.

### Accessories and equipment for precleaning:



AW channel  
cleaning adapter (MH-948)



Suction pump (KV-6, KV-5, SSU-2)  
and suction tube (Sold separately.  
Refer to its instruction manual.)

### Fluids used for precleaning:

- Water (for reprocessing) (Refer to Chapter 3.2, "Water (for reprocessing)")

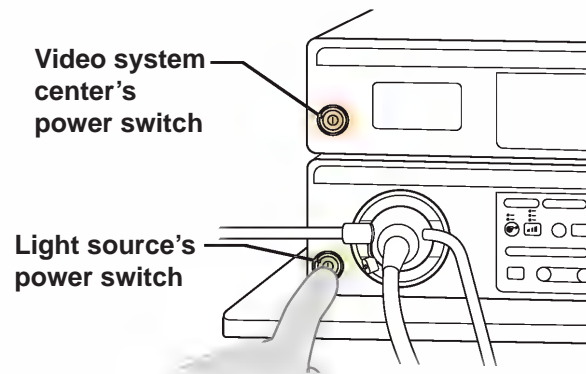
### Other:

- Clean lint-free cloths
- Clean 2000 mL containers
- Clean sponges

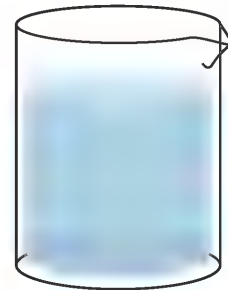
### 5.3.2 Prepare for precleaning

At the patient bedside, immediately after the patient procedure, with the endoscope still connected to the procedure equipment (i.e., the light source, video system center, and suction pump), perform the following precleaning steps.

1. Turn the video system center and light source OFF.



2. Prepare a clean 2000 mL container filled with water (for reprocessing).



#### NOTE

As described in Chapter 3.2, “Water (for reprocessing)”, reprocessing water might be:

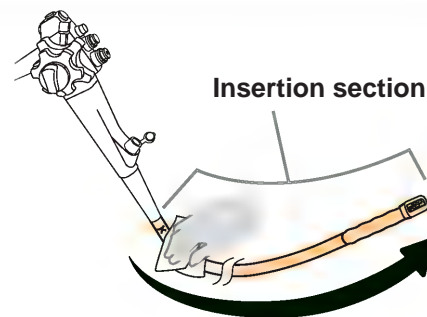
- Fresh, drinkable tap water
- Processed water (e.g., filtered, deionized, or purified, to improve its chemical and/or microbiological quality)

### 5.3.3 Wipe the insertion section

1. Immerse clean lint-free cloths or sponges in the water.

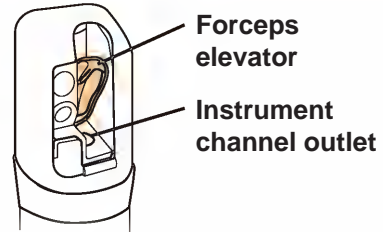


2. Wipe the endoscope's entire insertion section (i.e., from the control section's boot to the endoscope's distal end).

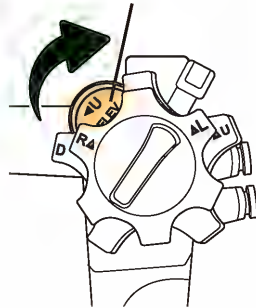


### 5.3.4 Detach the single use distal cover (MAJ-2315)

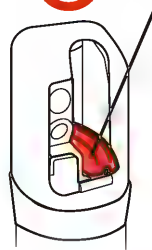
1. Ensure that the distal end's instrument channel outlet is fully open.  
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



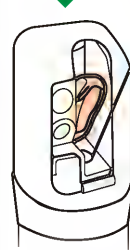
Elevator control lever



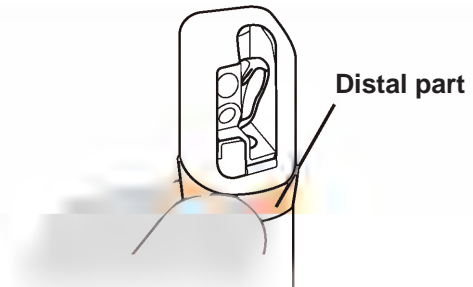
 Closed



 Open



2. Gently hold the distal part of the bending section.



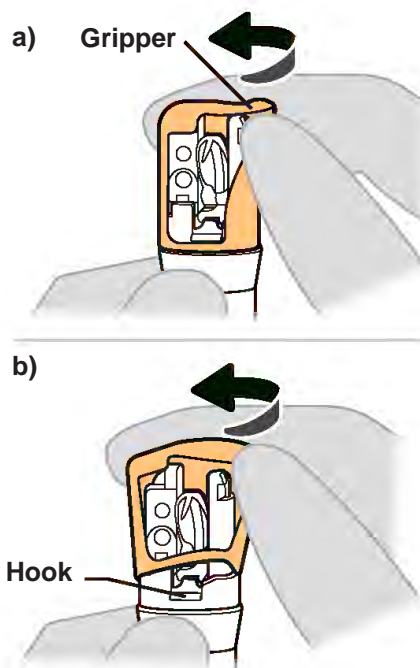
**WARNING**

- When detaching the single use distal cover from the endoscope, hold the single use distal cover tightly. Otherwise, your fingers may slip and cause patient debris and/or fluid to splatter off, which may pose an infection control risk.
- Do not reuse the single use distal cover. Reusing the single use distal cover could pose an infection risk. After use, dispose of it in an appropriate manner.

**CAUTION**

- After removing the single use distal cover, carefully handle the forceps elevator while cleaning, disinfecting, sterilizing, storage, and/or preparing the endoscope. This helps to prevent any damage to the forceps elevator.
- Do not forcefully grasp other parts of the bending section when detaching the single use distal cover because it can result in damage to the bending section's mechanism or damage its covering.

- 3.** While gently holding the distal part of the bending section, remove the single use distal cover, as follows:
- a) Push back the top of the single use distal cover's gripper to begin removal;
  - b) Rotate the single use distal cover until its bottom is free from the distal ring's hook.



### 5.3 Precleaning

3. Wipe external surfaces

4. Detach distal cover

5. Aspirate water

- 4.** Discard the single use distal cover into a biohazard container.

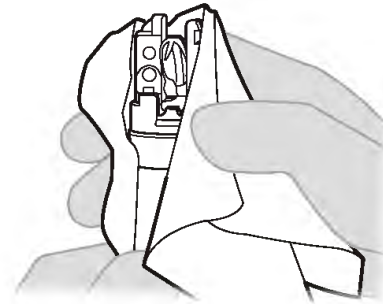


- 5.** Immerse a new clean lint-free cloth in the water.

If you are using a sponge, immerse an area of the sponge that is still clean. Otherwise, use a new sponge.



- 6.** Wipe the endoscope's distal end.



## 5.3.5 Aspirate water and air through the suction/instrument channel

### NOTE

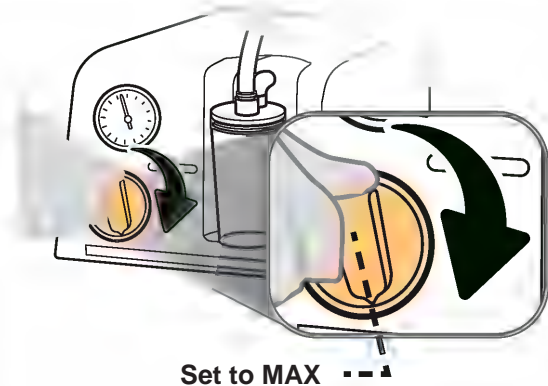
Monitor the suction bottle on the suction pump carefully to ensure that it does not overflow.

1. If using the KV-6 or KV-5 suction pump, turn the vacuum regulator knob clockwise until the knob stops and sets to maximum.

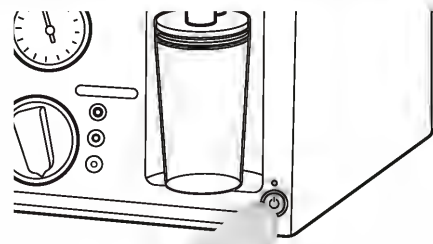
### NOTE

The maximum vacuum pressure of the suction pump is:

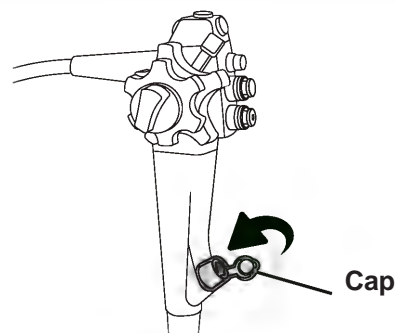
- KV-6: -95 kPa
- KV-5: -85 kPa



2. Turn the suction pump ON (if suction pump is off).

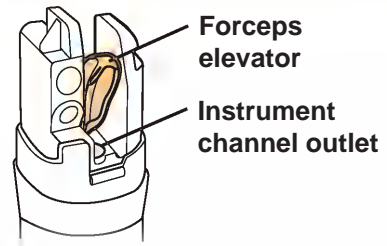


3. Close the biopsy valve cap.

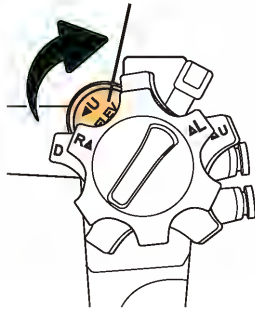


**4.** Ensure that the distal end's instrument channel outlet is fully open.

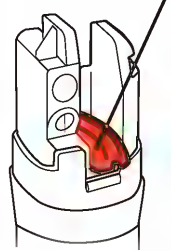
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



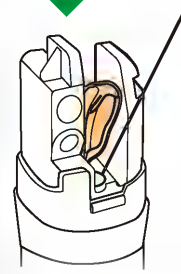
Elevator control lever



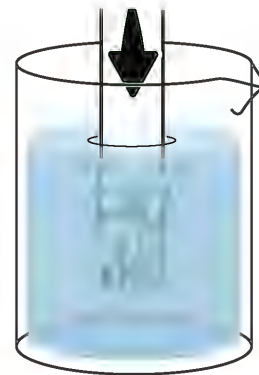
Closed



Open

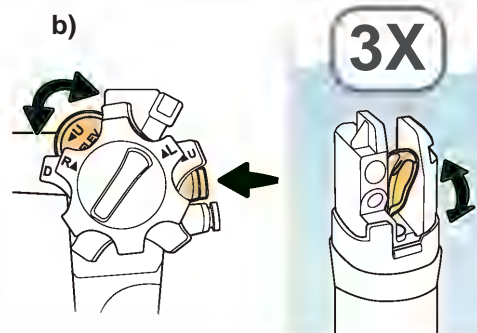
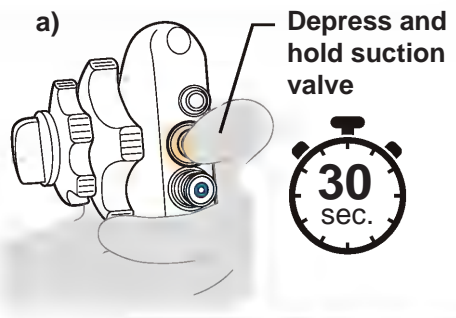


**5.** Immerse the endoscope's distal end in the water.



**6.** Aspirate water for 30 seconds or more, as follows:

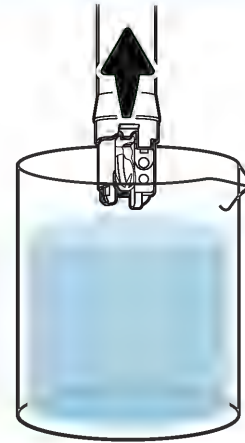
- a) Depress and hold the suction valve (MH-443) on the endoscope;
- b) While depressing the suction valve, move the elevator control lever in each direction three times to move the forceps elevator up and down.



**NOTE**

Use a clock or a timer to accurately measure 30 seconds or more.

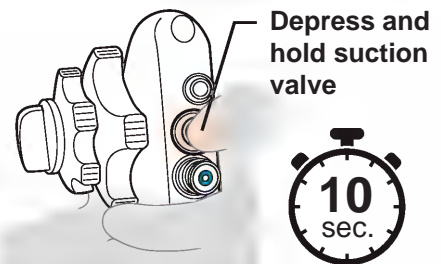
7. Remove the endoscope's distal end from the water.



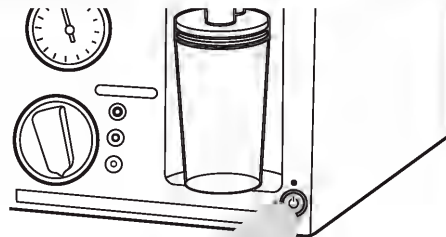
8. Depress and hold the suction valve and aspirate air for 10 seconds or more.

**NOTE**

Use a clock or a timer to accurately measure 10 seconds or more.



9. Turn the suction pump OFF.



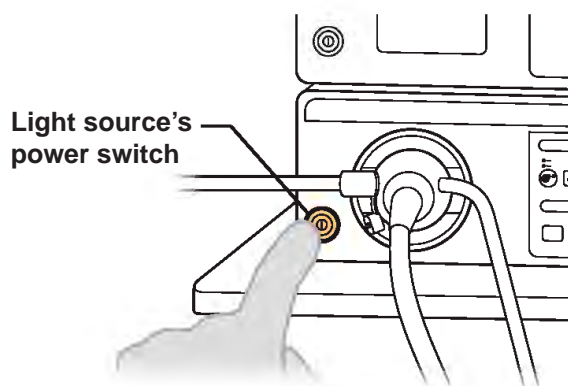
## 5.3.6 Flush the air/water channel with water and air

**⚠ CAUTION**

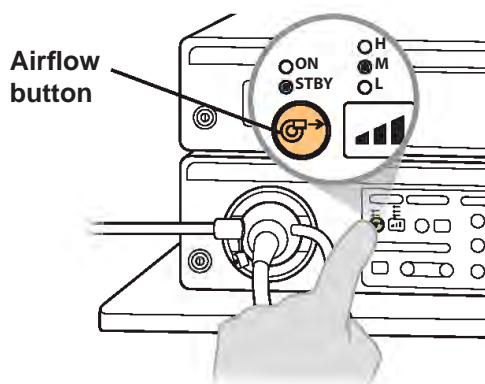
- After each patient procedure, to prevent the air/water nozzle from clogging, use the AW channel cleaning adapter (MH-948) to flush the endoscope's air channel with water.
- Do not apply lubricants to the AW channel cleaning adapter. Lubricants may cause malfunction of the AW channel cleaning adapter.

1. If using the endoscopic CO<sub>2</sub> regulation unit (UCR), ensure that the UCR's gas flow is stopped. If the UCR's gas flow is on, press the UCR start/stop switch to stop gas flow.

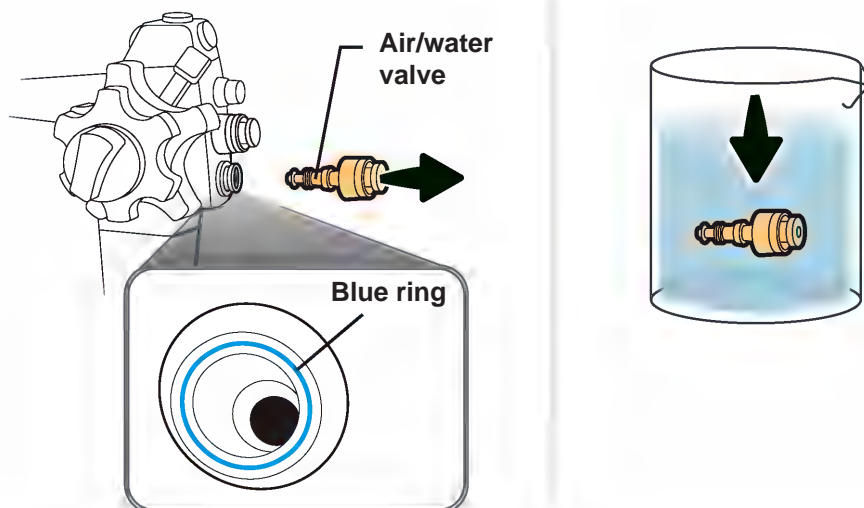
2. Turn the light source ON.



3. Set the light source's airflow to STBY to turn the airflow off.



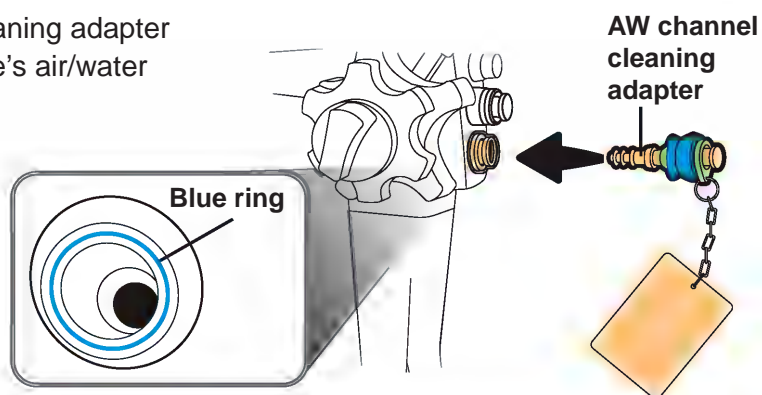
- 4.** Detach the air/water valve (MH-438) from the endoscope and place the air/water valve in the water.



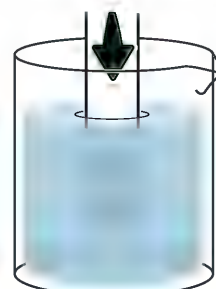
### NOTE

- Set aside the air/water valve (which is currently in water). You will reprocess this accessory as described in Chapter 6, "Reprocess the Accessories".
- Water may drip from the air/water cylinder when the air/water valve is detached. If this occurs, hold the control section higher than the water container. The water (i.e., sterile water in the water container) dripping from the air/water cylinder is clean.

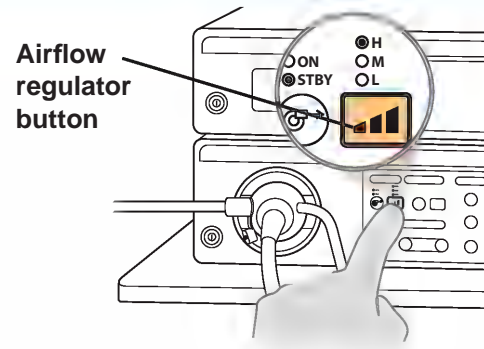
- 5.** Attach the AW channel cleaning adapter (MH-948) to the endoscope's air/water cylinder.



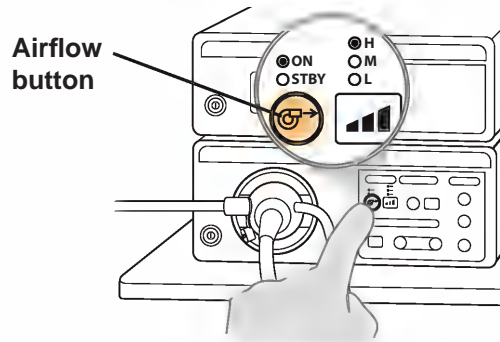
- 6.** Immerse the endoscope's distal end in the water.



7. Turn the light source's airflow regulator to HIGH.



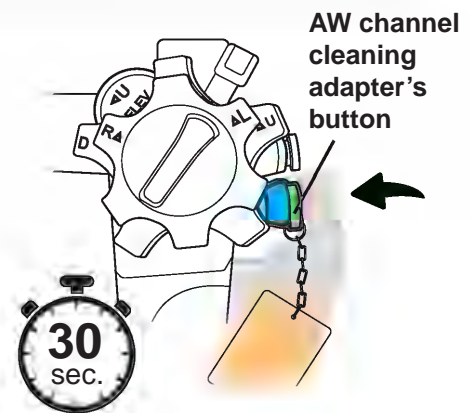
8. Turn the light source's airflow ON.



9. Depress and hold the AW channel cleaning adapter's button for 30 seconds or more to flush the air channel with water from the water container.

**NOTE**

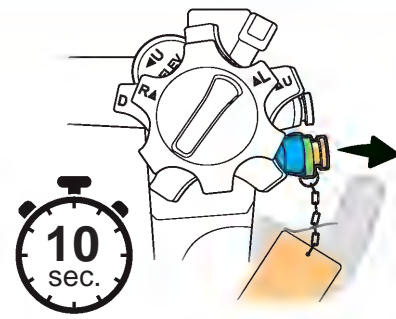
Use a clock or a timer to accurately measure 30 seconds or more.



- 10.** Release the AW channel cleaning adapter's button for 10 seconds or more to flush the air/water channel with air.

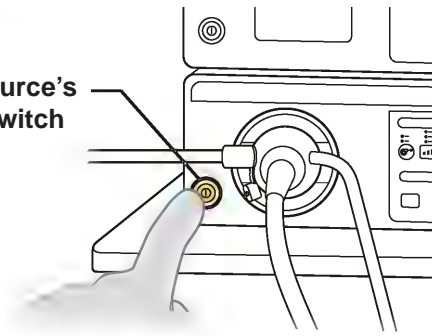
**NOTE**

Use a clock or a timer to accurately measure 10 seconds or more.



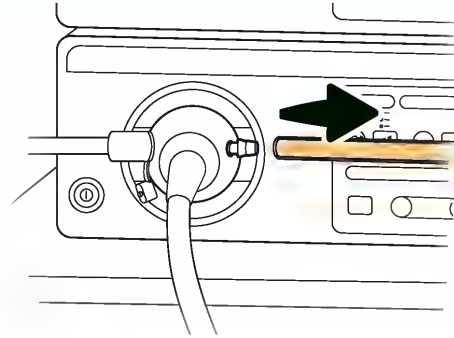
- 11.** Turn the light source OFF.

Light source's  
power switch

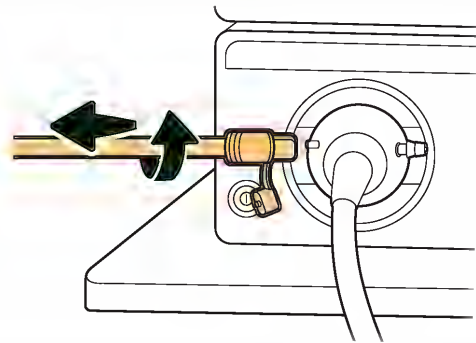


### 5.3.7 Detach the suction tube and the water container's metal tip

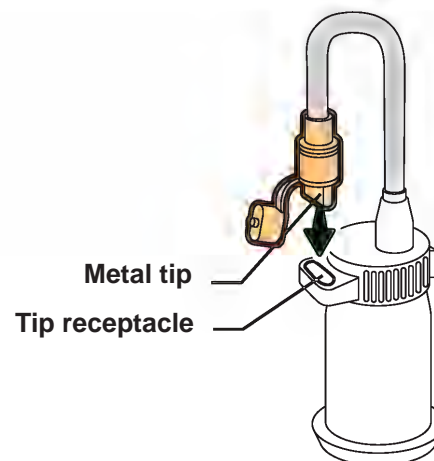
1. Detach the suction tube from the endoscope connector's suction connector.



2. Rotate the water container's metal tip (MAJ-901 or MAJ-902) counterclockwise and detach from the endoscope's air/water supply connectors.



3. As described in the water container instruction manual, place the metal tip into the water container's tip receptacle.

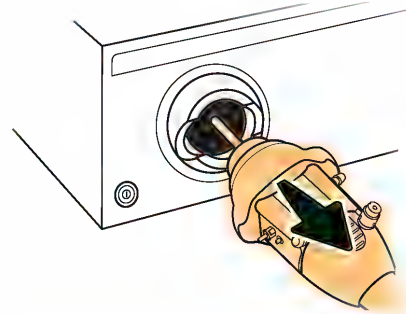


### 5.3.8 Detach the endoscope from the light source

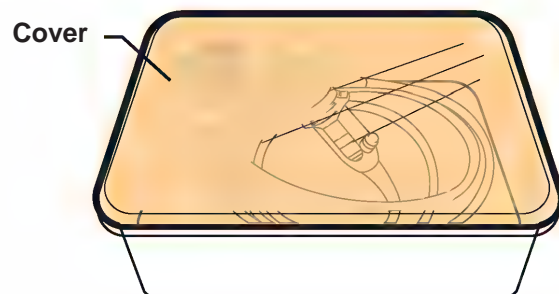
#### **WARNING**

Do not touch the endoscope connector's light guide immediately after detaching it from the light source because it is extremely hot, and could cause injury.

1. Detach the endoscope connector from the light source.



2. Transport the endoscope to the reprocessing area. Use a covered container to avoid environmental contamination if required by local policies.



## 5.4 Leakage testing of the endoscope

### Workflow for leakage testing the endoscope:

#### Prepare equipment

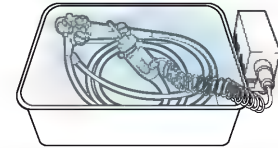
5.4.1 Equipment needed

5.4.2 Detach the accessories from the endoscope



#### Perform leakage test

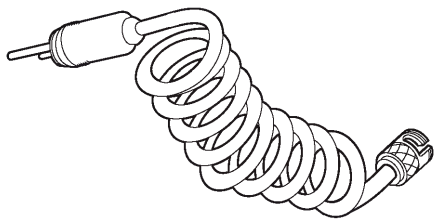
5.4.3 Perform the leakage test



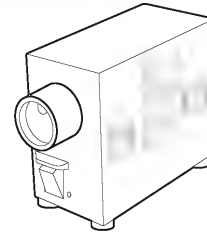
### 5.4.1 Equipment needed

Prepare the following equipment.

#### Accessories and equipment for leakage testing:



**Leakage tester (MB-155) (Sold separately.  
Refer to its instruction manual.)**



**Maintenance unit (MU-1) (Sold separately.  
Refer to its instruction manual.)**

#### Fluids used for leakage testing:

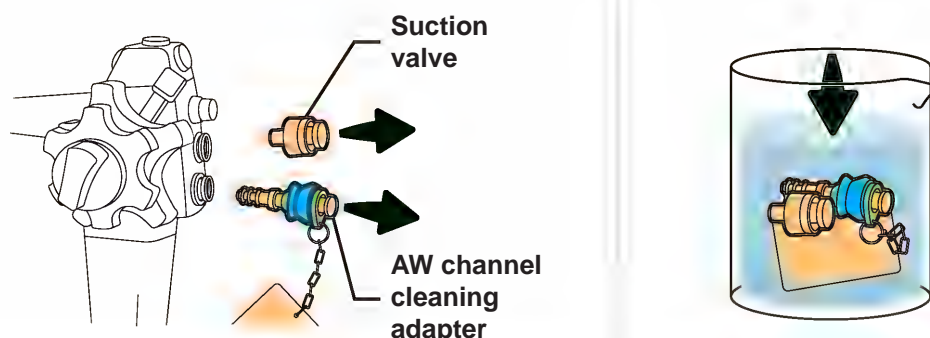
- Detergent solution (Refer to Chapter 3.3, "Detergent solution")
- Water (for reprocessing) (Refer to Chapter 3.2, "Water (for reprocessing)")

#### Other:

- Clean, large basins (size: 40 (W) × 40 (D) × 25 (H) cm or more)
- Clean lint-free cloths

## 5.4.2 Detach the accessories from the endoscope

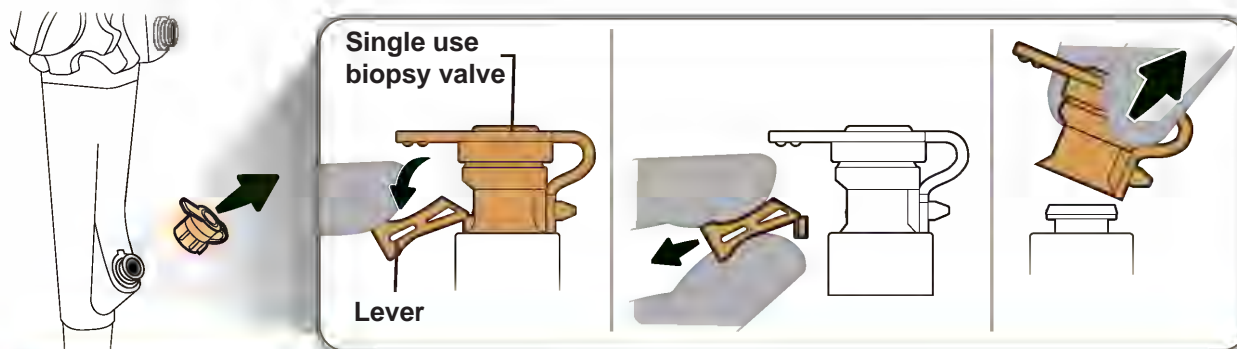
1. Detach the AW channel cleaning adapter (MH-948) and the suction valve (MH-443) from the endoscope and place them in the detergent solution.



### NOTE

Set aside the AW channel cleaning adapter and the suction valve. You will reprocess these accessories as described in Chapter 6, "Reprocess the Accessories".

2. If using the single use biopsy valve (MAJ-1555), break off the single use biopsy valve's lever. Then, detach the single use biopsy valve from the instrument channel port and discard it in a biohazard container.



### ⚠ WARNING

- Break off the single use biopsy valve's lever, then remove the single use biopsy valve from the instrument channel port. Otherwise, the valve might spray patient debris or fluids, which poses an infection control risk.
- Do not reuse the single use biopsy valve. Reusing the single use biopsy valve could pose an infection control risk and cause the endoscope to malfunction. After use, dispose of it in a biohazard container.

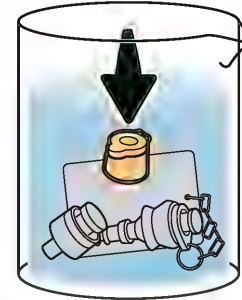
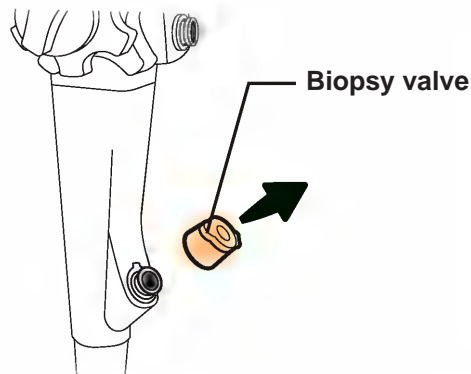
## 5.4 Leakage testing

1. Equipment  
needed

2. Detach  
accessories

3. Perform  
leakage test

3. If using the biopsy valve (MB-358), detach the valve from the instrument channel port and place it in the detergent solution.



### NOTE

Set aside the biopsy valve. You will reprocess this accessory as described in Chapter 6, "Reprocess the Accessories".

### 5.4.3 Perform the leakage test

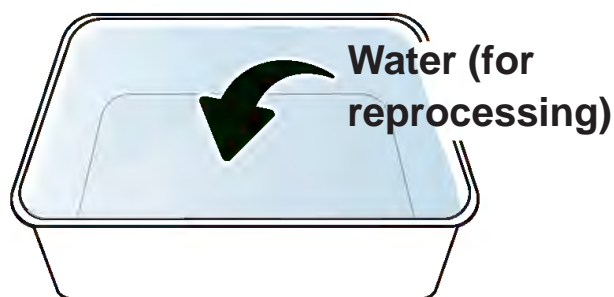


#### WARNING

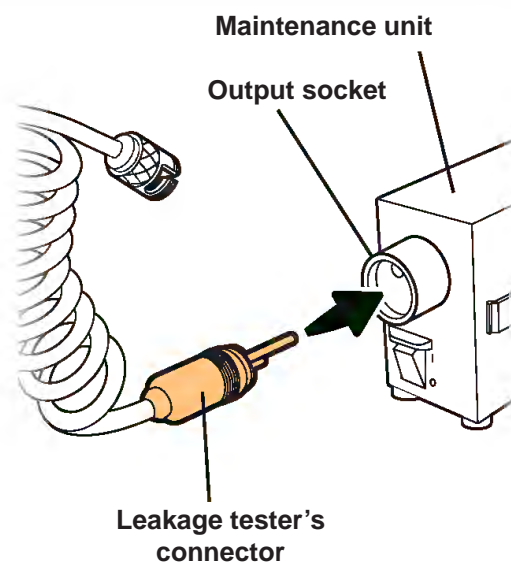


Once you immerse the endoscope, keep it immersed at all times when performing the leakage test, unless the instructions state otherwise. Holding the endoscope out of the fluid while performing the leakage test may pose an infection control risk.

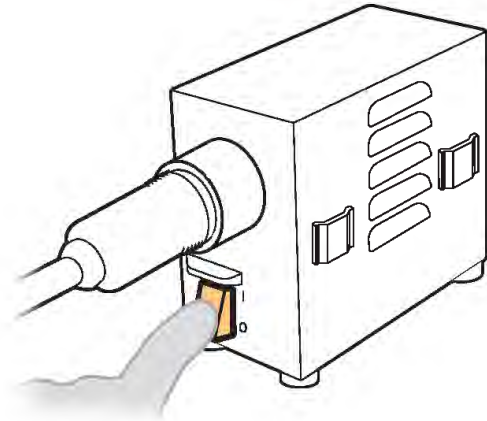
1. Fill a clean, large basin with water (for reprocessing).



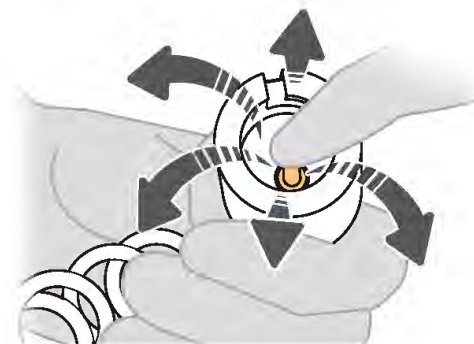
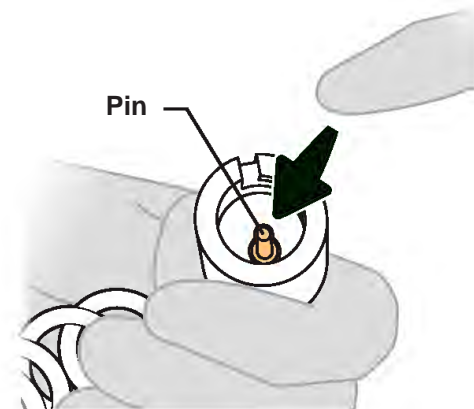
2. Attach the leakage tester's connector (MB-155) to the maintenance unit's output socket (MU-1).



- 3.** Turn the maintenance unit ON.

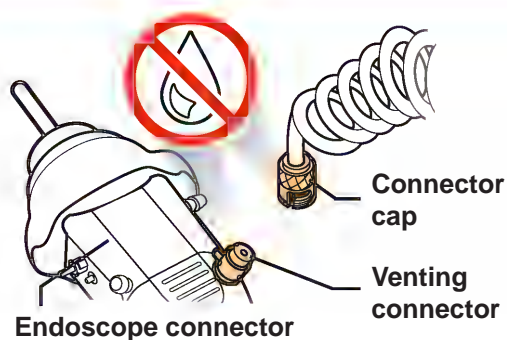


- 4.** Depress the pin located inside the leakage tester's connector cap. Confirm that air is emitted from the connector cap (listen for a whoosh sound).



- 5.** Ensure that both the leakage tester's connector cap and the endoscope's venting connector are dry.

If the leakage tester's connector cap or the endoscope's venting connector is not dry, dry it with clean lint-free cloths.

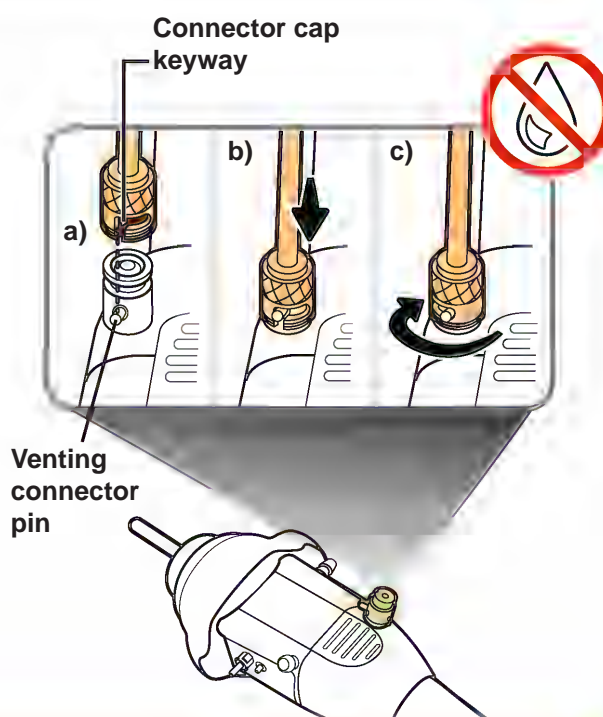


**⚠ CAUTION**

When attaching the leakage tester's connector cap (MB-155) to the endoscope's venting connector make sure that both the connector cap and the venting connector are thoroughly dry. Water on the surface of either component may enter the endoscope and could cause endoscope damage.

- 6.** Attach the leakage tester's connector cap to the endoscope connector's venting connector, as follows:

- Align the keyway on the connector cap with the pin on the venting connector;
- Push the connector cap towards the endoscope connector until it stops;
- Rotate the connector cap clockwise (approximately 90°) until it stops.



**⚠ CAUTION**

- Do not attach/detach the leakage tester while immersing the endoscope in water because this could allow water to enter the endoscope, resulting in endoscope damage.
- Push on and rotate the connector cap clockwise fully until it stops. If it is not fully and properly attached, the interior of the endoscope will not be properly pressurized and leakage testing will not be accurate.

## 5.4 Leakage testing

1 Equipment  
needed

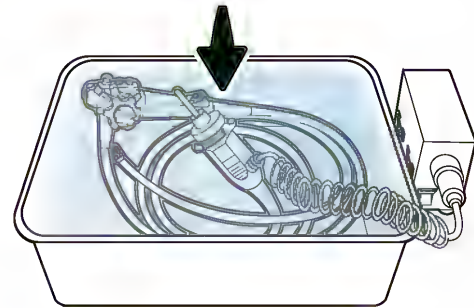
2 Attach  
accessories

3 Perform  
leakage test

7. With the leakage tester attached, completely immerse the endoscope in the water.



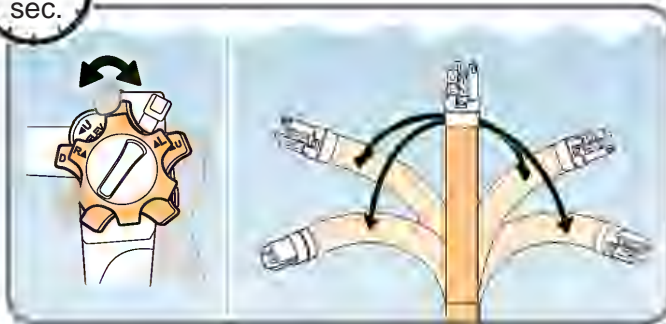
Keep immersed  
when leakage  
testing



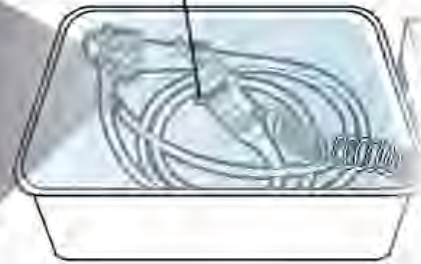
8. Keeping the endoscope completely immersed in the water, turn the endoscope's U/D and R/L angulation control knobs for 30 seconds or more in total and confirm that air bubbles do not emerge continuously or intermittently from the endoscope.



Bend in all  
directions



NO air bubbles  
should emerge



### CAUTION

If you identify a leak during leakage testing, remove the endoscope from the water with the leakage tester still attached. Contact Olympus regarding instructions for reprocessing a leaking endoscope in preparation for returning the endoscope to Olympus for repair.

### NOTE

Use a clock or a timer to accurately measure 30 seconds or more.

9. Keeping the endoscope completely immersed in the water, move the endoscope's elevator control lever for 30 seconds or more and confirm that after 30 seconds NO air bubbles emerge continuously or intermittently around the endoscope's forceps elevator.



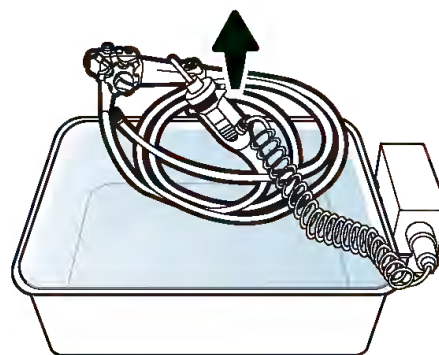
### WARNING

The elevator control lever must be moved during leakage testing to detect leaks that occur only when the forceps elevator is up or down. Use of an endoscope with a leak may pose an infection control risk.

### NOTE

- During the leakage test, it is normal for the bending section's covering to expand as the air pressure inside the endoscope increases.
- Use a clock or a timer to accurately measure 30 seconds or more.

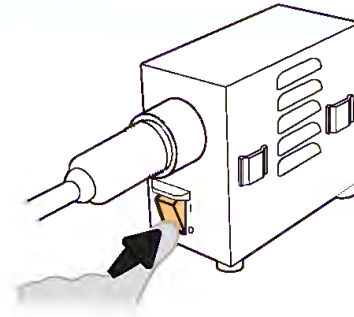
10. With the leakage tester attached, remove the endoscope from the water.



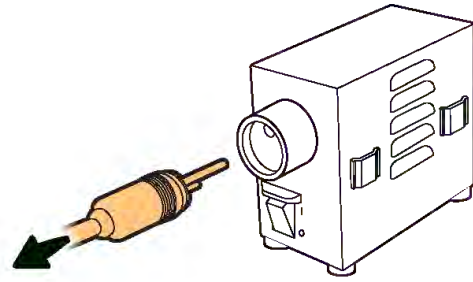
### CAUTION

Do not attach/detach the leakage tester while immersing the endoscope in water because this could allow water to enter the endoscope, resulting in endoscope damage.

11. Turn the maintenance unit OFF.



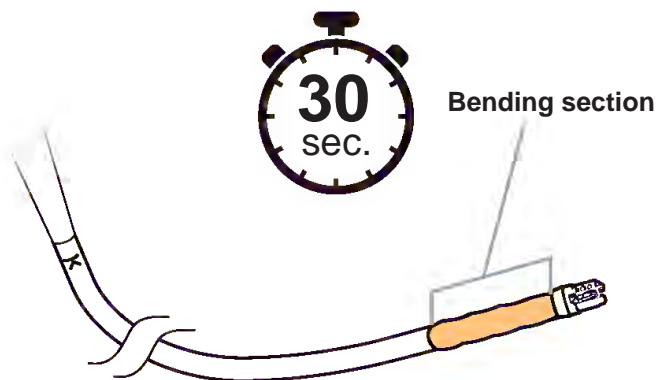
12. Detach the leakage tester's connector from the maintenance unit.



### CAUTION

Detach the leakage tester from the maintenance unit (MU-1) before detaching the leakage tester from the endoscope. If the leakage tester is detached from the endoscope before detaching the leakage tester from the maintenance unit, the air pressure inside the endoscope will not vent properly, which may damage the endoscope.

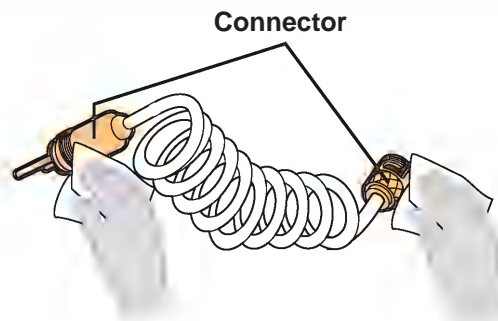
13. Wait about 30 seconds until the bending section's covering contracts to its pre-expansion size.



- 14.** Detach the leakage tester from the endoscope.



- 15.** Thoroughly dry both connectors of the leakage tester using clean lint-free cloths.



## 5.5 Manually clean the endoscope and accessories

**! WARNING**

Perform manual cleaning within ONE hour.

- Failure to do so may result in reduced effectiveness of endoscope reprocessing due to dried debris not being removed.
- Consult with your healthcare facility's infection control committee if endoscope could not be reprocessed within one hour of patient procedure.

**Workflow for manually cleaning the endoscope and accessories:****Prepare equipment**

5.5.1 Equipment needed

**Clean endoscope surfaces**

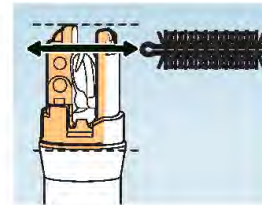
5.5.2 Clean the endoscope's external surfaces

**Brush distal end and channels**

5.5.3 Brush the forceps elevator and forceps elevator recess

5.5.4 Brush the endoscope's distal end and distal ring surfaces

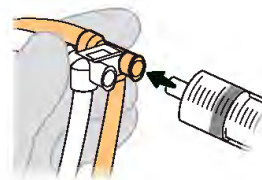
5.5.5 Brush the endoscope's channels

**Flush distal end, aspirate and flush channels**

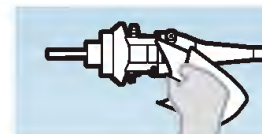
5.5.6 Flush the endoscope's distal end with detergent solution

5.5.7 Aspirate detergent solution through the instrument channel and the suction channel

5.5.8 Flush the air/water channel with detergent solution

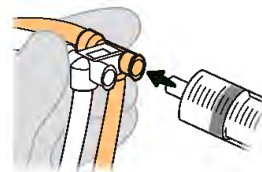
**Immerse then wipe external surfaces**

5.5.9 Immerse and then wipe the endoscope and accessories in detergent solution

**Remove detergent solution**

5.5.10 Remove detergent solution from the distal end and all channels

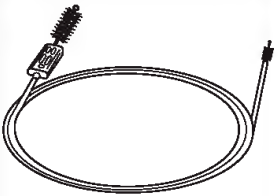
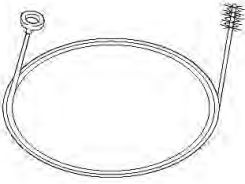
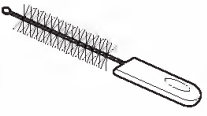
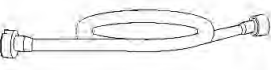
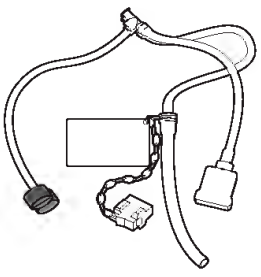
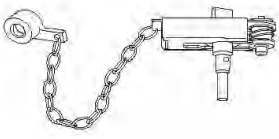
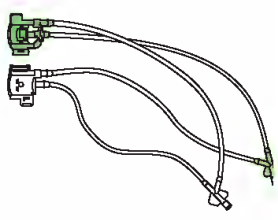
5.5.11 Dry the external surfaces



## 5.5.1 Equipment needed

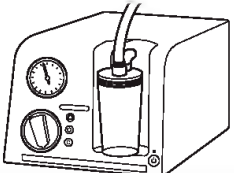
Prepare the following equipment.

### Accessories for manual cleaning:

 <p><b>Single use combination cleaning brush (BW-412T*1)</b></p>	 <p><b>Channel cleaning brush (BW-20T*1)</b></p>	 <p><b>Channel-opening cleaning brush (MH-507*1)</b></p>	 <p><b>Suction cleaning adapter (MH-856)</b></p>
 <p><b>Injection tube (MH-946)</b></p>	 <p><b>Channel plug (MH-944)</b></p>	 <p><b>Distal-end flushing adapter (MAJ-2319)</b></p>	

\*1 Prepare a single use combination cleaning brush (BW-412T) OR prepare a channel cleaning brush (BW-20T) and channel-opening cleaning brush (MH-507).

### Equipment:

	<p><b>Suction pump (KV-6, KV-5, SSU-2) and suction tube (Sold separately. Refer to its instruction manual.)</b></p>
---	---

### Fluids used for manual cleaning:

- Detergent solution  
(Refer to Chapter 3.3, “Detergent solution”)
- Water (for reprocessing)  
(Refer to Chapter 3.2, “Water (for reprocessing)”)

### Other:

- Clean, soft brushes OR clean sponges
- Clean 30 mL (30 cc) syringes
- Clean, large basins  
(size: 40 (W) x 40 (D) x 25 (H) cm or more)
- Clean lint-free cloths

## 5.5.2 Clean the endoscope’s external surfaces



### WARNING

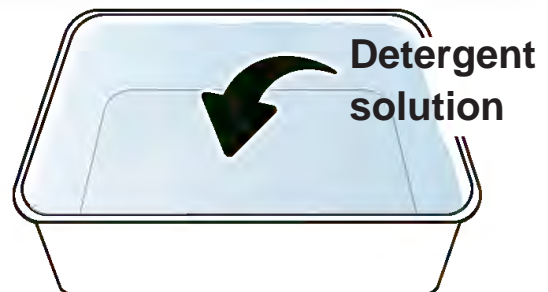


Once you immerse the endoscope, keep it immersed at all times when performing the cleaning steps, unless the instructions state otherwise. Holding the endoscope out of the fluid while cleaning may pose an infection control risk.

### 5.5.2.1 Prepare for manual cleaning

1. Fill a clean, large basin with the detergent solution at the temperature and concentration recommended by the detergent manufacturer.

Refer to the detergent manufacturer’s instructions for the recommended temperature and concentration.



- 2.** Completely immerse the endoscope in the detergent solution.



Keep immersed when cleaning



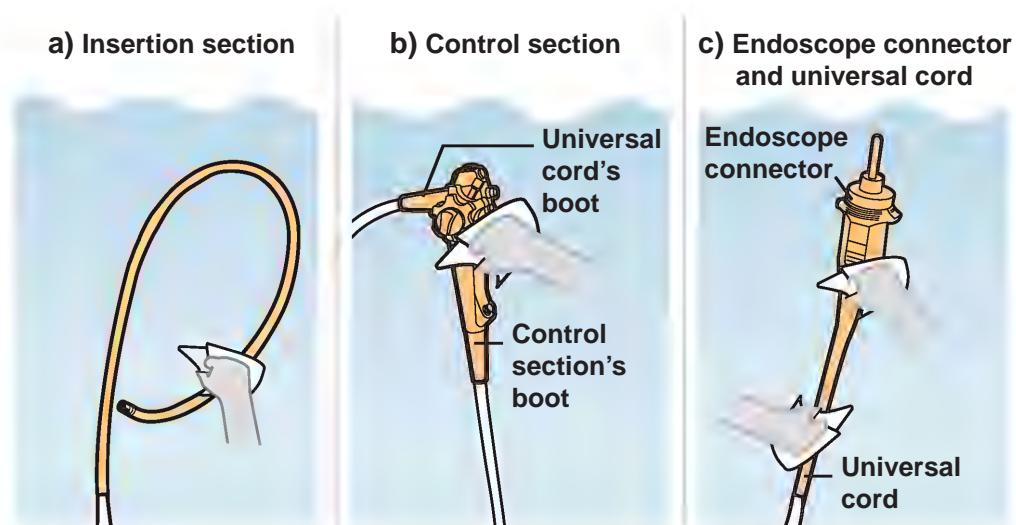
### 5.5.2.2 Clean the endoscope's external surfaces

This section describes how to clean the external surfaces of the endoscope's:

- Insertion section
- Control section (including its surrounding parts)
- Endoscope connector and universal cord

- 1.** Keeping the endoscope immersed in the detergent solution, use clean lint-free cloths, sponges, or brushes, to thoroughly wipe or brush all the external surfaces of the endoscope's:

- Insertion section
- Control section (including the universal cord's boot, the control section's boot)
- Endoscope connector and universal cord



## 5.5 Manual cleaning

1. Equipment needed

2. Clean surfaces

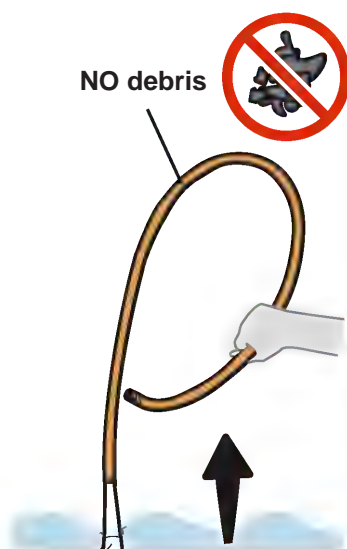
3. Brush forceps elevator and recess

**2.** Remove the following parts from the detergent solution and confirm that no debris remains on the external surfaces of these parts:

- Insertion section
- Control section (including the universal cord's boot, the control section's boot)
- Endoscope connector and universal cord

**If any debris remains, repeat Steps 1 and 2 until no debris remains.**

a) Insertion section



b) Control section



c) Endoscope connector and universal cord



### NOTE

Remove debris from the endoscope's distal end and distal ring later in this chapter as described in the following chapters:

- Chapter 5.5.3, "Brush the forceps elevator and forceps elevator recess"
- Chapter 5.5.4, "Brush the endoscope's distal end and distal ring surfaces"
- Chapter 5.5.6, "Flush the endoscope's distal end with detergent solution"

**3.** When all debris is removed, put all parts back in the detergent solution.



### 5.5.3 Brush the forceps elevator and forceps elevator recess

#### WARNING



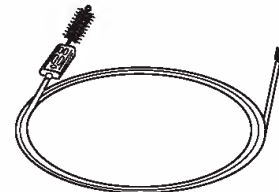
- Once you immerse the endoscope, keep it immersed at all times when performing the cleaning steps, unless the instructions state otherwise. Holding the endoscope out of the fluid while cleaning may pose an infection control risk.
- To avoid splashing the detergent solution, keep the endoscope immersed in the detergent solution while brushing the forceps elevator and the forceps elevator recess.

#### CAUTION

- Gently brush the forceps elevator and forceps elevator recess using a channel-opening cleaning brush (MH-507) or a single use combination cleaning brush (BW-412T).
- Do not use a stiff brush or brush with excessive force. Using a stiff brush or brushing with excessive force may damage the endoscope's distal end and cause the endoscope to leak.



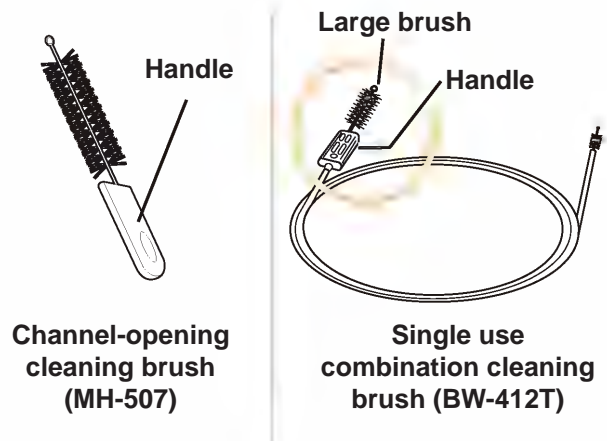
**Channel-opening  
cleaning brush (MH-507)**



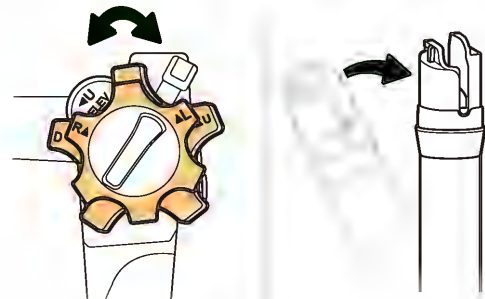
**Single use combination  
cleaning brush (BW-412T)**

### 5.5.3.1 Brush the front of the forceps elevator

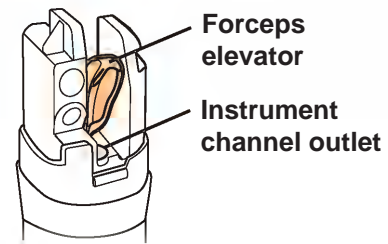
1. You may use the channel-opening cleaning brush (MH-507) or the large brush with handle on the single use combination cleaning brush (BW-412T).  
  
Always grip the brush's handle while brushing.



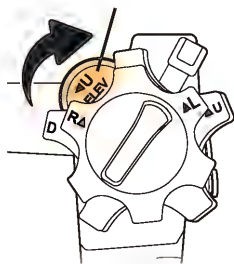
2. Turn the endoscope's U/D and R/L angulation control knobs to straighten the endoscope's bending section.



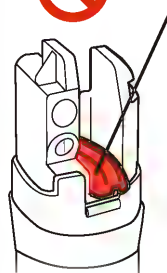
3. Ensure that the distal end's instrument channel outlet is fully open.  
  
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



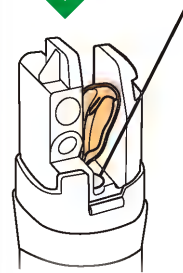
Elevator control lever



 Closed



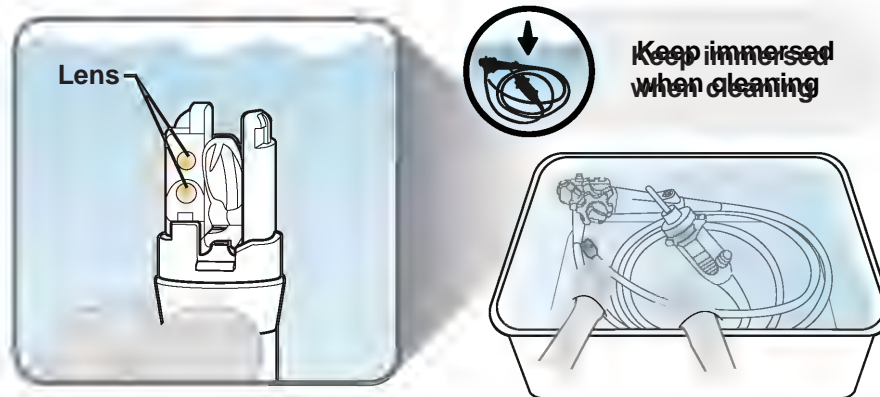
 Open



4.

Hold the endoscope's distal end so you can see the lens.

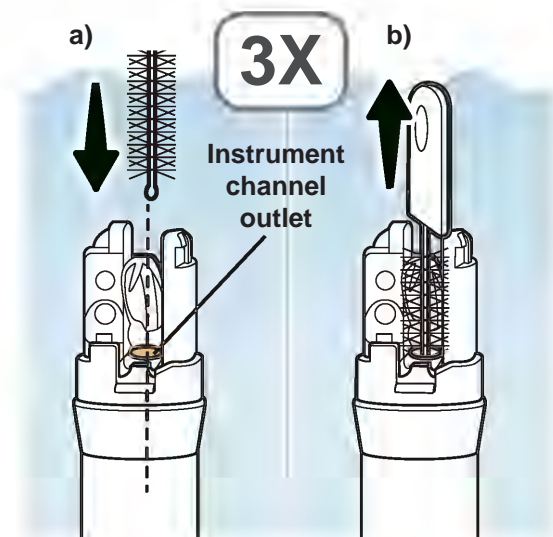
While brushing, keep the endoscope's distal end completely immersed in the detergent solution.



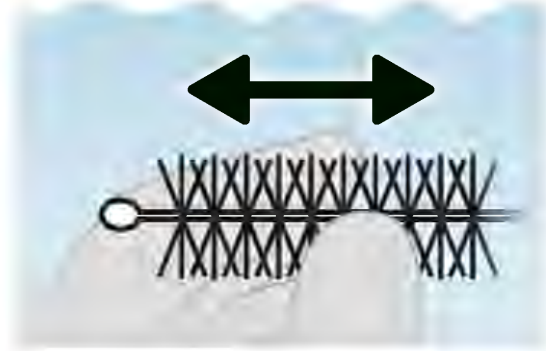
5.

Perform the following brushing action:

- Insert the brush into the instrument channel outlet, along the forceps elevator, until the brush's handle touches the distal end;
- Pull the brush out of the instrument channel outlet completely;
- Repeat Steps a) and b) two more times, for a total of three times.



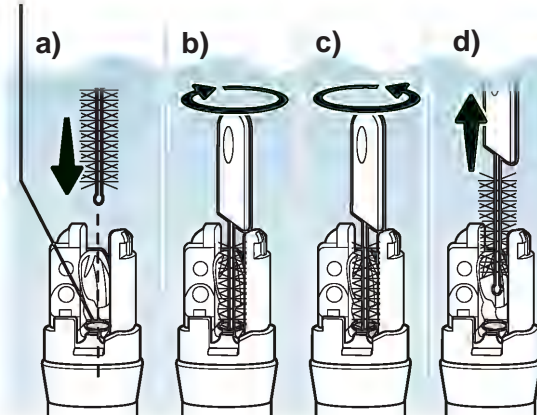
- 6.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



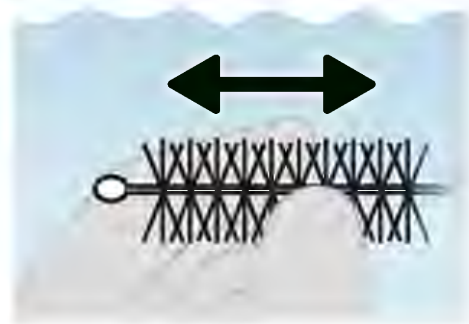
- 7.** Perform the following brushing action:

- Insert the brush into the instrument channel outlet, along the forceps elevator, until the brush's handle touches the distal end;
- Rotate the brush one full rotation (360 degrees) clockwise;
- Rotate the brush one full rotation (360 degrees) counterclockwise;
- Pull the brush out of the instrument channel outlet completely.

Instrument channel outlet



- 8.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

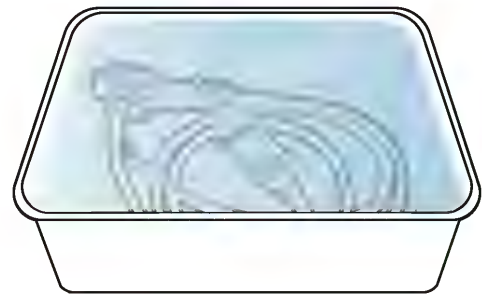


- 9.** Remove the distal end from the detergent solution and confirm that no debris remains on the front of the forceps elevator.

**If any debris remains, repeat Steps 7 through 9 until no debris remains.**



- 10.** When all debris is removed, put the distal end back in the detergent solution.



### 5.5.3.2 Brush the back of the forceps elevator

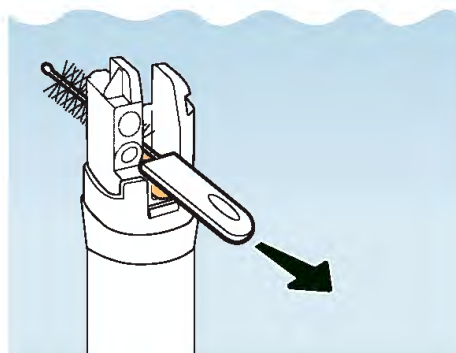
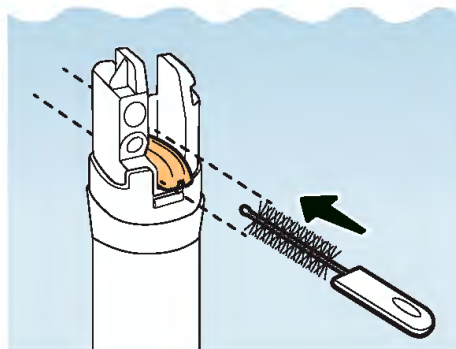
- 1.** Close the instrument channel outlet by moving the elevator control lever in the direction shown in the image on the right until the forceps elevator stops. Confirm the instrument channel outlet is closed.



2.

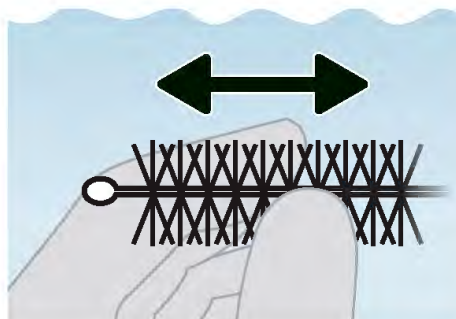
Perform the following brushing action:

- a) Insert the brush into the forceps elevator recess, along the back of the forceps elevator, until the brush's handle touches the distal end;
- b) Pull the brush out of the forceps elevator recess completely.



3.

Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



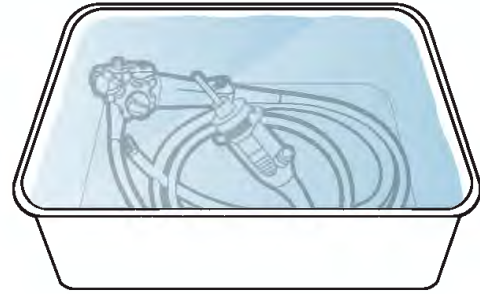
4.

Remove the distal end from the detergent solution and confirm that no debris remains on the back of the forceps elevator.

**If any debris remains, repeat Steps 2 through 4 until no debris remains.**



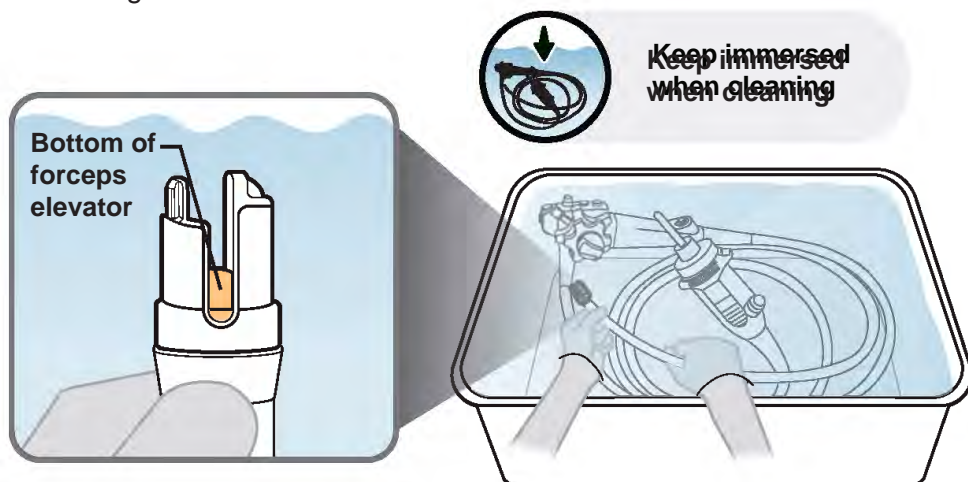
- 5.** When all debris is removed, put the distal end back in the detergent solution.



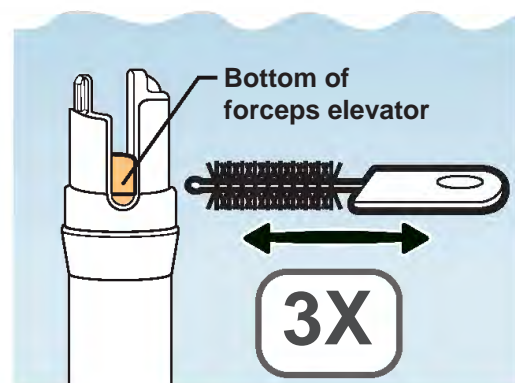
### 5.5.3.3 Brush the bottom of the forceps elevator and recess from the back side

- 1.** Hold the endoscope's distal end with the lens facing down, so that you can see the distal end's back side and bottom of the forceps elevator (highlighted in light orange).

While brushing, keep the endoscope's distal end completely immersed in the detergent solution.



- 2.** Brush the bottom of the forceps elevator back and forth, three times as shown in the image on the right.



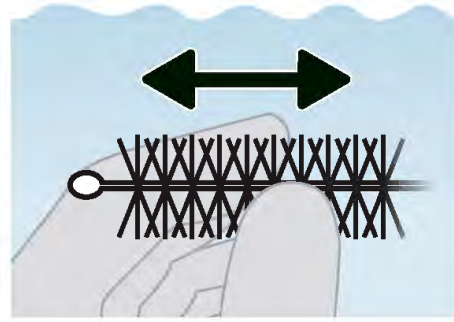
## 5.5 Manual cleaning

2. Clean surfaces

3. Brush forceps elevator and recess

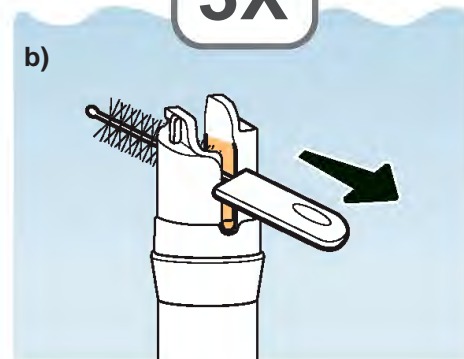
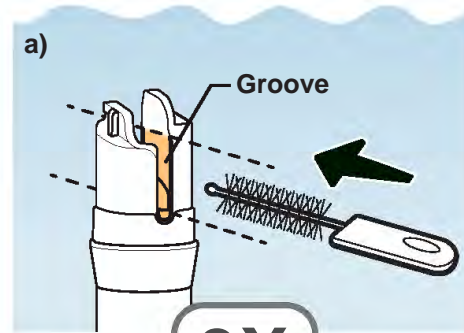
4. Brush distal end and ring

- 3.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

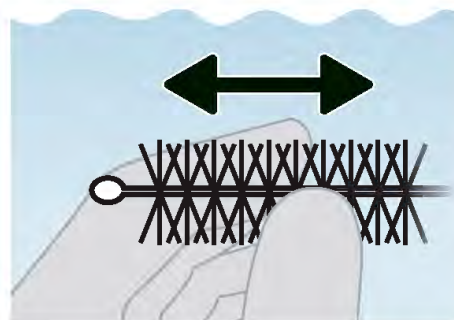


- 4.** Perform the following brushing action:

- Insert the brush into the groove along the back of the forceps elevator until the brush's handle touches the distal end;
- Pull the brush out of the groove completely;
- Repeat Steps a) and b) two more times, for a total of three times.**

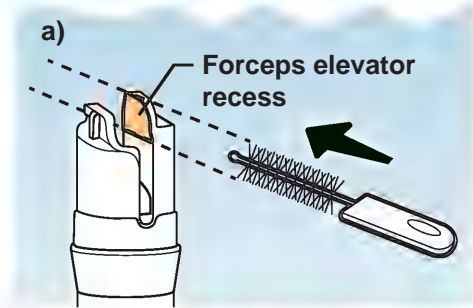


- 5.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

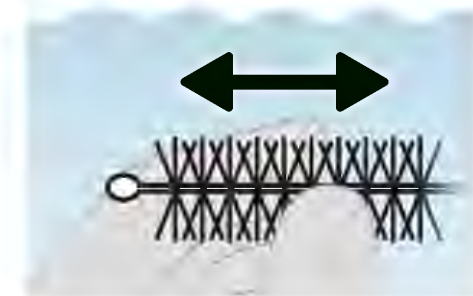


## 6. Perform the following brushing action:

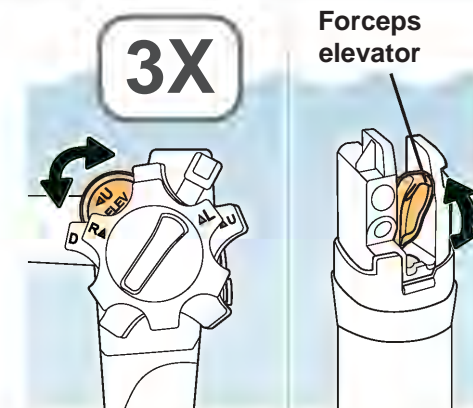
- Insert the brush into the forceps elevator recess until the brush's handle touches the distal end;
- Pull the brush out of the forceps elevator recess completely.



## 7. Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

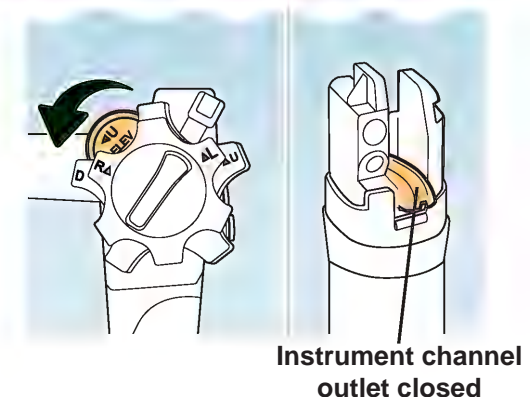


## 8. Keeping the endoscope immersed in the detergent solution, move the elevator control lever in each direction three times to move the forceps elevator up and down.



## 9. Confirm the instrument channel is closed.

If the instrument channel outlet is open, close the outlet by moving the elevator control lever as shown in the image on the right until the forceps elevator stops.



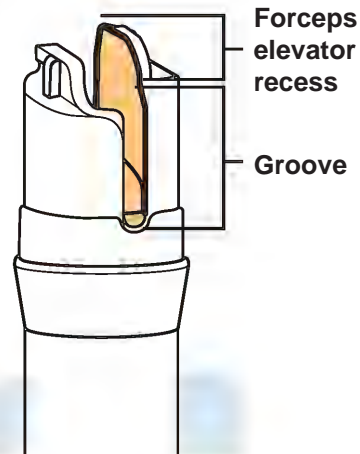
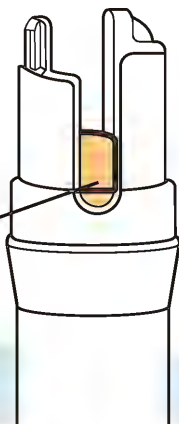
**10.** Remove the distal end from the detergent solution, and confirm that no debris remains on the bottom of the forceps elevator, forceps elevator recess, and groove.

If any debris remains, repeat Steps 2 through 10 until no debris remains.

NO debris on:



Bottom of forceps elevator



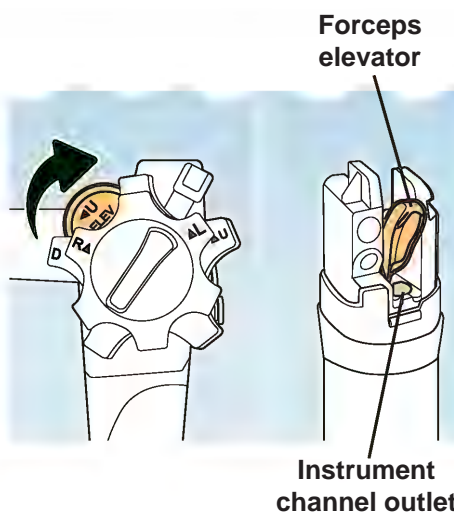
Forceps elevator recess

Groove

**11.** When all debris is removed, put the distal end back in the detergent solution.



**12.** Open the instrument channel outlet by moving the elevator control lever as shown in the image on the right until the forceps elevator stops. Confirm the instrument channel outlet is open.

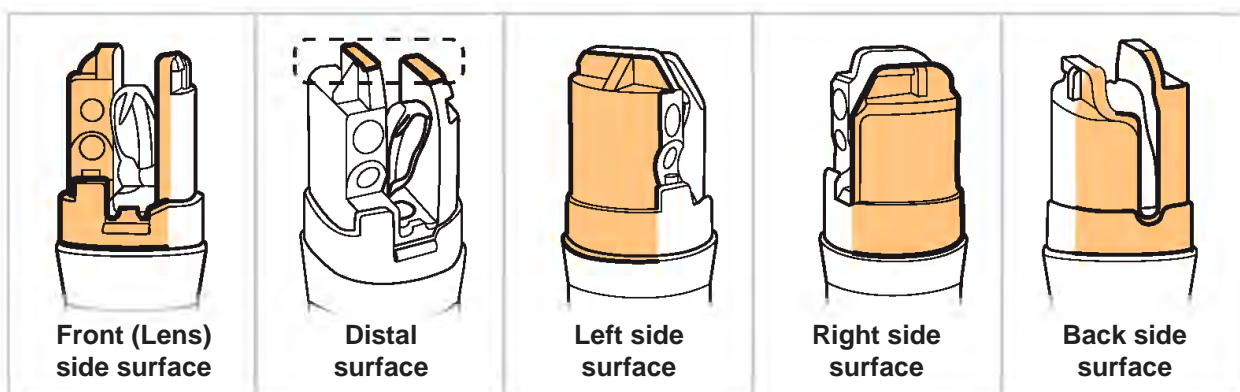


Forceps elevator

Instrument channel outlet

## 5.5.4 Brush the endoscope's distal end and distal ring surfaces

This chapter describes how to brush the five external surfaces of the distal end and the distal ring. The five surfaces are pictured here:



### ⚠ WARNING



- Once you immerse the endoscope, keep it immersed at all times when performing the cleaning steps, unless the instructions state otherwise. Holding the endoscope out of the fluid while cleaning may pose an infection control risk.
- To avoid splashing the detergent solution, keep the endoscope immersed in the detergent solution while brushing the distal end and the distal ring.

### ⚠ CAUTION

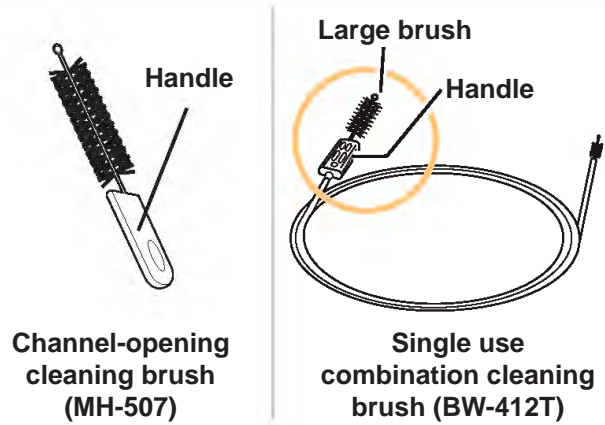
- Gently brush the forceps elevator and forceps elevator recess using a channel-opening cleaning brush (MH-507) or a single use combination cleaning brush (BW-412T).
- Do not use a stiff brush or brush with excessive force. Using a stiff brush or brushing with excessive force may damage the endoscope's distal end and cause the endoscope to leak.



### 5.5.4.1 Brush the lens side surface of the distal end and the distal ring

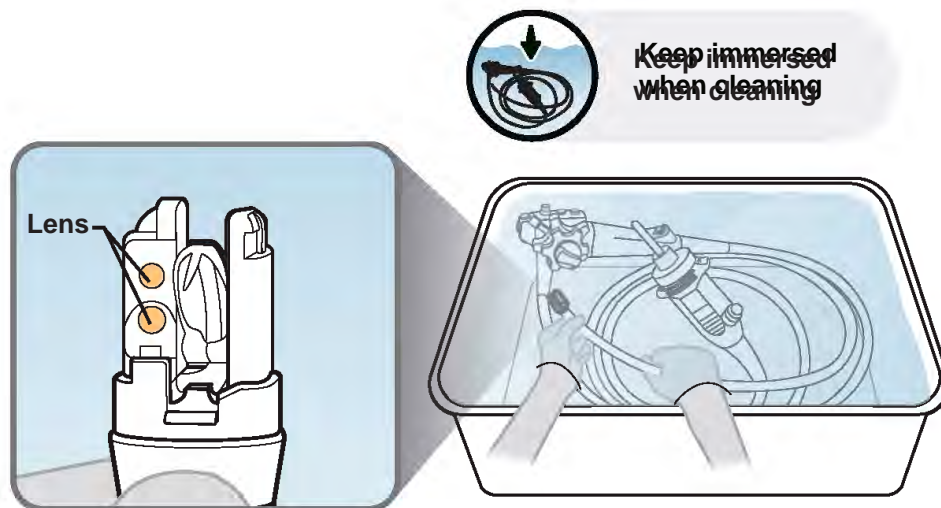
1. You may use the channel-opening cleaning brush (MH-507) or the large brush with handle on the single use combination cleaning brush (BW-412T).

Always grip the brush's handle while brushing.



2. Hold the endoscope's distal end so you can see the lens.

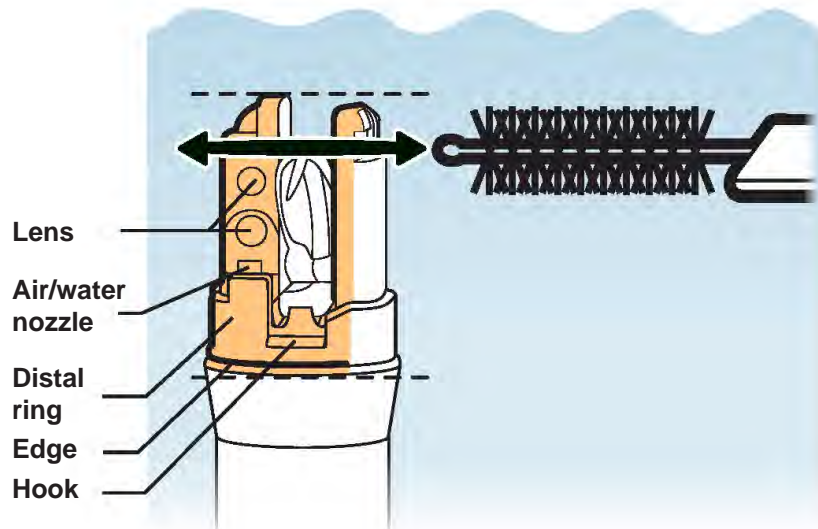
While brushing, keep the endoscope's distal end completely immersed in the detergent solution.



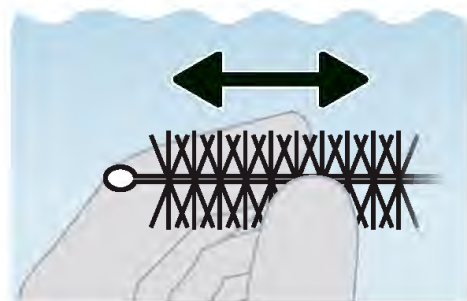
- 3.** Brush back and forth across the lens side surface (highlighted in light orange) of the distal end and the distal ring, as shown in the image below.

Ensure that you do not leave any debris on the:

- Air/water nozzle opening
- Lens
- Edge
- Around the hook

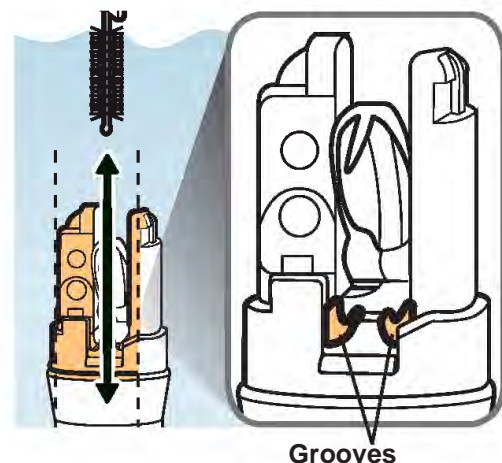


- 4.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 5.** Brush up and down, along the distal end's lens side surface (highlighted in light orange) and the distal ring, as shown in the image on the right.

Ensure that you do not leave any debris along the grooves beside the distal ring.

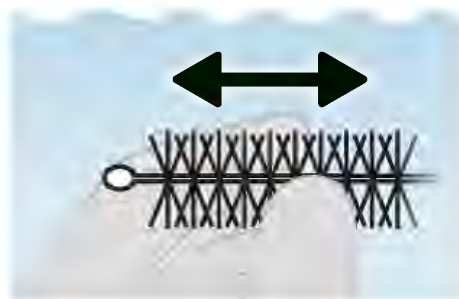


3. Brush forceps elevator and recess

4. Brush distal end and ring

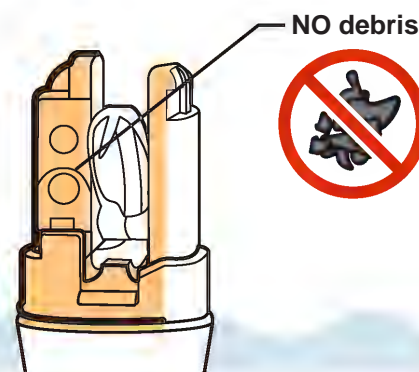
5. Brush channels

6. Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



7. Remove the distal end from the detergent solution, and confirm that no debris remains on the lens side surface of the distal end and the distal ring.

If any debris remains, repeat Steps 3 through 7 until no debris remains.



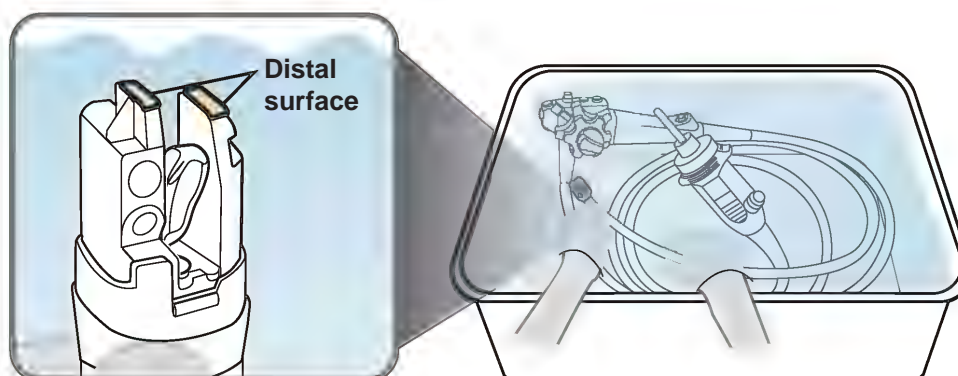
8. When all debris is removed, put the distal end back in the detergent solution.



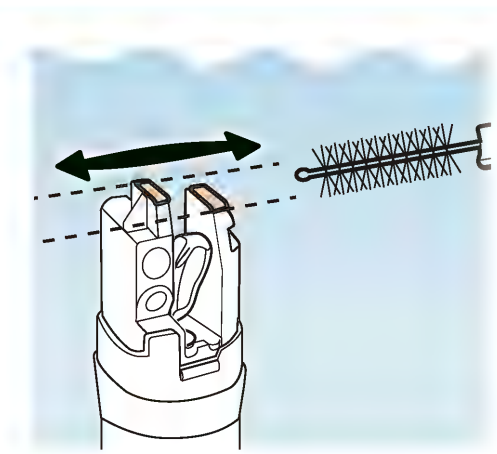
#### 5.5.4.2 Brush the distal end's distal surface

1. Hold the endoscope's distal end so you can see the distal surface (highlighted in light orange).

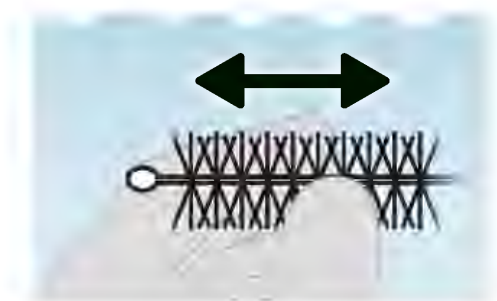
While brushing, keep the endoscope's distal end completely immersed in the detergent solution.



- 2.** Brush back and forth across the distal end's distal surface (highlighted in light orange), as shown in the image on the right.



- 3.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 4.** Remove the distal end from the detergent solution, and confirm that no debris remains on the distal surface of the distal end.

**If any debris remains, repeat Steps 2 through 4 until no debris remains.**



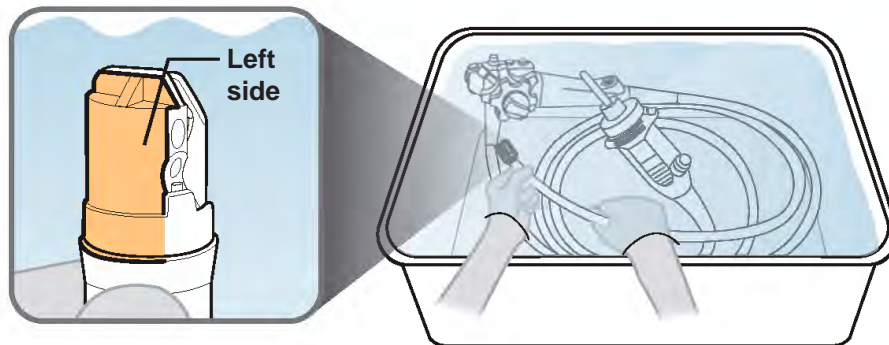
- 5.** When all debris is removed, put the distal end back in the detergent solution.



### 5.5.4.3 Brush the left side surface of the distal end and the distal ring

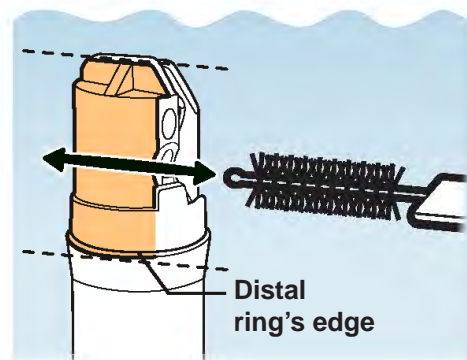
1. Hold the endoscope's distal end with the lens facing right, so you can see the left side surface (highlighted in light orange).

While brushing, keep the endoscope's distal end completely immersed in the detergent solution.

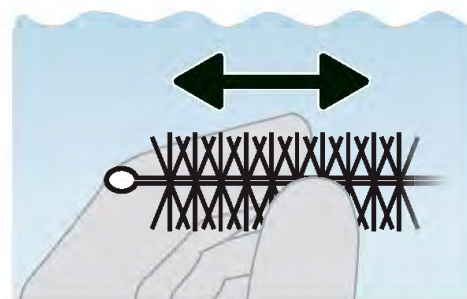


2. Brush back and forth across the left side surface (highlighted in light orange) of the distal end and the distal ring, as shown in the image on the right.

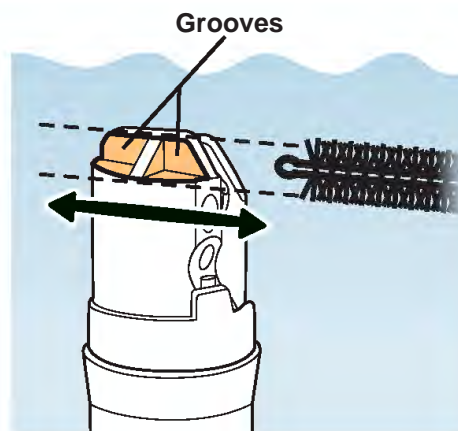
Ensure that you do not leave any debris along the distal ring's edge.



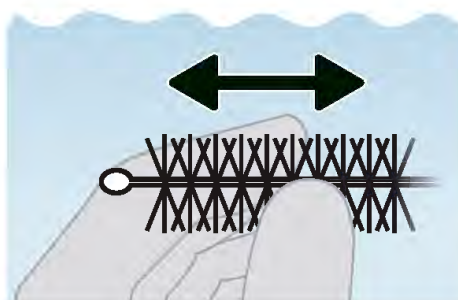
3. Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



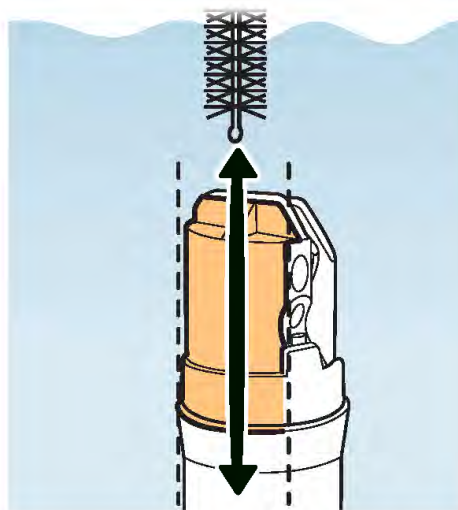
- 4.** Brush back and forth along the two grooves (highlighted in light orange) on the distal end's left side surface, as shown in the image on the right.



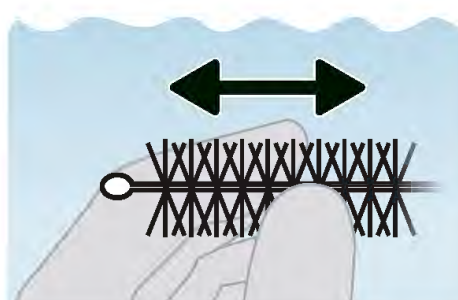
- 5.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 6.** Brush up and down, along the distal end's left side surface (highlighted in light orange) and the distal ring, as shown in the image on the right.



- 7.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

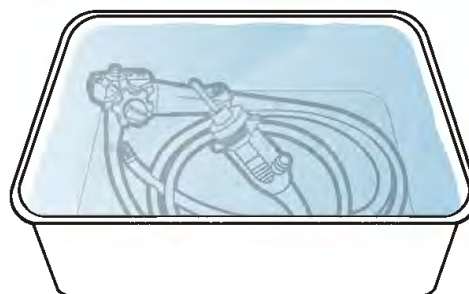


- 8.** Remove the distal end from the detergent solution, and confirm that no debris remains on the left side surface of the distal end and the distal ring.

**If any debris remains, repeat Steps 2 through 8 until no debris remains.**



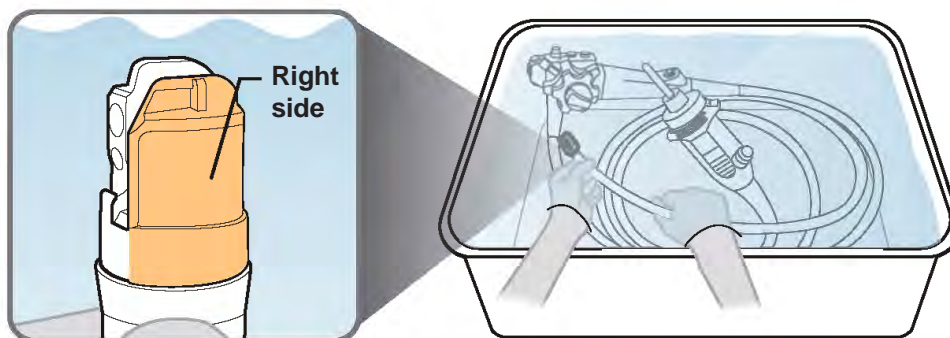
- 9.** When all debris is removed, put the distal end back in the detergent solution.



#### 5.5.4.4 Brush the right side surface of the distal end and the distal ring

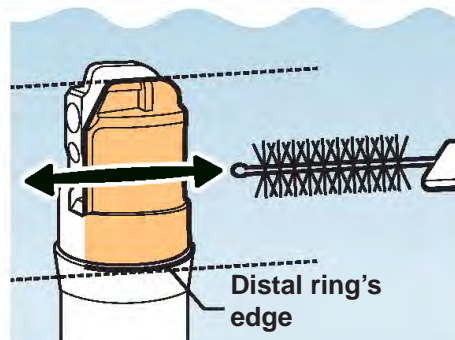
- 1.** Hold the endoscope's distal end with the lens facing left, so you can see the right side surface (highlighted in light orange).

While brushing, keep the endoscope's distal end completely immersed in the detergent solution.

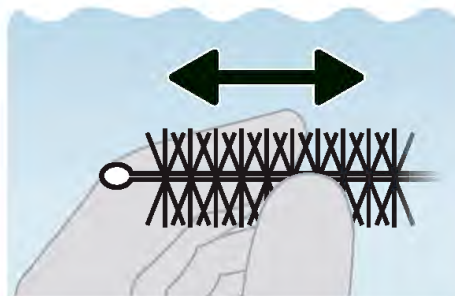


- 2.** Brush back and forth across right side surface (highlighted in light orange) of the distal end and the distal ring, as shown in the image on the right.

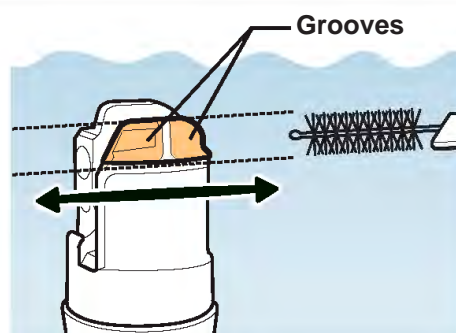
Ensure that you do not leave any debris along the distal ring's edge.



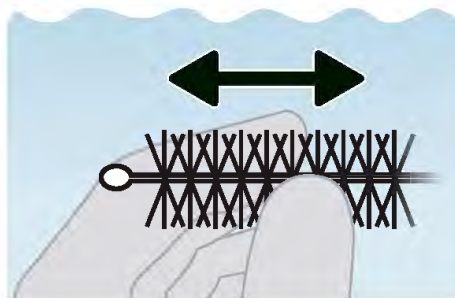
- 3.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



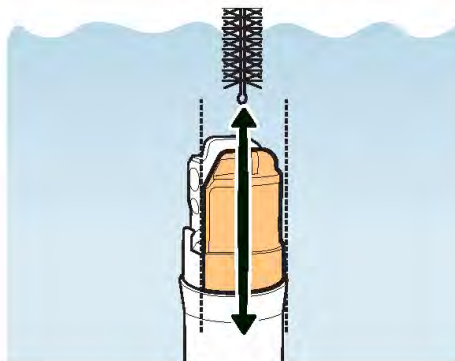
- 4.** Brush back and forth along the two grooves (highlighted in light orange) on the distal end's right side surface, as shown in the image on the right.



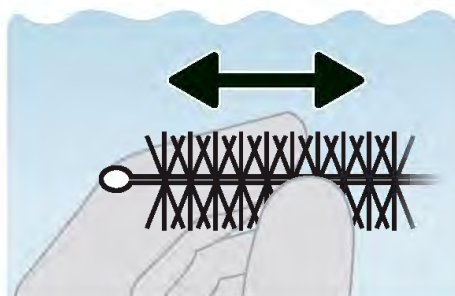
- 5.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 6.** Brush up and down, along the distal end's right side surface (highlighted in light orange) and the distal ring, as shown in the image on the right.



- 7.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

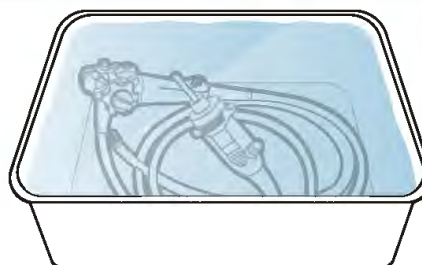


8. Remove the distal end from the detergent solution, and confirm that no debris remains on the right side surface of the distal end and the distal ring.

If any debris remains, repeat Steps 2 through 8 until no debris remains.



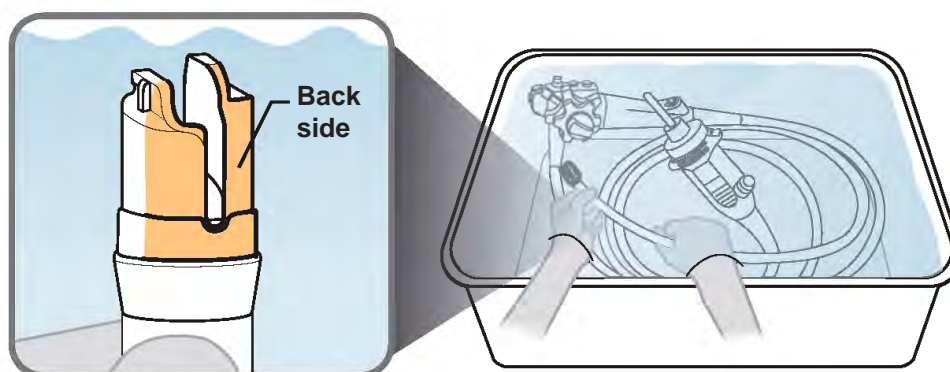
9. When all debris is removed, put the distal end back in the detergent solution.



### 5.5.4.5 Brush the back side surface of the distal end and the distal ring

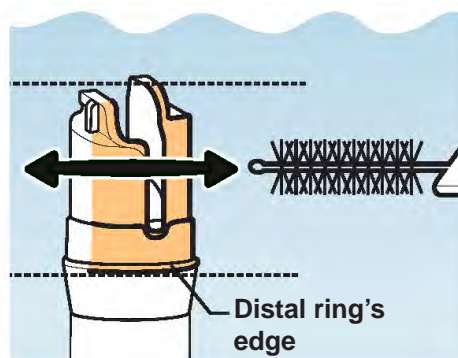
1. Hold the endoscope's distal end with the lens facing down, so you can see the back side surface (highlighted in light orange).

While brushing, keep the endoscope's distal end completely immersed in the detergent solution.

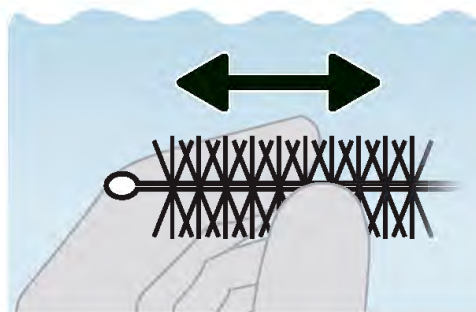


2. Brush back and forth across the back side surface (highlighted in light orange) of the distal end and the distal ring, as shown in the image on the right.

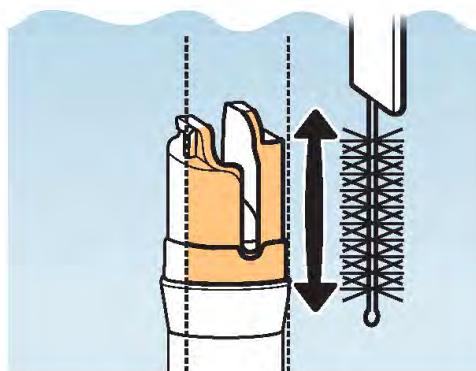
Ensure that you do not leave any debris along the distal ring's edge.



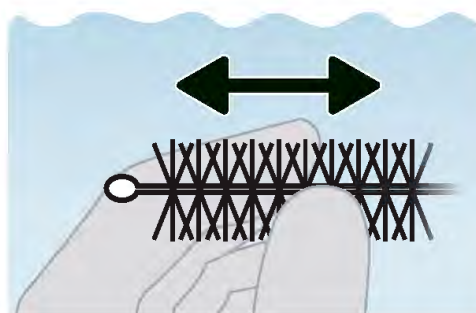
- 3.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 4.** Brush up and down along the back side surface of the distal end and distal ring, as shown in the image on the right.



- 5.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.

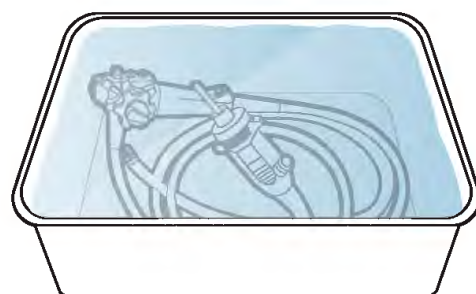


- 6.** Remove the distal end from the detergent solution, and confirm that no debris remains on the back side surface of the distal end and the distal ring.

**If any debris remains, repeat Steps 2 through 6 until no debris remains.**



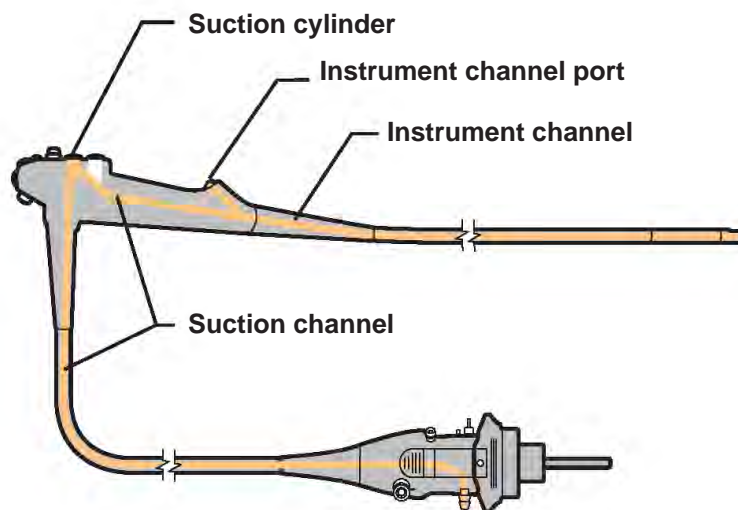
- 7.** When all debris is removed, put the distal end back in the detergent solution.



### 5.5.5 Brush the endoscope's channels

#### **!** WARNING

- Follow the instructions in this chapter to ensure you thoroughly brush the inside of the instrument channel, the instrument channel port, the suction channel, and the suction cylinder of the endoscope. Insufficient brushing may pose an infection control risk.



- To avoid splashing the detergent solution when the brush is pulled out from the endoscope, keep the endoscope completely immersed in the detergent solution.
- Channel cleaning brushes can become damaged or broken, leading to device malfunction and/or patient injury. Note that:
  - The channel cleaning brush (BW-20T) degrades as it is used.
  - The single use combination cleaning brush (BW-412T) is for single use.
  - Repeated usage of these brushes may cause the brush head to become bent or kinked, which could cause it to come off during use.
  - Before and after use, confirm that the brush is free from any damage or other irregularities.
  - If a piece of the brush comes off inside the endoscope channel, immediately retrieve it. Confirm that no parts remain inside either the instrument channel or the suction channel of the endoscope by carefully passing a new brush through both channels. Any part left in the channels can drop into the patient during a subsequent patient procedure. Depending on the location of the missing part, the part may not be retrievable by passing a new brush. In this case, contact Olympus.

## WARNING

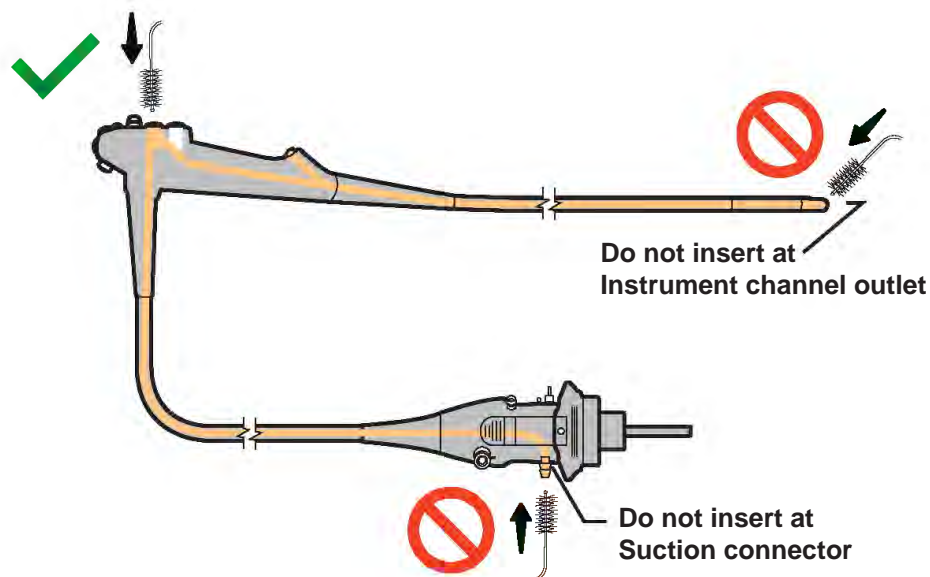


- Once you immerse the endoscope, keep it immersed at all times when performing the cleaning steps, unless the instructions state otherwise. Holding the endoscope out of the fluid while cleaning may pose an infection control risk.

## CAUTION

To avoid potential damage to the endoscope and cleaning brushes:

- Do not attempt to pass the channel cleaning brush (BW-20T) or the single use combination cleaning brush (BW-412T) backwards (i.e., by inserting the brush directly into the instrument channel outlet at the endoscope's distal end or directly into the suction connector on the endoscope connector). It may get caught, making retrieval impossible.



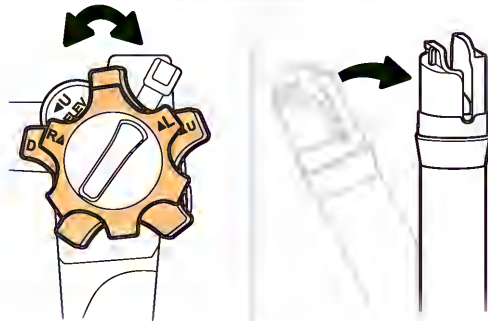
- Do not coil the insertion section or the universal cord of the endoscope with a diameter of less than 40 cm. If the diameter is less than 40 cm, it may be difficult to pass the brush completely through the channels.

### 5.5.5.1 Brush the suction/instrument channel from the suction cylinder to the distal end

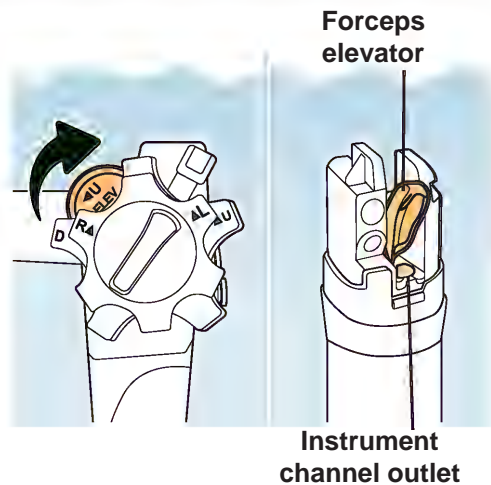
**CAUTION**

When withdrawing the channel cleaning brush (BW-20T) from the endoscope's suction cylinder, make sure that the shaft of the brush does not rub against the cylinder opening. Excessive rubbing of the brush against the cylinder edge may damage the cylinder.

1. Turn the endoscope's U/D and R/L angulation control knobs to straighten the endoscope's bending section.

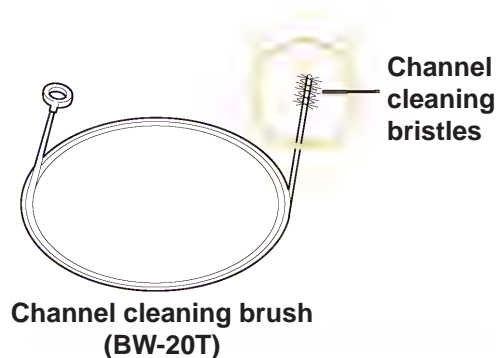


2. Ensure that the distal end's instrument channel outlet is fully open.  
If closed, open the instrument channel outlet by moving the elevator control lever as shown on the right until the forceps elevator stops.



3. You may use the small brush without a handle on the single use combination cleaning brush (BW-412T) or the channel cleaning brush (BW-20T).

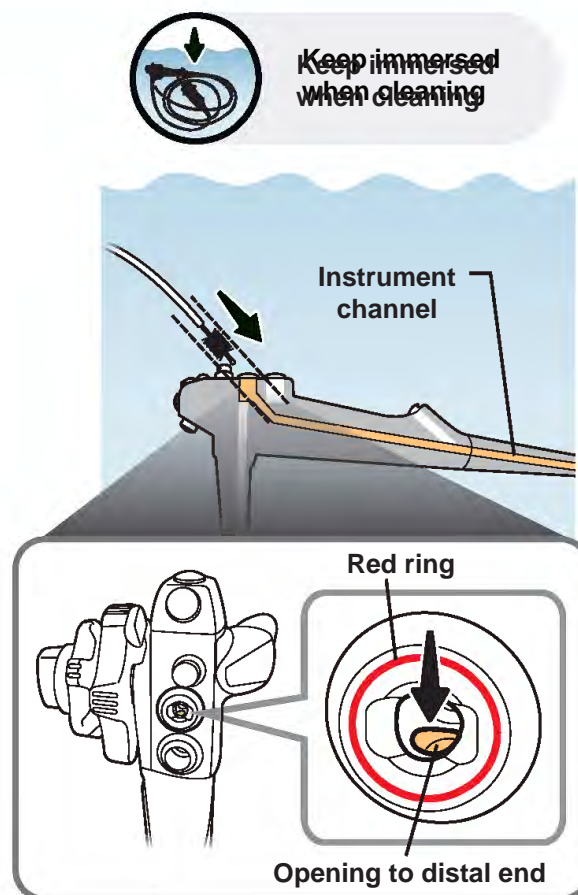
Grip the channel cleaning brush end 3 cm down from the brush's bristles.



- 4.** While brushing, keep the endoscope completely immersed in the detergent solution.

Insert the brush at a 45° angle into the opening located in the side wall of the suction cylinder (marked with a red ring).

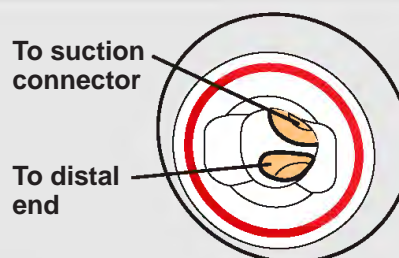
Using short strokes, feed the brush through the instrument channel until it emerges from the endoscope's distal end.



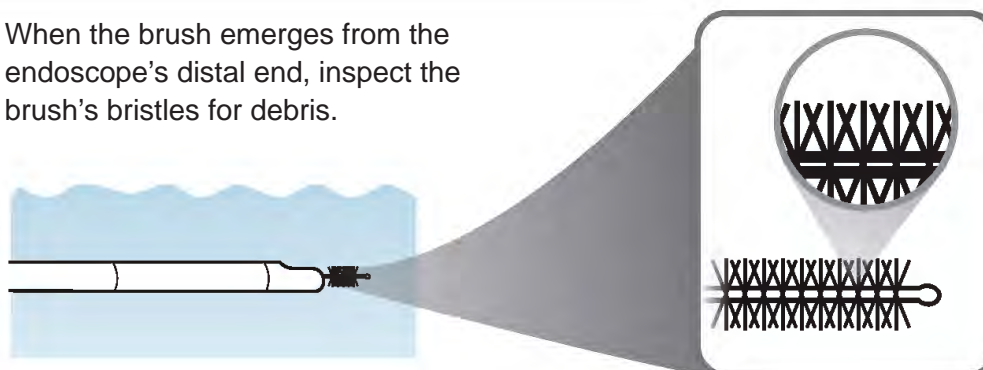
## NOTE

The suction cylinder contains two openings:

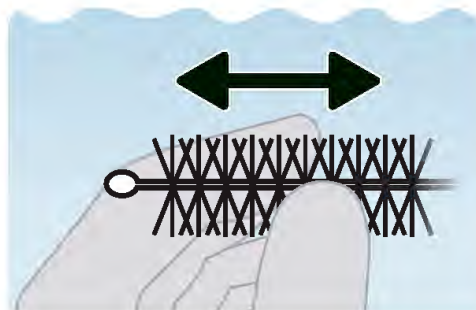
- The opening further back, and straight in, leads to the suction connector.
- The opening in the side wall, closer to the front, leads to the instrument channel and distal end.



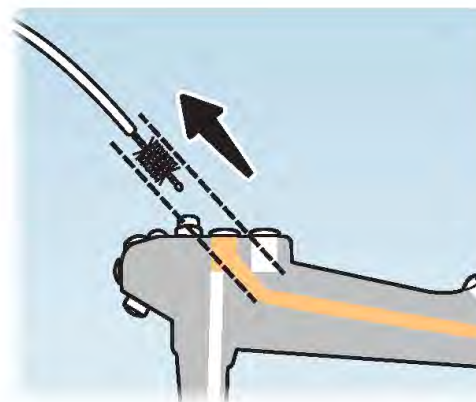
- 5.** When the brush emerges from the endoscope's distal end, inspect the brush's bristles for debris.



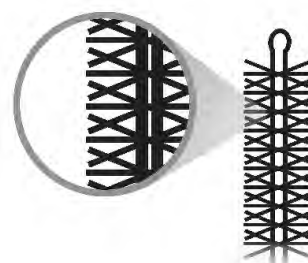
- 6.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



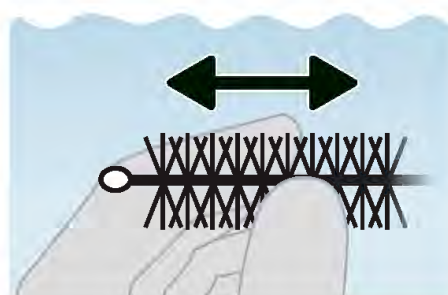
- 7.** Carefully pull the brush back through the instrument channel and the suction channel and out of the suction cylinder.



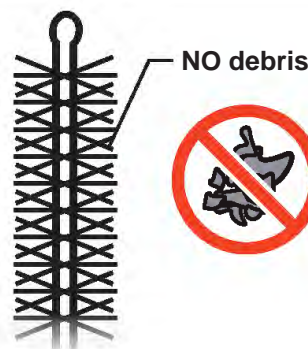
- 8.** When the brush emerges from the endoscope's suction cylinder, inspect the brush's bristles for debris.



- 9.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



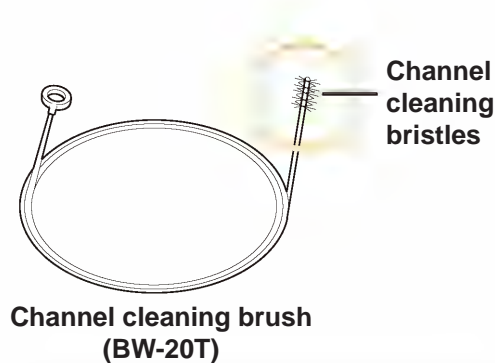
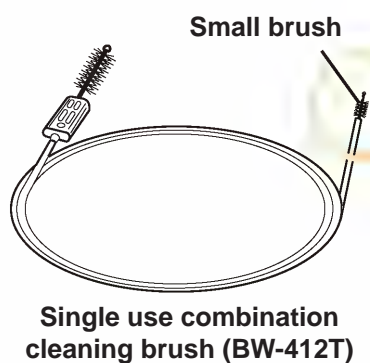
- 10.** If any debris remains, repeat Steps 4 through 9 until no debris remains.



### 5.5.5.2 Brush the suction channel from the suction cylinder to the endoscope connector

1. You may use the small brush without a handle on the single use combination cleaning brush (BW-412T) or the channel cleaning brush (BW-20T).

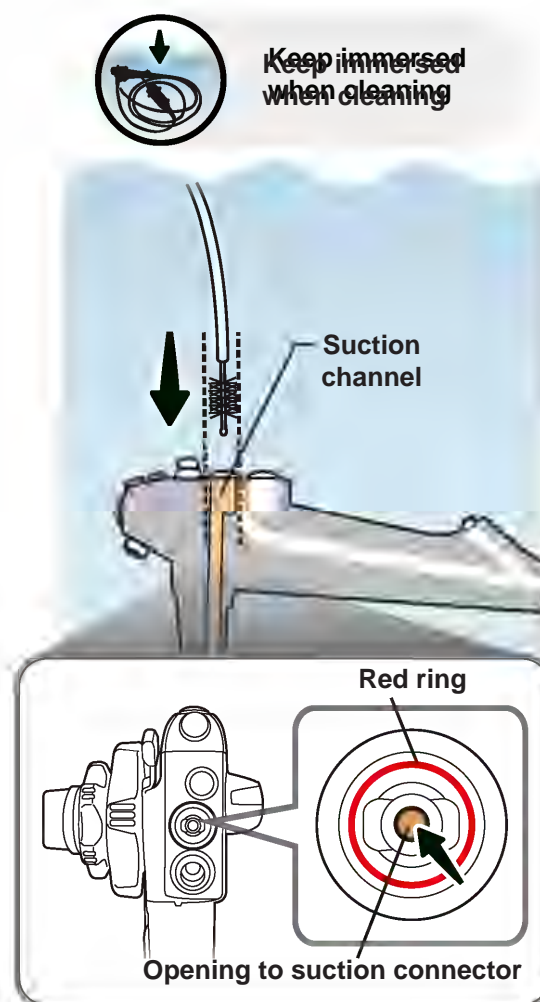
Grip the channel cleaning brush end 3 cm down from the brush's bristles.



2. While brushing, keep the endoscope completely immersed in the detergent solution.

Insert the brush straight into the opening that is at the back of the suction cylinder (marked with a red ring).

Using short strokes, feed the brush through the suction channel until it emerges from the endoscope's suction connector.



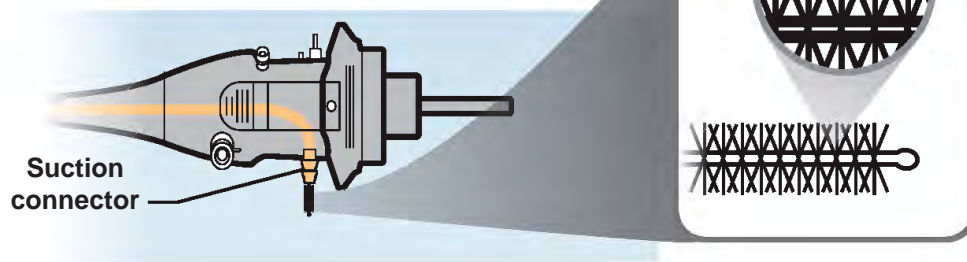
## 5.5 Manual cleaning

4. Brush distal end and ring

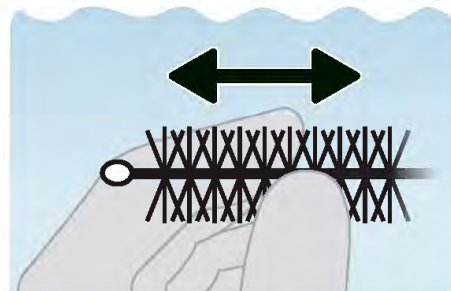
5. Brush channels

6. Flush with detergent

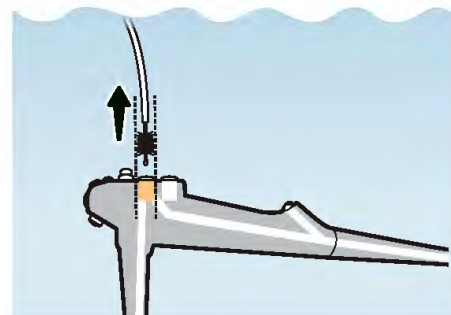
- 3.** When the brush emerges from the endoscope's suction connector, inspect the brush's bristles for debris.



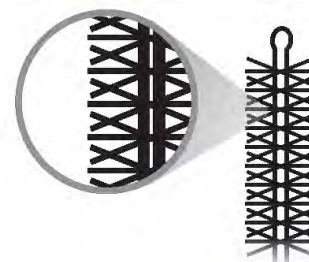
- 4.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



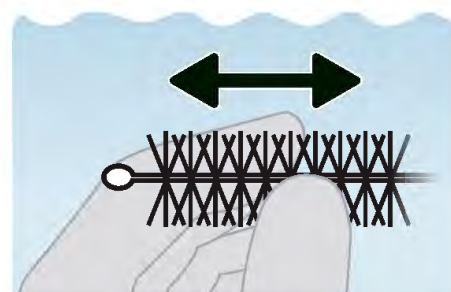
- 5.** Carefully pull the brush back through the suction channel and out of the suction cylinder.



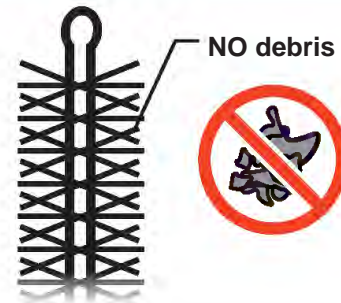
- 6.** When the brush emerges from the endoscope's suction cylinder, inspect the brush's bristles for debris.



- 7.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



- 8.** If any debris remains, repeat Steps 2 through 7 until no debris remains.



## NOTE

You will use the channel cleaning brush (BW-20T) later to brush the accessories, as described in Chapter 6, "Reprocess the Accessories".

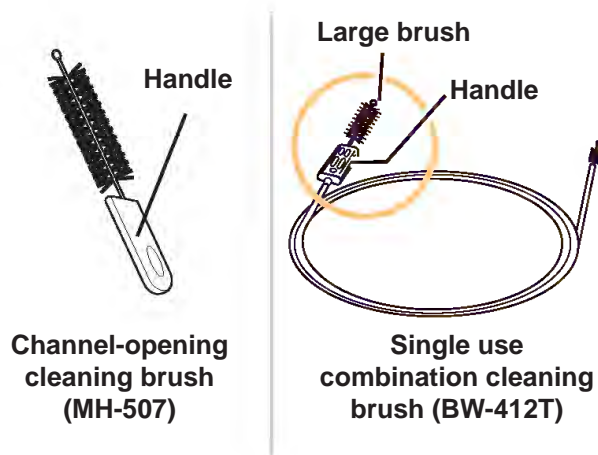
### 5.5.5.3 Brush the suction cylinder

#### CAUTION

When inserting the large brush with handle on the single use combination cleaning brush (BW-412T) or the channel-opening cleaning brush (MH-507) into the suction cylinder, do not forcibly insert the brush beyond the mid portion of the brush. Doing so could cause the brush to get stuck.

- 1.** You may use the channel-opening cleaning brush (MH-507) or the large brush with handle on the single use combination cleaning brush (BW-412T).

Always grip the brush's handle while brushing.

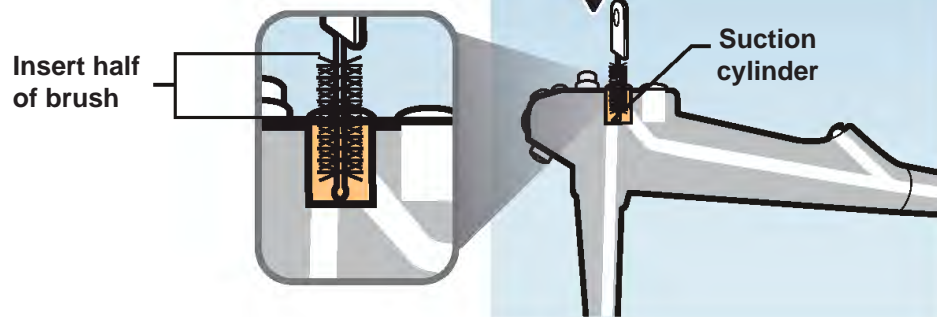


**2.** While brushing, keep the endoscope completely immersed in the detergent solution.

Insert the brush into the suction cylinder until half of the brush section is inserted.

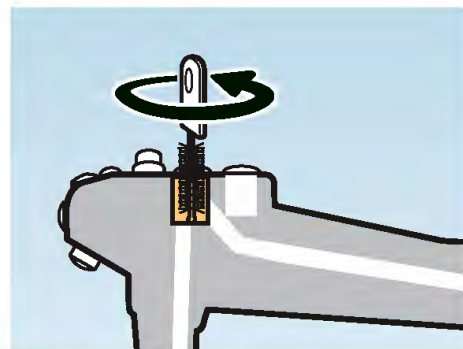


**Keep immersed when cleaning**

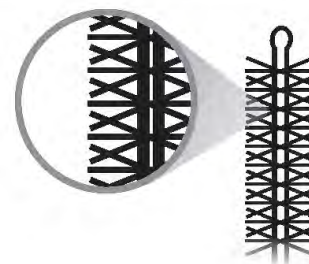


**3.** Perform the following brushing action:

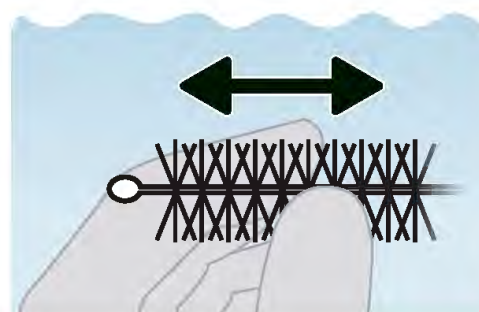
- a) Rotate the inserted brush one full rotation (i.e., 360 degrees);
- b) Pull the brush out of the suction cylinder.



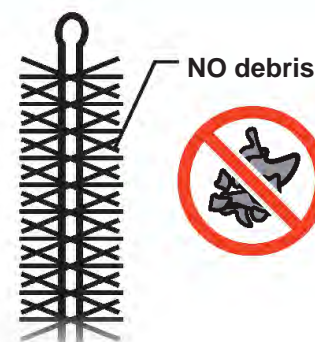
**4.** Inspect the brush's bristles for debris.



**5.** Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



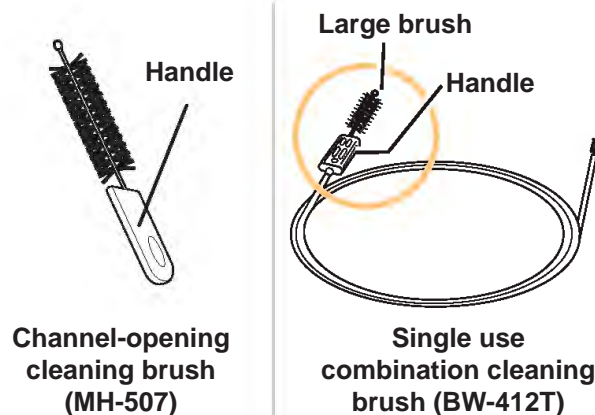
- 6.** If any debris remains, repeat Steps 2 through 5 until no debris remains.



#### 5.5.5.4 Brush the instrument channel port

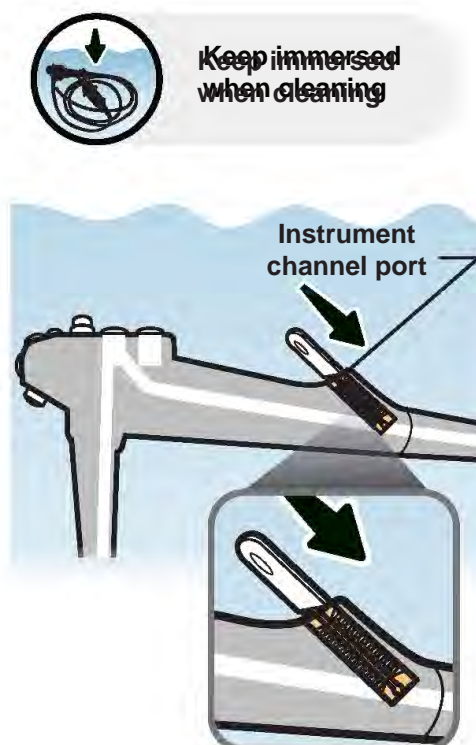
- 1.** You may use the channel-opening cleaning brush (MH-507) or the large brush with handle on the single use combination cleaning brush (BW-412T).

Always grip the brush's handle while brushing.



- 2.** While brushing, keep the endoscope completely immersed in the detergent solution.

Insert the brush into the instrument channel port until the brush's handle touches the channel opening.

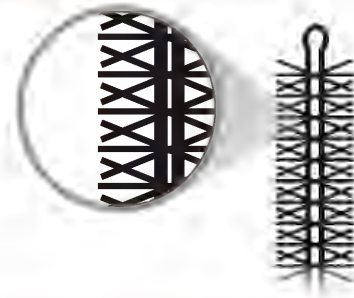


### 3. Perform the following brushing action:

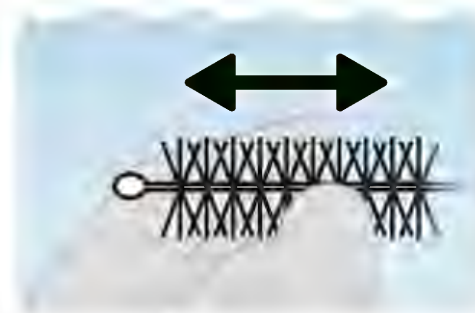
- Rotate the inserted brush one full rotation. (i.e., 360 degrees);
- Pull the brush out of the instrument channel port.



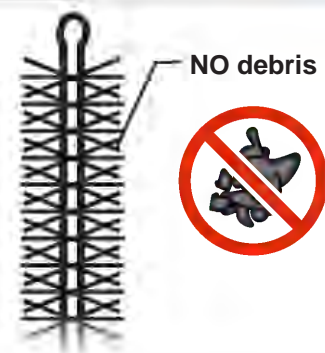
### 4. Inspect the brush's bristles for debris.



### 5. Clean the brush's bristles in the detergent solution using your gloved fingertips to remove any debris.



### 6. If any debris remains, repeat Steps 2 through 5 until no debris remains.



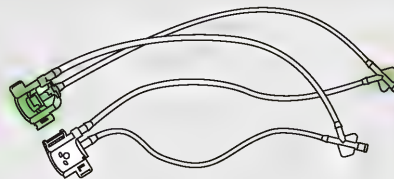
#### NOTE

- You will reprocess the channel-opening cleaning brush (MH-507), as described in Chapter 6, "Reprocess the Accessories".
- You will use the single use combination cleaning brush (BW-412T) later to brush the accessories, as described in Chapter 6, "Reprocess the Accessories".

## 5.5.6 Flush the endoscope's distal end with detergent solution

### NOTE

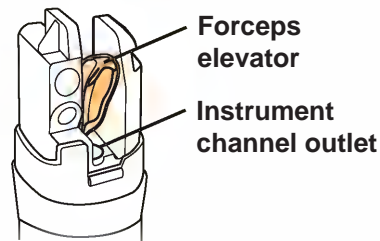
You will use the distal-end flushing adapter (MAJ-2319) to flush the endoscope's distal end.



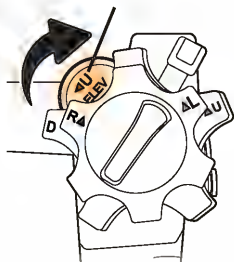
Distal-end flushing adapter

1. Ensure that the distal end's instrument channel outlet is fully open.

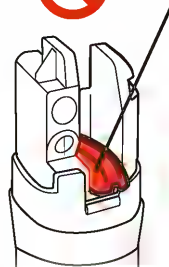
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



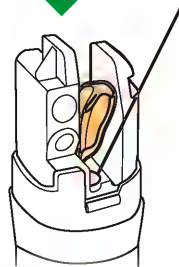
Elevator control lever



 Closed

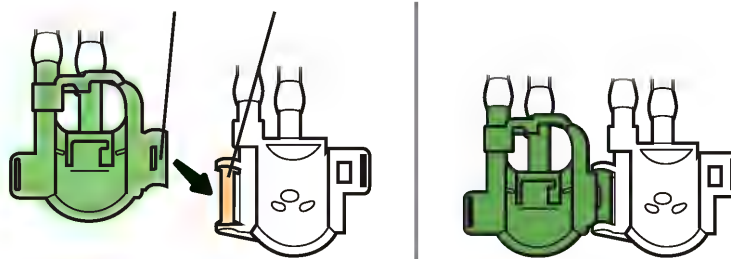


 Open

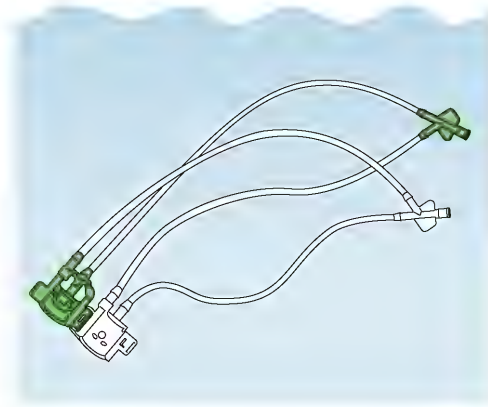


2. Assemble the distal-end flushing adapter (MAJ-2319) by attaching the clip on the green cover to the shaft on the white cover.

Clip on green cover    Shaft on white cover

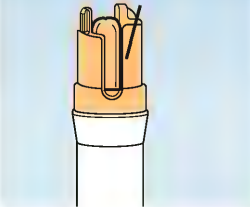


- 3.** Completely immerse the distal-end flushing adapter in the detergent solution.

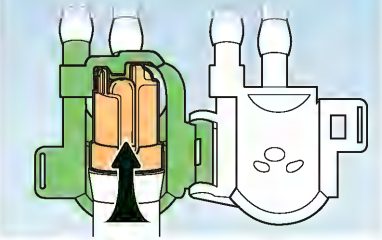


- 4.** Keeping the distal-end flushing adapter immersed in the detergent solution, attach the distal-end flushing adapter to the endoscope's distal end, as follows:
- Hold the distal end so you can see the back side surface (lens side is down);
  - Put the distal end in the green cover so the lens is against the green cover and the top lines up against the top of the green cover;
  - Shut the white cover onto the green cover so that it snaps closed.

a) Back side up,  
Lens side down



b)



c)

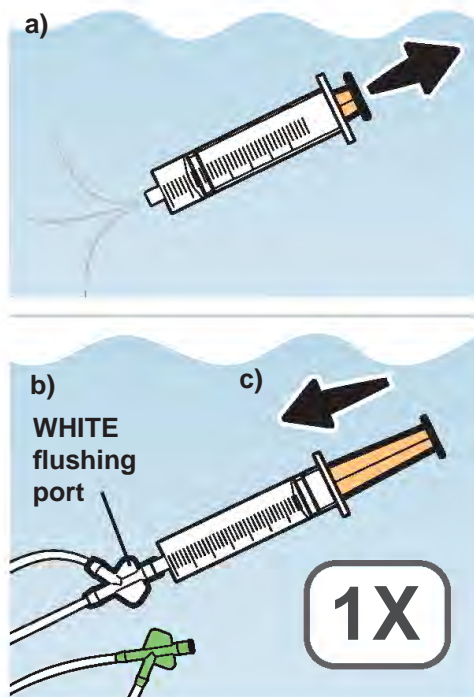


- 5.** Keeping the endoscope and the distal-end flushing adapter immersed in the detergent solution, hold the distal-end flushing adapter and gently pull the endoscope to ensure that the distal end does not come out of the distal-end flushing adapter.



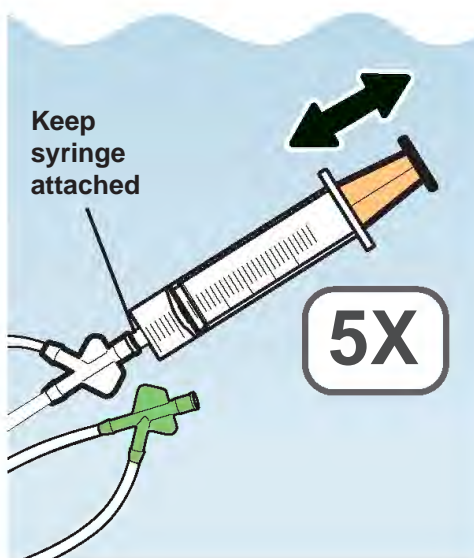
**6.** Immerse a clean 30 mL syringe in the detergent solution and flush through the WHITE flushing port, as follows:

- a) **Before attaching the syringe to the white flushing port** (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with the detergent solution;
- b) Attach it to the white flushing port of the distal-end flushing adapter;
- c) Then forcefully flush the distal end with 30 mL of the detergent solution.

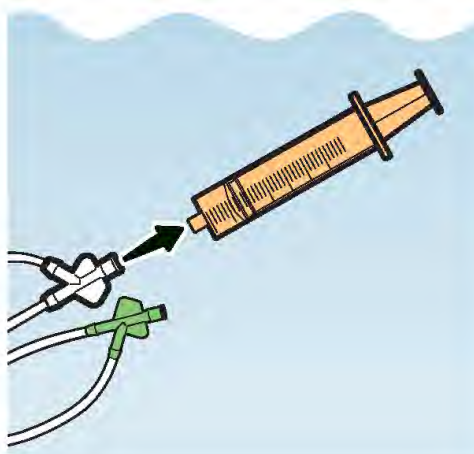


**7.** Keeping the 30 mL syringe attached and immersed, flush an additional 150 mL of the detergent solution through the WHITE flushing port, as follows:

- a) Slowly pull the syringe plunger to fill the syringe with the detergent solution;
- b) Then forcefully flush the distal end with 30 mL of the detergent solution;
- c) **Repeat Steps a) and b) four more times, for a total of five times.**

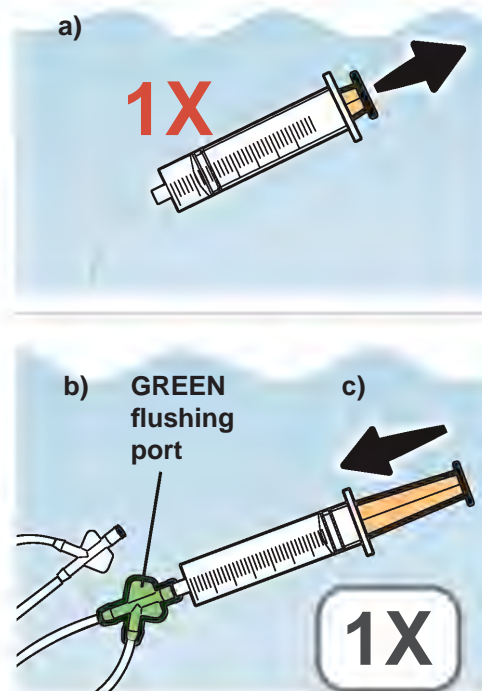


**8.** Detach the syringe from the distal-end flushing adapter.



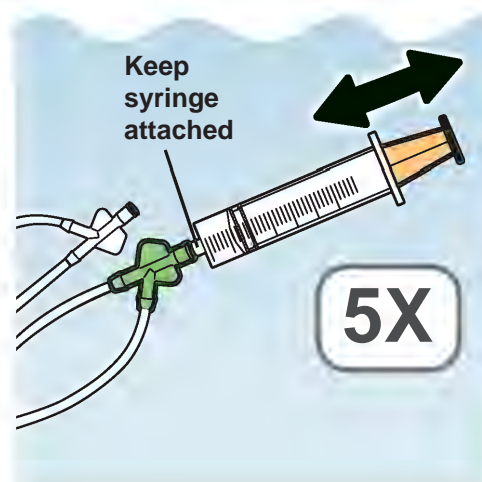
**9.** Keeping the 30 mL syringe immersed, flush the detergent solution through the GREEN flushing port, as follows:

- Before attaching the syringe to the green flushing port** (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with the detergent solution;
- Attach it to the green flushing port of the distal-end flushing adapter;
- Then forcefully flush the distal end with 30 mL of the detergent solution.

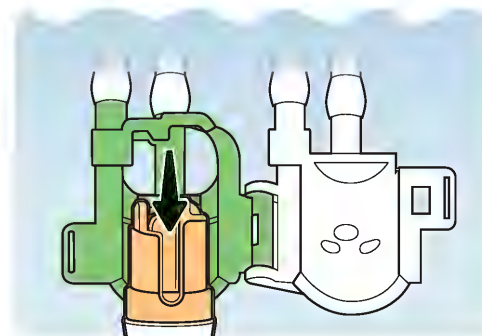


**10.** Keeping the 30 mL syringe attached and immersed, flush an additional 150 mL of the detergent solution through the GREEN flushing port, as follows:

- Slowly pull the syringe plunger to fill the syringe with the detergent solution;
- Then forcefully flush the distal end with 30 mL of the detergent solution;
- Repeat Steps a) and b) four more times, for a total of five times.**

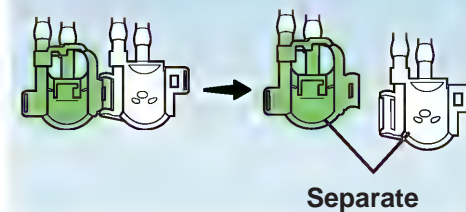


**11.** Keeping the distal-end flushing adapter immersed in the detergent solution, open the white cover and green cover and detach the distal-end flushing adapter from the endoscope.



- 12.** Keeping the distal-end flushing adapter immersed in the detergent solution, separate the white cover and the green cover.

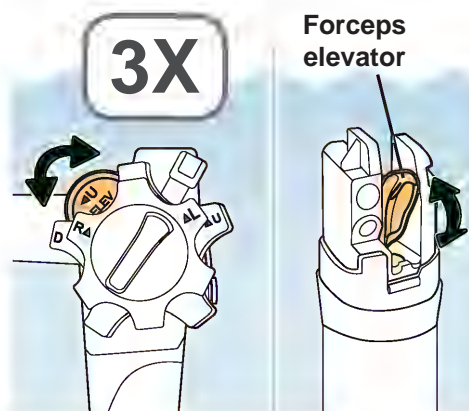
After separating the covers, keep the distal-end flushing adapter completely immersed in the detergent solution.



**CAUTION**

Debris can remain trapped between the white and green cover if they are not separated from each other.

- 13.** Keeping the endoscope immersed in the detergent solution, move the elevator control lever in each direction three times to move the forceps elevator up and down.



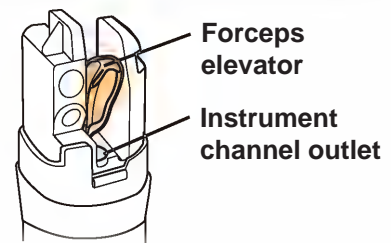
### 5.5.7 Aspirate detergent solution through the instrument channel and the suction channel

#### NOTE

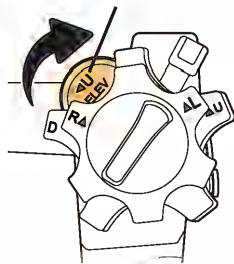
Monitor the suction bottle on the suction pump carefully to ensure that it does not overflow.

1. Ensure that the distal end's instrument channel outlet is fully open.

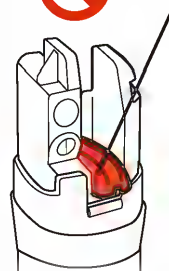
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



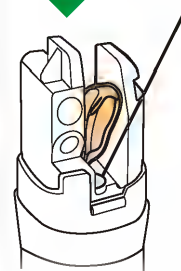
Elevator control lever



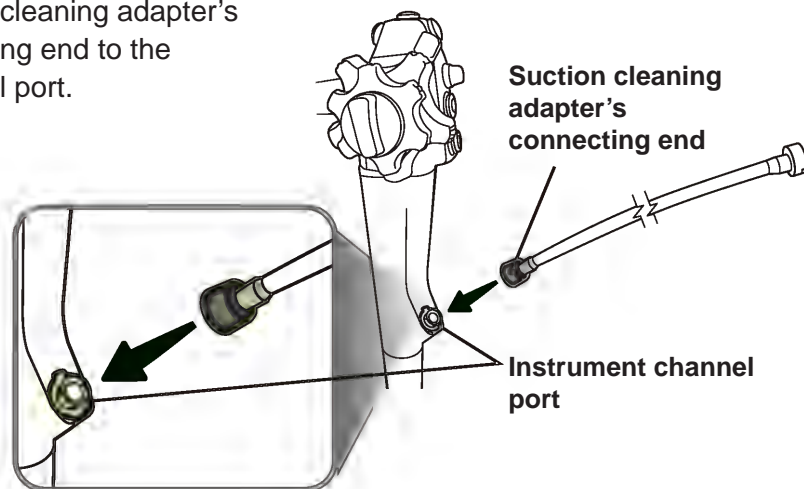
 Closed



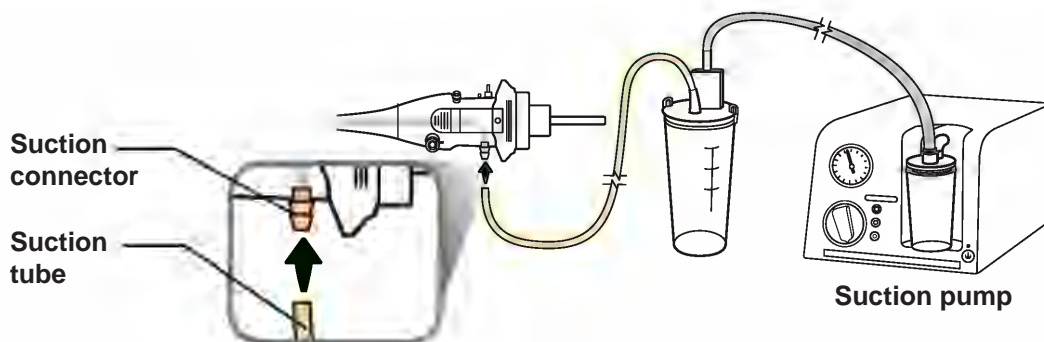
 Open



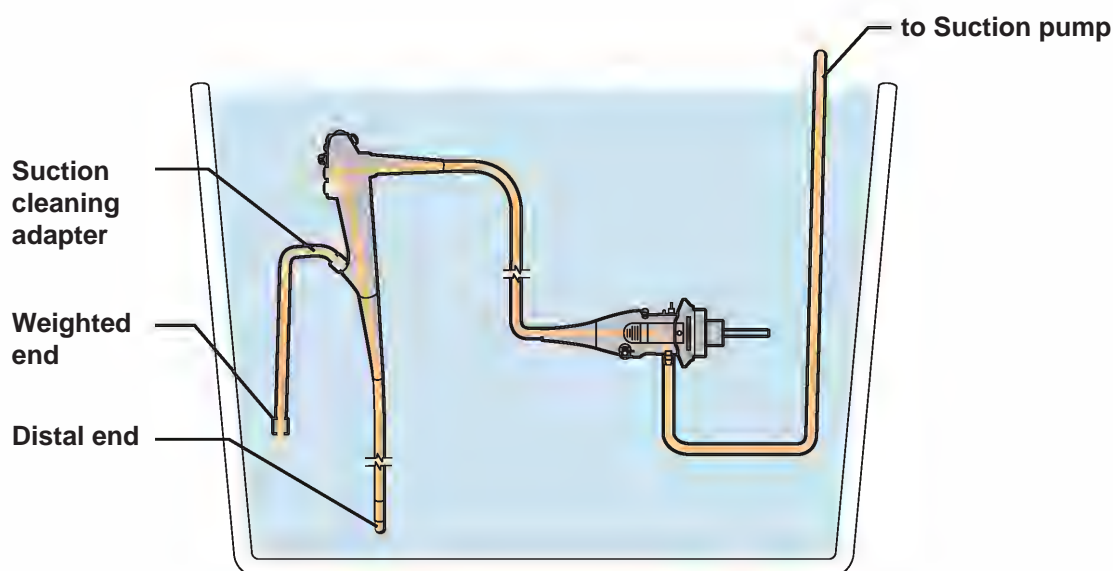
2. Attach the suction cleaning adapter's (MH-856) connecting end to the instrument channel port.



3. Attach the suction pump's suction tube to the suction connector on the endoscope connector.



4. Ensure the endoscope's distal end and the suction cleaning adapter's weighted end are completely immersed in the detergent solution.

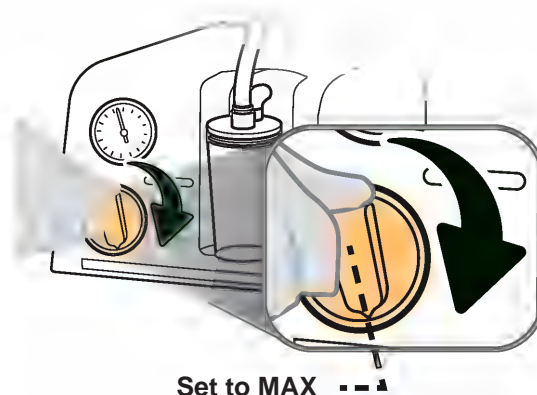


5. If using the KV-6 or KV-5 suction pump, turn the vacuum regulator knob clockwise until the knob stops and sets to maximum.

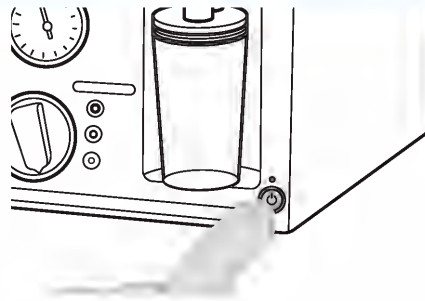
#### NOTE

The maximum vacuum pressure of the suction pump is:

- KV-6: -95 kPa
- KV-5: -85 kPa

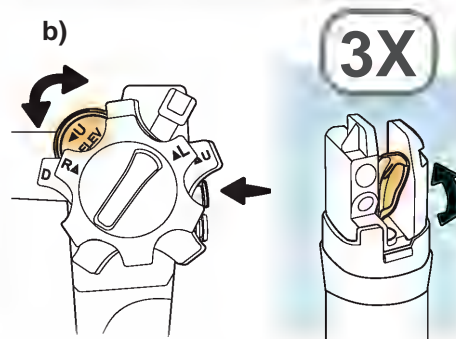
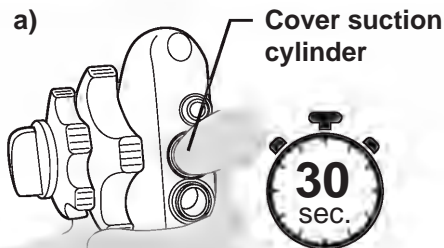


- 6.** Turn the suction pump ON (if suction pump is off).



- 7.** Aspirate detergent solution for 30 seconds or more as follows:

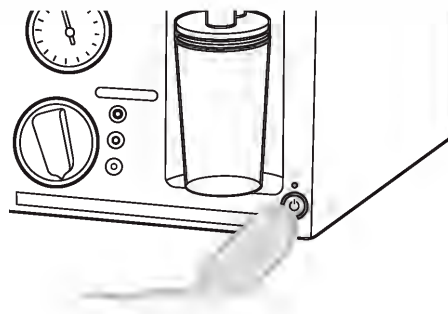
- Cover the endoscope's suction cylinder with your gloved fingertip;
- While covering the suction cylinder, move the elevator control lever in each direction three times to move the forceps elevator up and down.



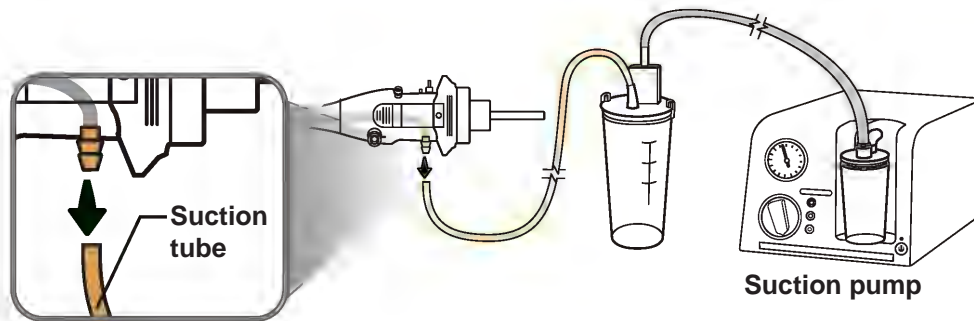
### NOTE

Use a clock or a timer to accurately measure 30 seconds or more.

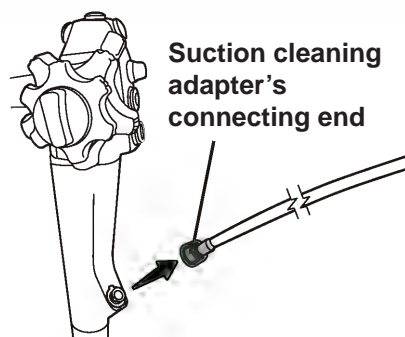
- 8.** Turn the suction pump OFF.



9. Detach the suction pump's suction tube from the endoscope.



10. Detach the suction cleaning adapter from the endoscope.



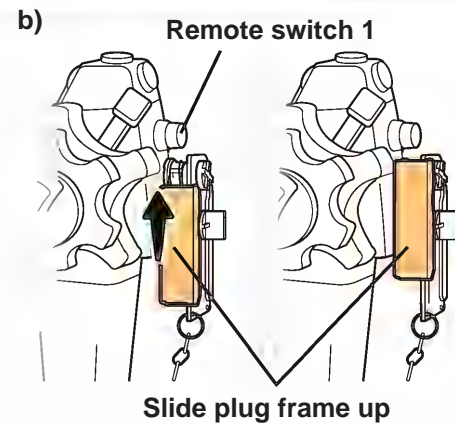
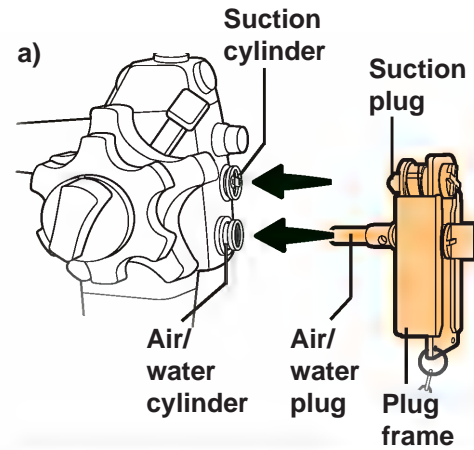
## NOTE

You will reprocess the suction cleaning adapter (MH-856) later, as described in Chapter 6, "Reprocess the Accessories".

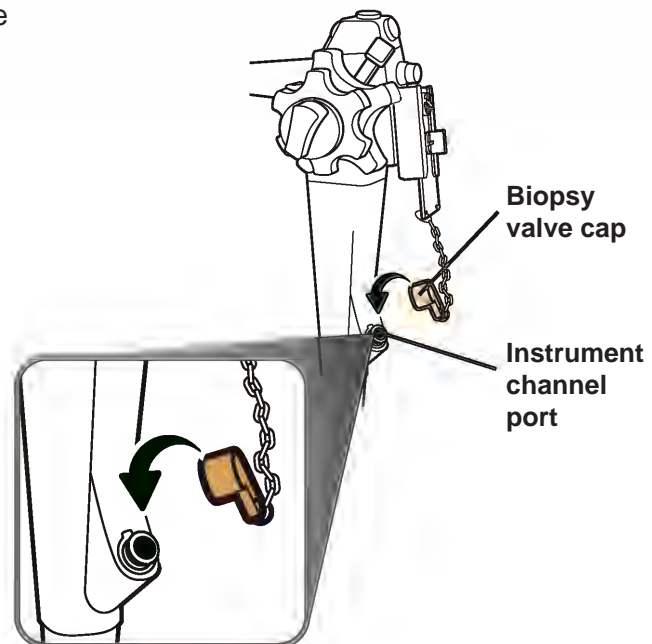
### 5.5.8 Flush the air/water channel with detergent solution

**1.** Attach the channel plug (MH-944) to the endoscope's air/water and suction cylinders, as follows:

- a) Insert the channel plug's air/water plug into the air/water cylinder, then continue, inserting the channel plug's suction plug into the suction cylinder until the channel plug's plug frame contacts the control section;
- b) Continue to push the channel plug's plug frame against control section, and slide the plug frame towards remote switch 1, until the plug frame stops, locking the channel plug firmly in place.



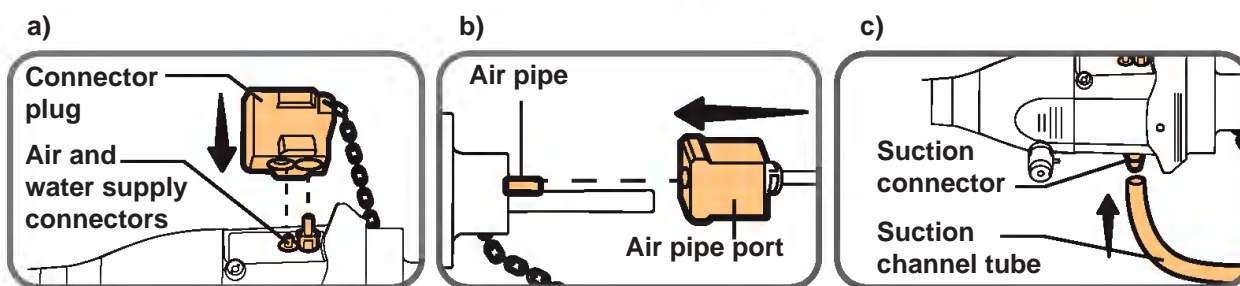
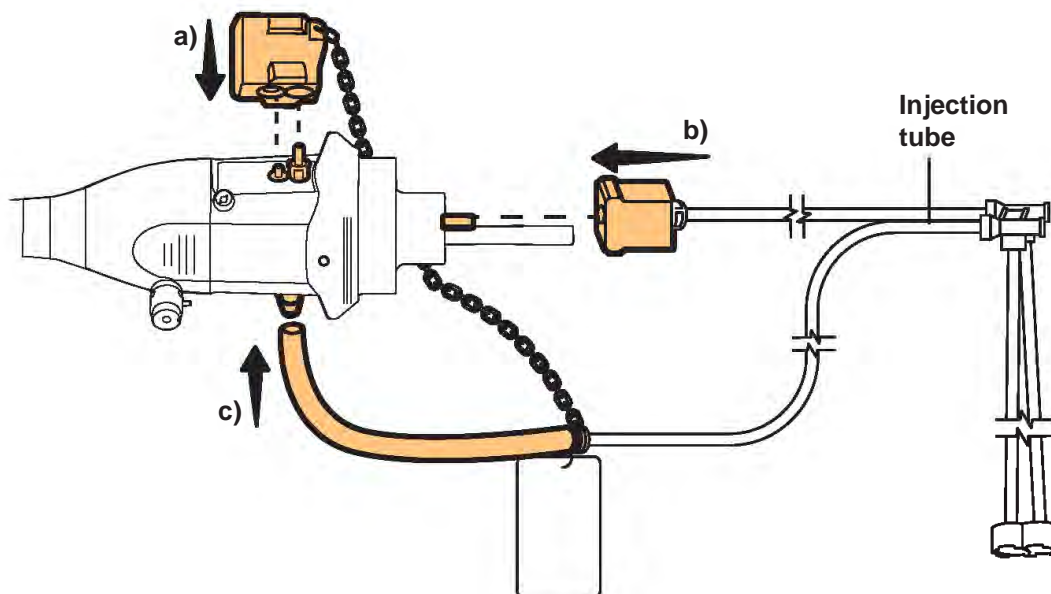
**2.** Attach the biopsy valve cap of the channel plug to the endoscope's instrument channel port.



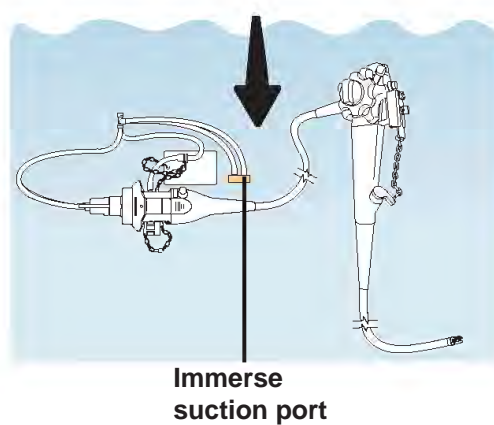
**3.**

Attach the injection tube (MH-946) to the endoscope connector, as follows:

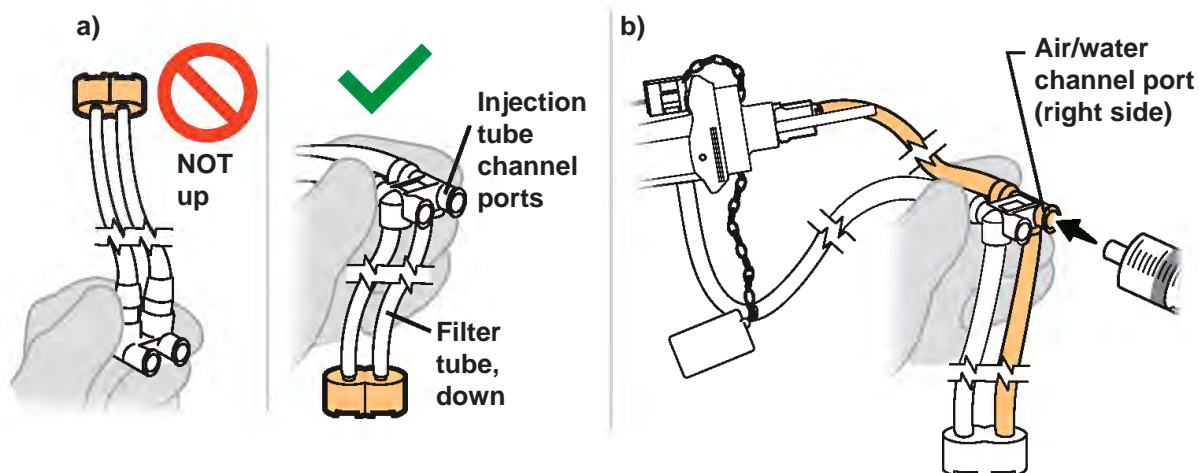
- Attach the injection tube's connector plug to the air and water supply connectors;
- Attach the injection tube's air pipe port to the air pipe;
- Attach the injection tube's suction channel tube to the suction connector.

**4.**

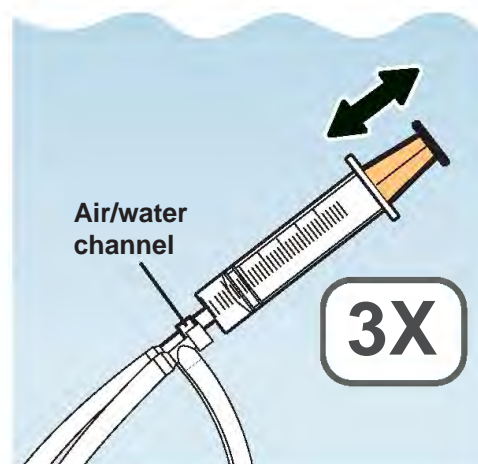
Completely immerse all accessories in the detergent solution and confirm that the suction port of the injection tube is completely immersed.



- 5.** Attach a clean 30 mL syringe to the injection tube's air/water channel port, as follows:
- Hold the injection tube's channel ports so that the filter tube points down, NOT up;
  - Attach the syringe to the air/water channel port (the right side port with the tube that connects to the endoscope connector's air pipe).



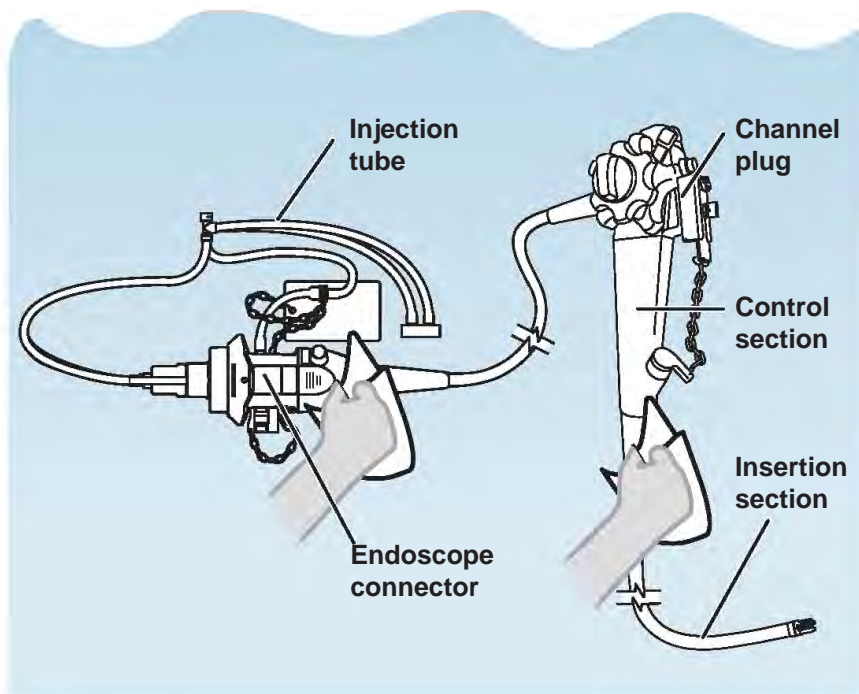
- 6.** Keeping the 30 mL syringe attached and immersed, flush the air/water channel with 90 mL of detergent solution, as follows:
- Slowly pull the syringe plunger to fill the syringe with the detergent solution;
  - Then forcefully flush with 30 mL of the detergent solution;
  - Repeat Steps a) and b) two more times, for a total of three times.**



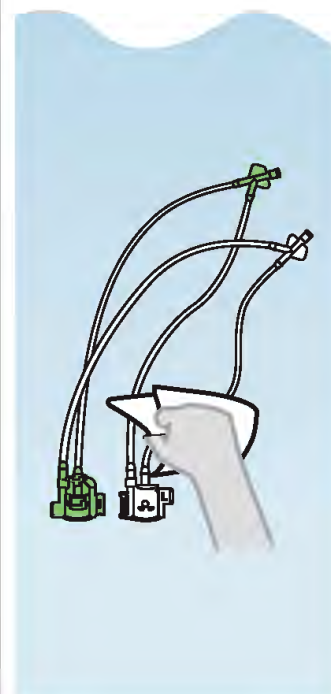
## 5.5.9 Immerse and then wipe the endoscope and accessories in detergent solution

1. Keeping the endoscope, all attached accessories, and the distal-end flushing adapter immersed in the detergent solution, use clean lint-free cloths, sponges, or brushes, to wipe all of the external surfaces of the:
  - a) Endoscope and attached accessories
  - b) Distal-end flushing adapter (MAJ-2319)

a) Endoscope and attached accessories



b) Distal-end flushing adapter (MAJ-2319)



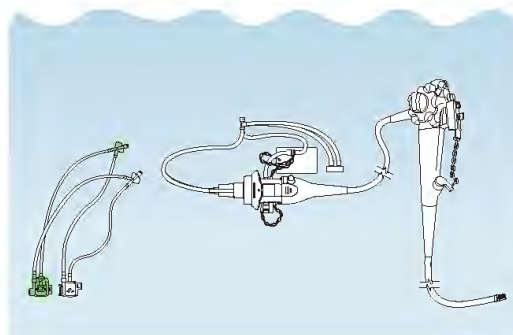
2. Leave the endoscope, all its attached accessories, and the distal-end flushing adapter completely immersed in the detergent solution for the detergent manufacturer's recommended contact time.



Detergent manufacturer's recommended contact time.

### NOTE

Use a clock or a timer to accurately measure the detergent contact time.

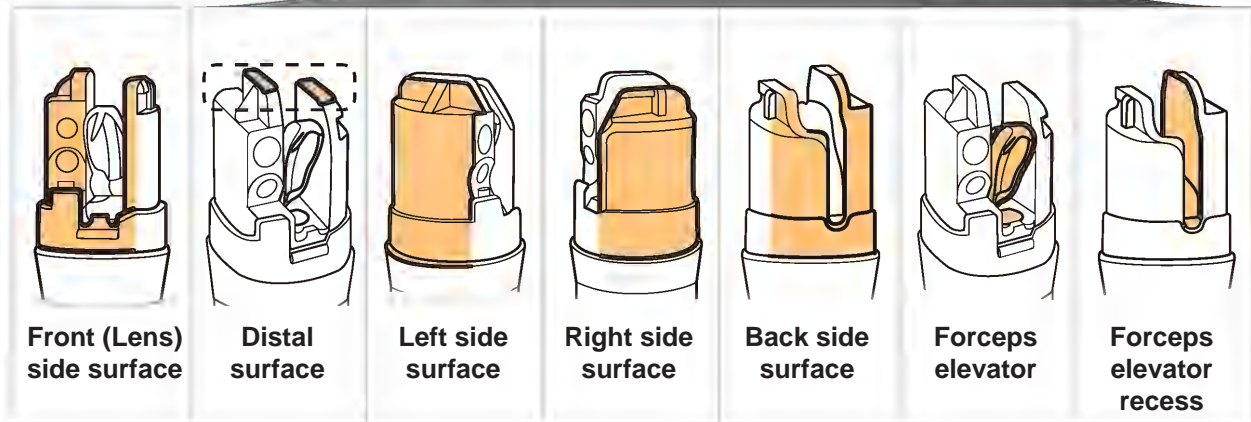
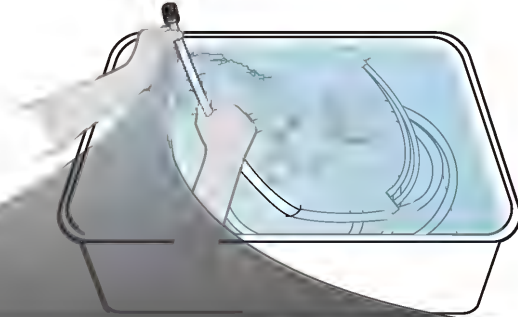


**3.** Remove the endoscope's distal end from the fluid and confirm no debris remains.

If any debris remains, return to the beginning of Chapter 5.5, "Manually clean the endoscope and accessories" and repeat the entire cleaning procedure until no debris remains.



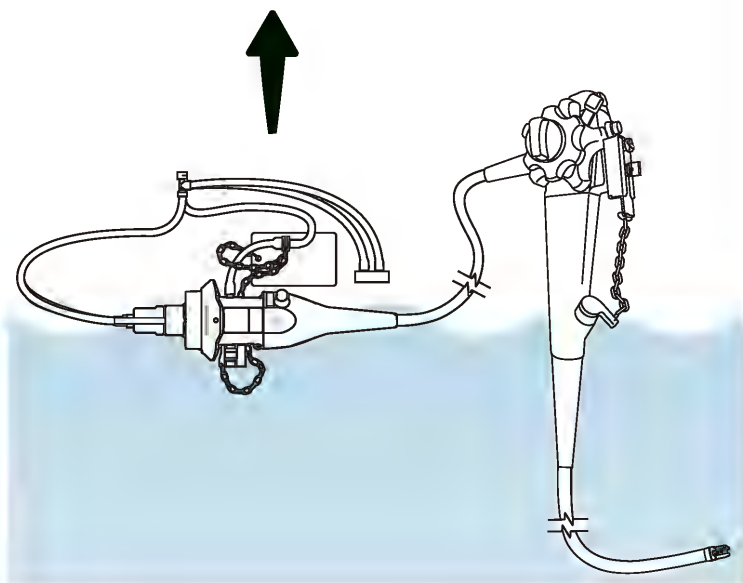
No debris on any surfaces:



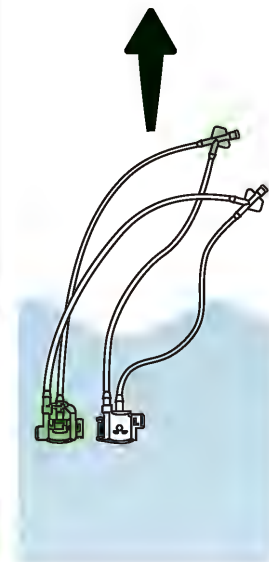
**4.** Remove the following items from the detergent solution:

- a) Endoscope and attached accessories
- b) Distal-end flushing adapter (MAJ-2319)

a) Endoscope and attached accessories



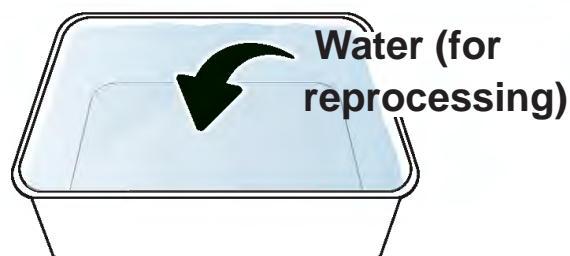
b) Distal-end flushing adapter (MAJ-2319)



## 5.5.10 Remove detergent solution from the distal end and all channels

### 5.5.10.1 Remove detergent solution from the distal end

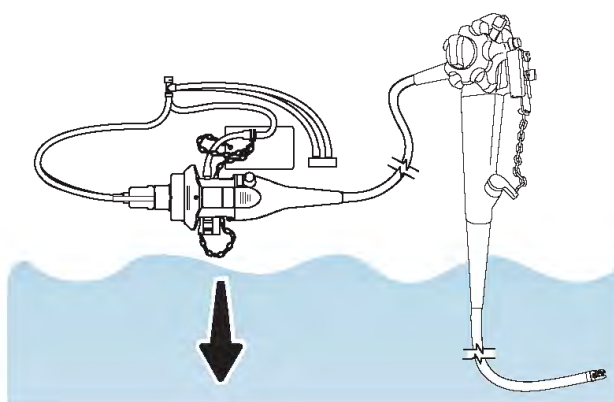
- 1.** Fill a clean, large basin with water (for reprocessing).



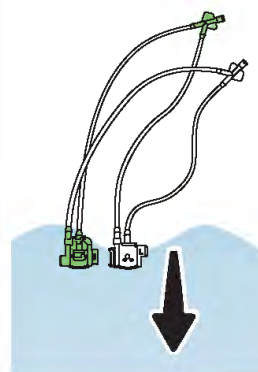
- 2.** Completely immerse the following items in the water:

- a) Endoscope and attached accessories
- b) Distal-end flushing adapter (MAJ-2319)

**a) Endoscope and attached accessories**



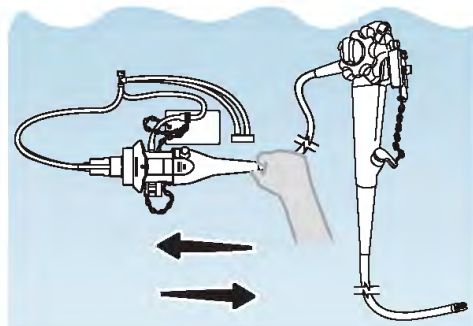
**b) Distal-end flushing adapter (MAJ-2319)**



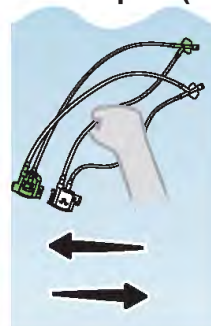
- 3.** Gently move the following items back and forth in the water to thoroughly rinse the detergent solution from the external surfaces of the:

- a) Endoscope and attached accessories
- b) Distal-end flushing adapter (MAJ-2319)

**a) Endoscope and attached accessories**

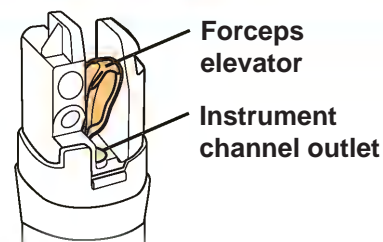


**b) Distal-end flushing adapter (MAJ-2319)**

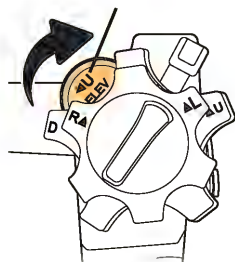


Move ALL components back and forth in water

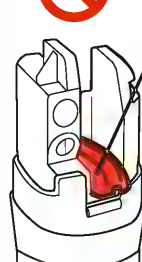
- 4.** Ensure that the distal end's instrument channel outlet is fully open.
- If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



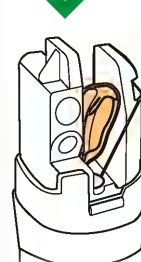
Elevator control lever



Closed

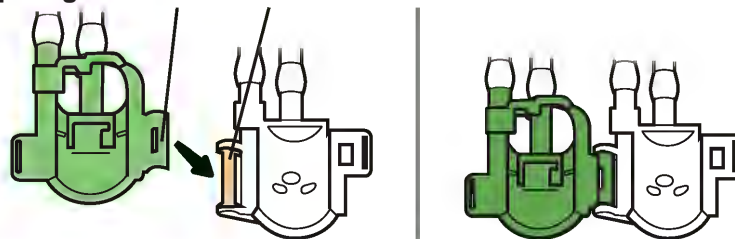


Open

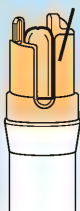


- 5.** Assemble the distal-end flushing adapter (MAJ-2319) by attaching the clip on the green cover to the shaft on the white cover.

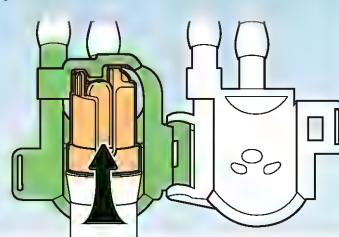
Clip on green cover    Shaft on white cover



- 6.** Keeping the distal-end flushing adapter immersed in the water, attach the distal-end flushing adapter to the endoscope's distal end, as follows;
- Hold the distal end so you can see the back side surface (lens side is down);
  - Put the distal end in the green cover so the lens is against the green cover and the top lines up against the top of the green cover;
  - Shut the white cover onto the green cover so that it snaps closed.

a) Back side up,  
Lens side down

b)



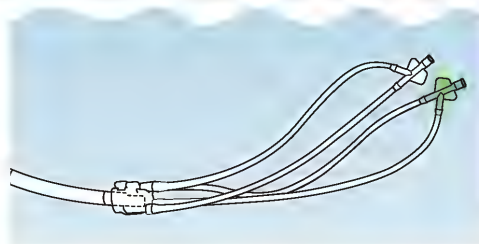
c)



- 7.** Keeping the endoscope and the distal-end flushing adapter immersed in the water, hold the distal-end flushing adapter and gently pull the endoscope to ensure that the distal end does not come out of the distal-end flushing adapter.

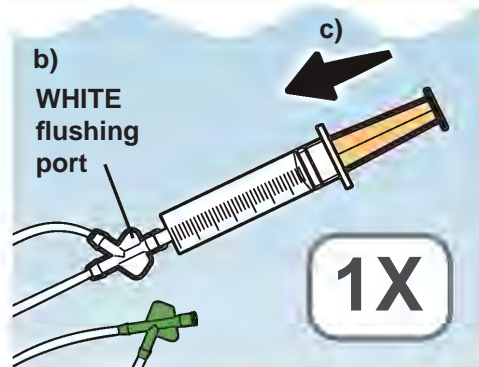


- 8.** Completely immerse the distal-end flushing adapter in the water.



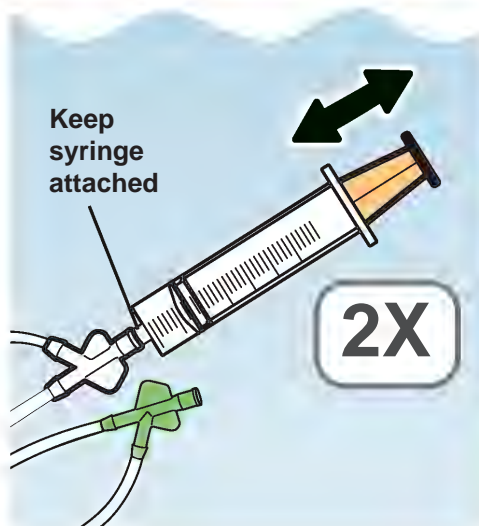
- 9.** Immerse a clean 30 mL syringe in the water and flush through the WHITE flushing port, as follows:

- Before attaching the syringe to the white flushing port** (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with water;
- Attach it to the white flushing port of the distal-end flushing adapter;
- Then forcefully flush the distal end with 30 mL of water.



- 10.** Keeping the 30 mL syringe attached and immersed, flush an additional 60 mL of the water through the WHITE flushing port, as follows:

- Slowly pull the syringe plunger to fill the syringe with water;
- Then forcefully flush the distal end with 30 mL of water;
- Repeat Steps a) and b) one more time, for a total of two times.**

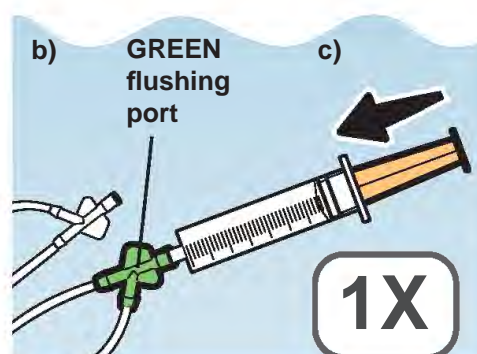


- 11.** Detach the syringe from the distal-end flushing adapter.



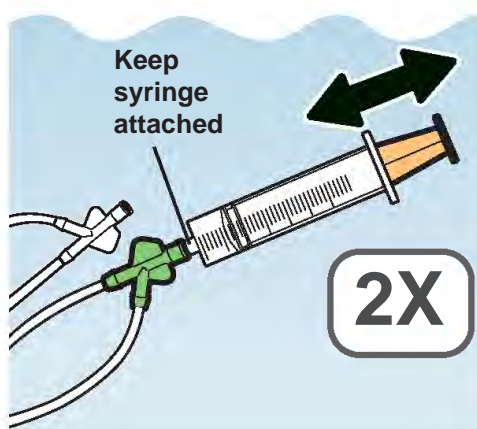
- 12.** Keeping the 30 mL syringe immersed, flush the water through the GREEN flushing port, as follows:

- Before attaching the syringe to the green flushing port** (so that you do not pull air into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with water;
- Attach it to the green flushing port of the distal-end flushing adapter;
- Then forcefully flush the distal end with 30 mL of water.

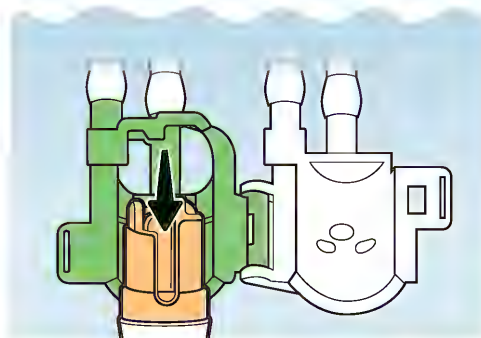


- 13.** Keeping the 30 mL syringe attached and immersed, flush an additional 60 mL of the water through the GREEN flushing port, as follows:

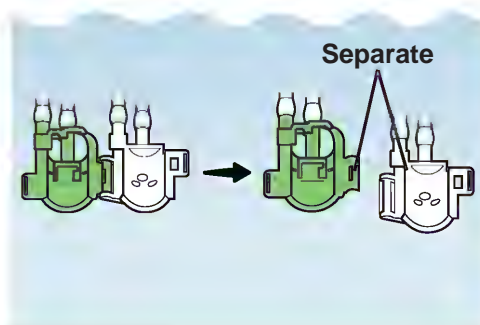
- Slowly pull the syringe plunger to fill the syringe with water;
- Then forcefully flush the distal end with 30 mL of water;
- Repeat Steps a) and b) one more time, for a total of two times.**



- 14.** Open the white cover and green cover and detach the distal-end flushing adapter from the endoscope.



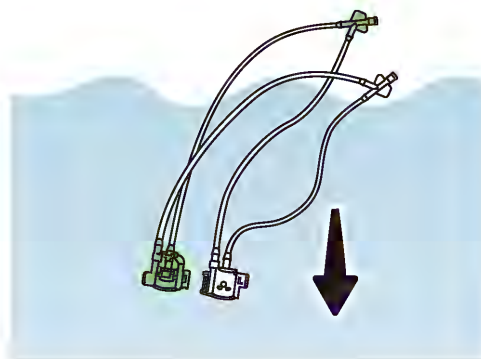
- 15.** Separate the white cover and the green cover.



**⚠ CAUTION**

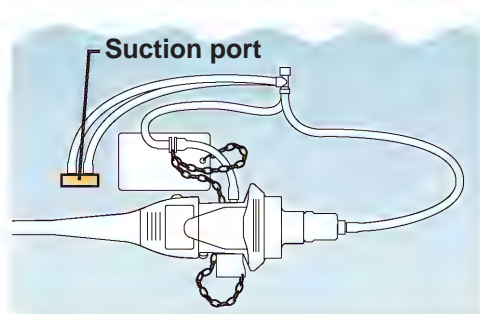
Debris can remain trapped between the white and green cover if they are not separated from each other.

- 16.** Completely immerse the distal-end flushing adapter in the water.



### 5.5.10.2 Remove detergent solution from all channels

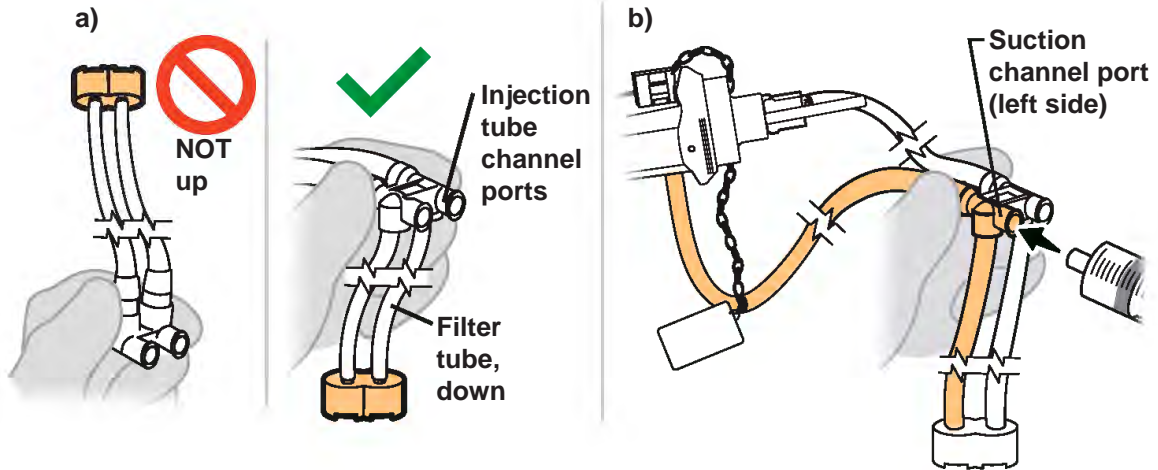
- 1.** Confirm that the injection tube's (MH-946) suction port is completely immersed in the water.



2.

Attach the 30 mL syringe to the injection tube's suction channel port, as follows:

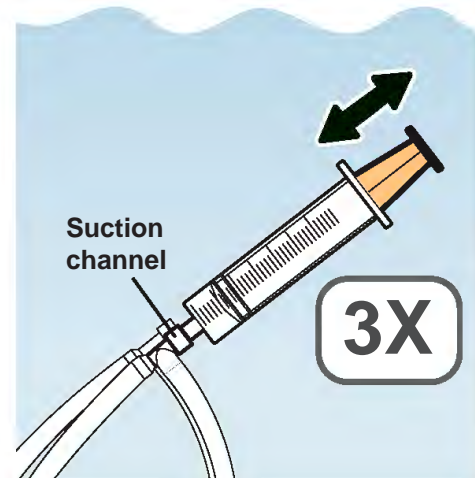
- Hold the injection tube's channel ports so that the filter tube points down, NOT up;
- Attach the syringe to the suction channel port (the left side port with the tube that connects to the endoscope connector's suction connector).



3.

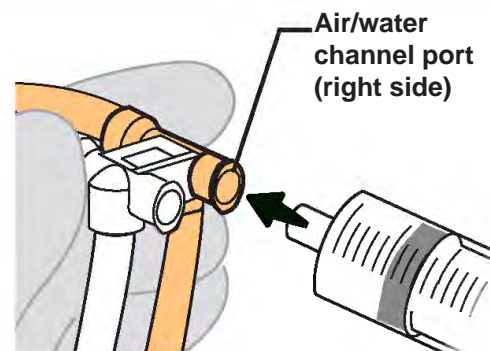
Keeping the 30 mL syringe attached and immersed, flush the suction channel with 90 mL of the water, as follows:

- Slowly pull the syringe plunger to fill the syringe with water;
- Then forcefully flush 30 mL of water;
- Repeat Steps a) and b) two more times, for a total of three times.**



4.

Move the syringe from the suction channel port to the injection tube's air/water channel port (port on the right).



**5.** Keeping the 30 mL syringe attached and immersed, flush the air/water channel with 90 mL of the water, as follows:

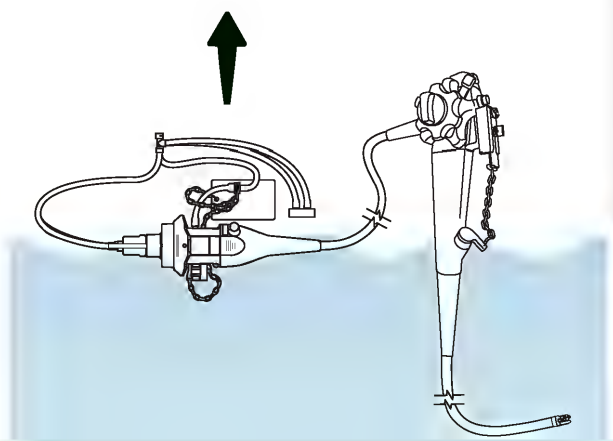
- Slowly pull the syringe plunger to fill the syringe with water;
- Then forcefully flush 30 mL of water;
- Repeat Steps a) and b) two more times, for a total of three times.**



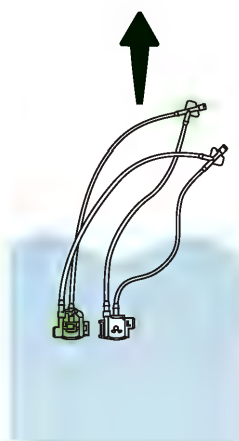
**6.** Remove the following items from the water and place in a clean basin:

- Endoscope and attached accessories
- Distal-end flushing adapter (MAJ-2319)

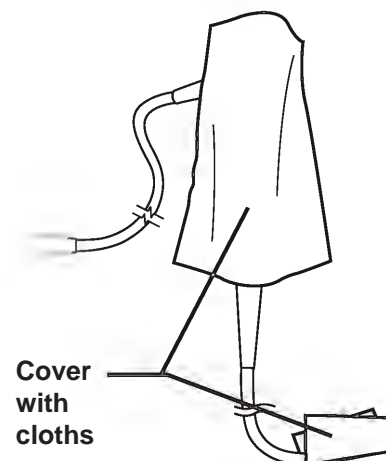
**a) Endoscope and attached accessories**



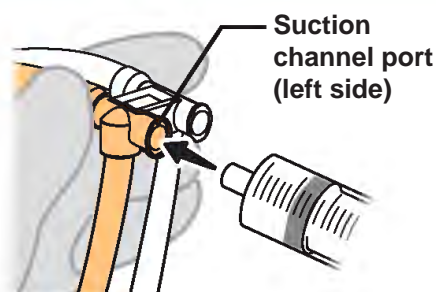
**b) Distal-end flushing adapter (MAJ-2319)**



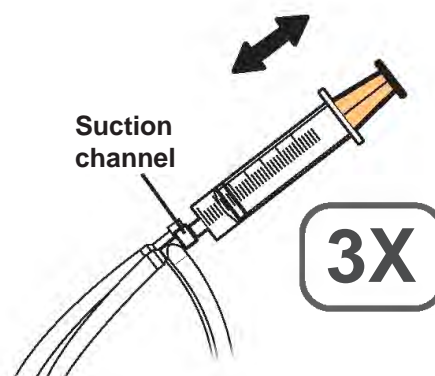
**7.** To prevent splashing from the channel openings, cover the endoscope's distal end and control section with clean lint-free cloths.



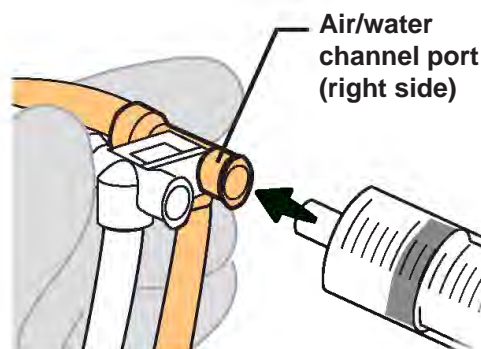
- 8.** Move the syringe from the air/water channel port to the injection tube's suction channel port (port on the left).



- 9.** Keeping the 30 mL syringe attached, flush the suction channel with 90 mL of air, as follows:
- Slowly pull the syringe plunger to fill the syringe with air;
  - Then forcefully flush 30 mL of air;
  - Repeat Steps a) and b) two more times, for a total of three times.**



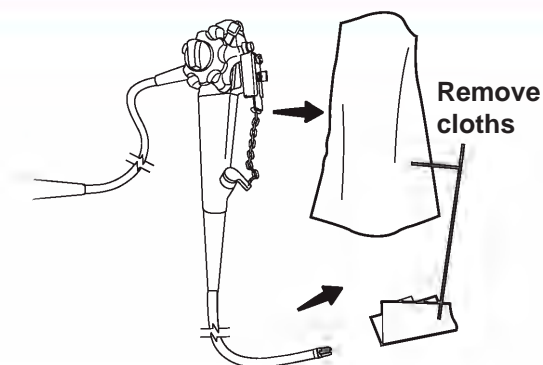
- 10.** Move the syringe from the suction channel port to the injection tube's air/water channel port (port on the right).



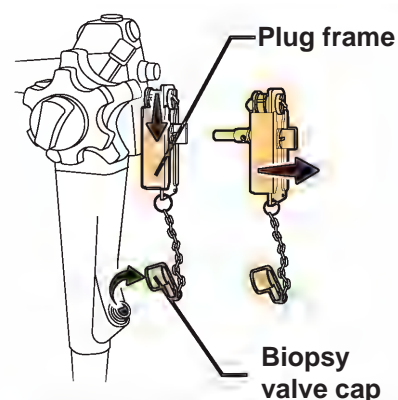
- 11.** Keeping the 30 mL syringe attached, flush the air/water channel with 90 mL of air, as follows:
- Slowly pull the syringe plunger to fill the syringe with air;
  - Then forcefully flush 30 mL of air;
  - Repeat Steps a) and b) two more times, for a total of three times.**



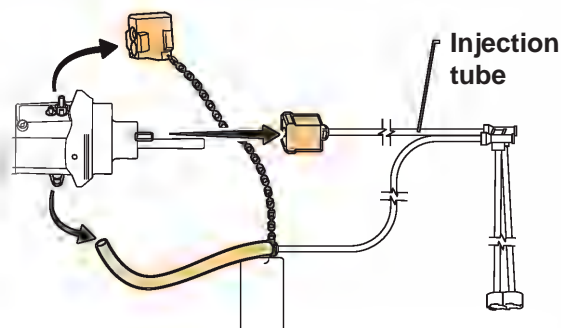
- 12.** Remove the cloths from the endoscope.



- 13.** Slide the channel plug's (MH-944) plug frame down and detach the channel plug from the endoscope.



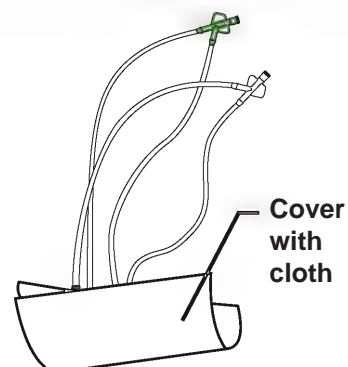
- 14.** Detach the injection tube from the endoscope.



### 5.5.10.3 Remove detergent solution from the distal-end flushing adapter (MAJ-2319)

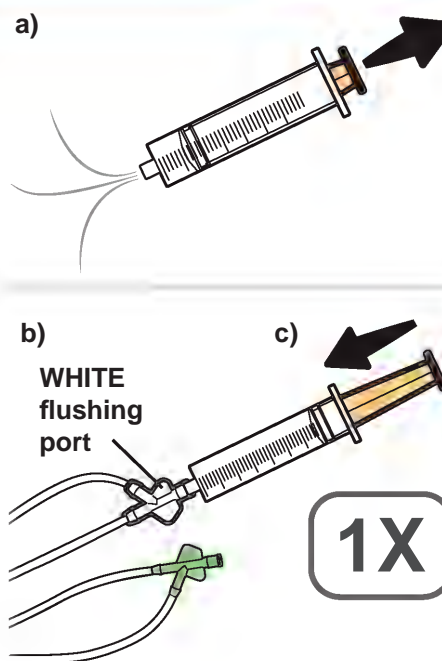
- 1.** To prevent splashing from the cover's openings, cover the distal-end flushing adapter's white and green covers in clean lint-free cloths.

The distal-end flushing adapter will not be attached to the endoscope.

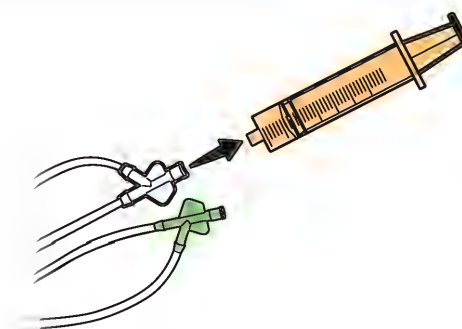


**2.** Flush air through the WHITE flushing port, as follows:

- a) **Before attaching the syringe to the white flushing port** (so that you do not pull water into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with air;
- b) Attach it to the white flushing port of the distal-end flushing adapter;
- c) Then forcefully flush with 30 mL of air.

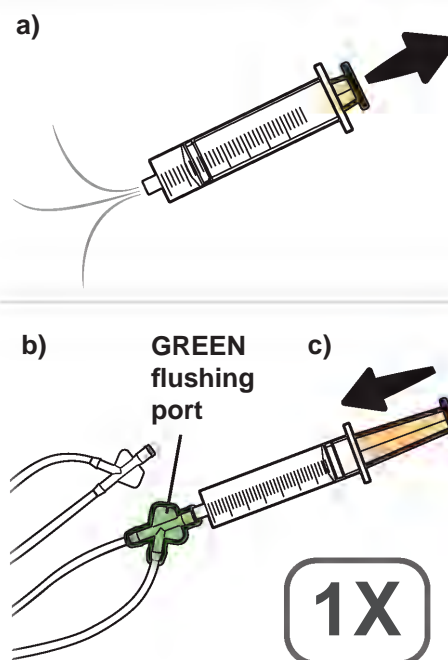


**3.** Detach the syringe from the distal-end flushing adapter.

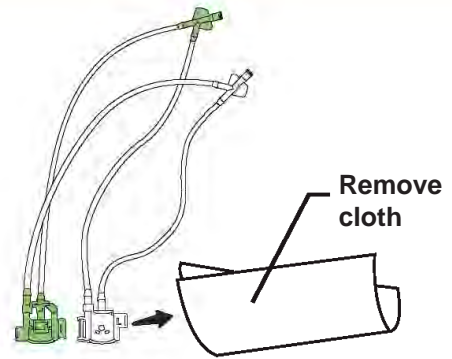


**4.** Flush air through the GREEN flushing port, as follows:

- a) **Before attaching the syringe to the green flushing port** (so that you do not pull water into the syringe that might be inside the flushing tube), slowly pull the syringe plunger to fill the syringe with air;
- b) Attach it to the green flushing port of the distal-end flushing adapter;
- c) Then forcefully flush with 30 mL of air.



5. Remove the cloths from the distal-end flushing adapter.

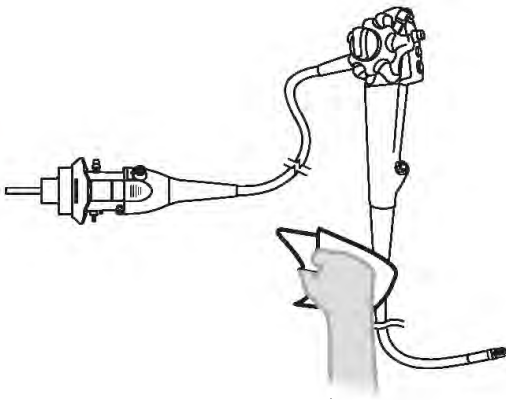


### 5.5.11 Dry the external surfaces

**1.** Using clean lint-free cloths, wipe the external surfaces of these parts until they are dry:

- a) Endoscope
- b) Channel plug
- c) Distal-end flushing adapter
- d) Injection tube

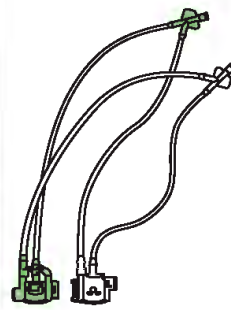
a) Endoscope



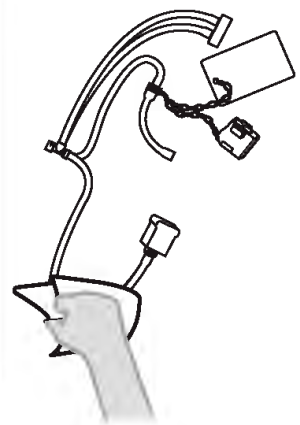
b) Channel plug



c) Distal-end flushing adapter



d) Injection tube



**2.** Inspect all items and confirm no residual debris remains on the:

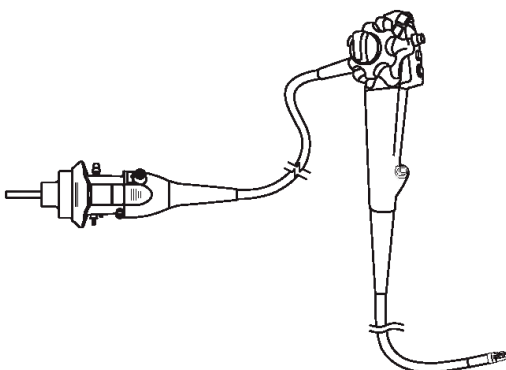
- a) Endoscope
- b) Channel plug
- c) Distal-end flushing adapter
- d) Injection tube

If any debris remains, repeat all of Chapter 5.5, “Manually cleaning the endoscope and accessories” steps until no debris remains.



No debris on any surfaces

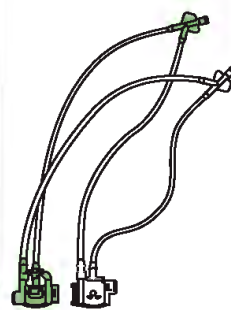
a) Endoscope



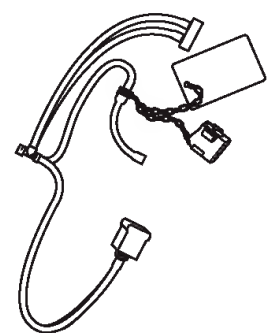
b) Channel plug



c) Distal-end flushing adapter



d) Injection tube



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## 5.6 Manually disinfect the endoscope and accessories

Workflow for manually disinfecting the endoscope and accessories:

### Prepare equipment

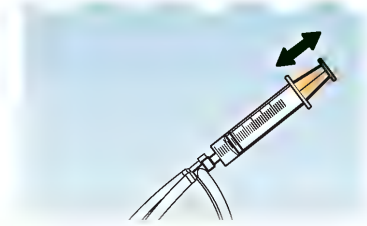
5.6.1 Equipment needed

5.6.2 Prepare for manual disinfection



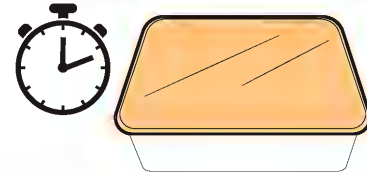
### Flush distal end and channels

5.6.3 Flush the distal end and all channels with disinfectant solution



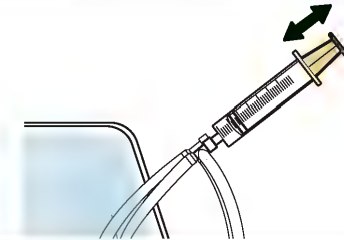
### Immerse in disinfectant

5.6.4 Immerse the endoscope and accessories in disinfectant solution



### Remove disinfectant solution from all channels

5.6.5 Remove disinfectant solution from all channels



Once you have immersed the endoscope and accessories in disinfectant solution for the disinfectant manufacturer's recommended time, only use sterile equipment, such as sterile syringes, cloths, and sterile gloves, for all reprocessing steps. Otherwise, it may pose an infection control risk.

## 5.6.1 Equipment needed

Prepare the following equipment.

### Fluids used for disinfecting:

- Disinfectant solution (Refer to Chapter 3.4, "Disinfectant solution")

### Other:

- Clean lint-free cloths
- Sterile 30 mL (30 cc) syringes\*<sup>1</sup>
- Clean 30 mL (30 cc) syringes
- Clean, large basins with tight-fitting lids (size: 40 (W) × 40 (D) × 25 (H) cm or more)

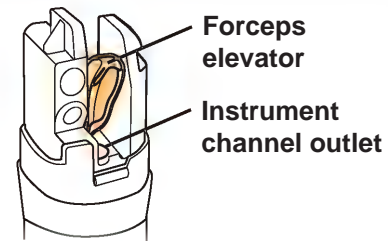
\*<sup>1</sup> Following disinfection, it is very important not to recontaminate the endoscope and accessories with potentially infectious microorganisms. When rinsing and drying the endoscope and accessories following disinfection, the use of sterile equipment (basins, cloths, syringes, etc.) is recommended. If sterile equipment is not available, use clean equipment that does not recontaminate the endoscope and accessories with potentially infectious microorganisms. Consult with your healthcare facility's infection control committee regarding local policies or requirements regarding reprocessing equipment.

### 5.6.2 Prepare for manual disinfection

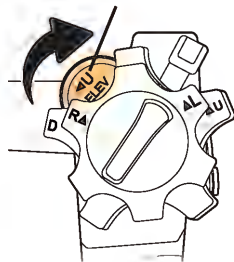
1. Fill a clean, large basin with the disinfectant solution at the temperature and concentration recommended by the disinfectant manufacturer.  
  
Refer to the disinfectant manufacturer's instructions for the recommended temperature and concentration.



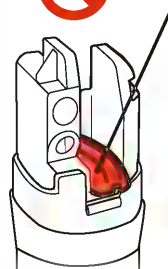
2. Ensure that the distal end's instrument channel outlet is fully open.  
  
If closed, open the instrument channel outlet by moving the elevator control lever as shown below until the forceps elevator stops.



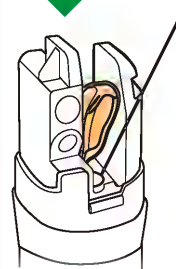
Elevator control lever



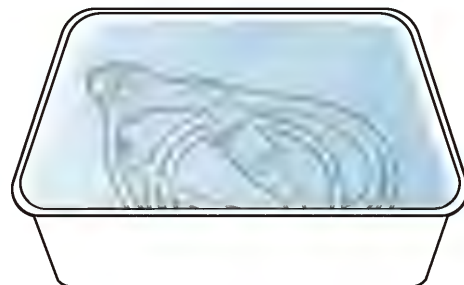
 Closed



 Open

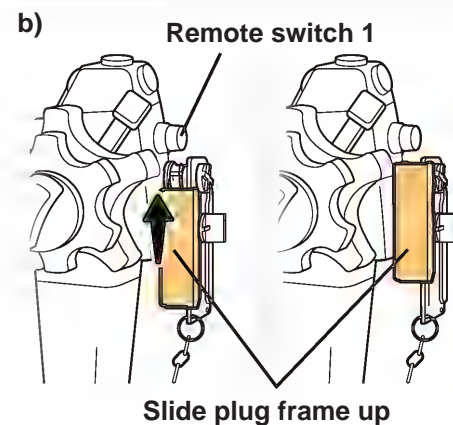
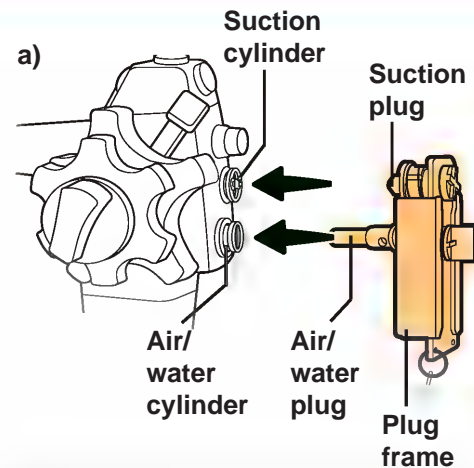


3. Completely immerse the endoscope in the disinfectant solution.

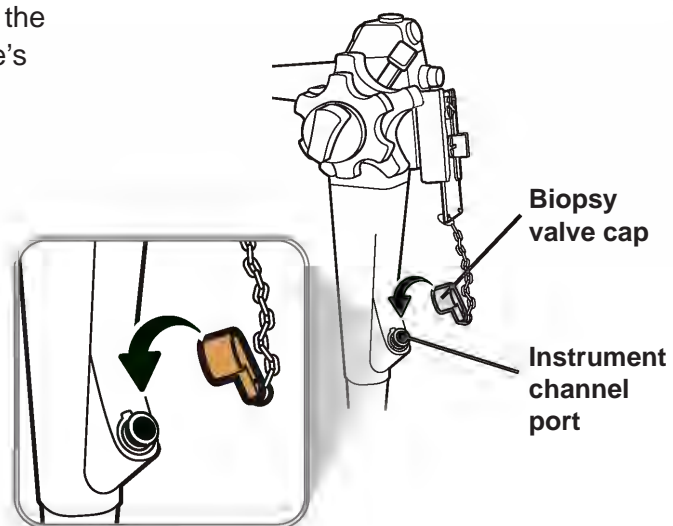


**4.** Attach the channel plug (MH-944) to the endoscope's air/water and suction cylinders, as follows:

- a) Insert the channel plug's air/water plug into the air/water cylinder, then continue, inserting the channel plug's suction plug into the suction cylinder until the channel plug's plug frame contacts the control section;
- b) Continue to push the channel plug's plug frame against control section, and slide the plug frame towards remote switch 1, until the plug frame stops, locking the channel plug firmly in place.



**5.** Attach the biopsy valve cap of the channel plug to the endoscope's instrument channel port.



## 5.6 Manual disinfecting

1. Equipment needed

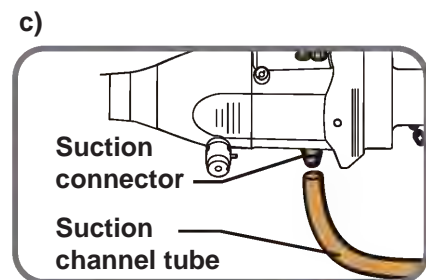
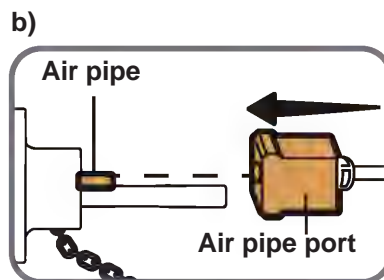
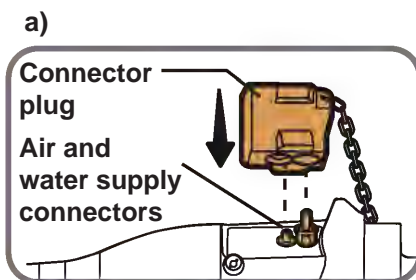
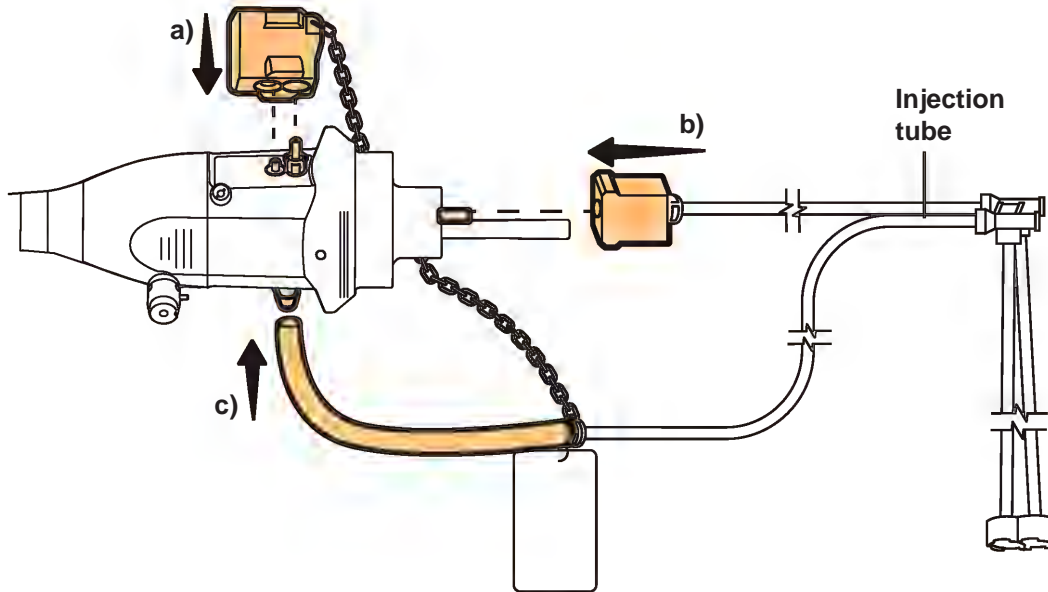
2. Prepare for disinfection

3. Flush distal end and channels

# 6.

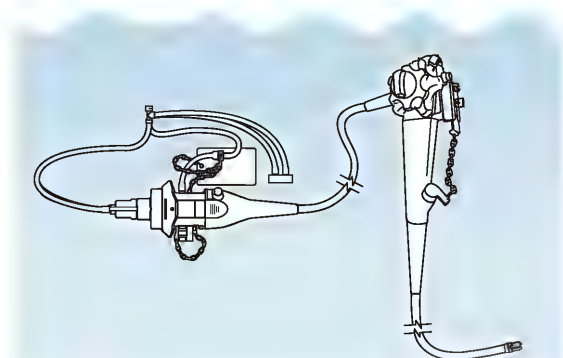
Attach the injection tube (MH-946) to the endoscope connector, as follows:

- Attach the injection tube's connector plug to the air and water supply connectors;
- Attach the injection tube's air pipe port to the air pipe;
- Attach the injection tube's suction channel tube to the suction connector.



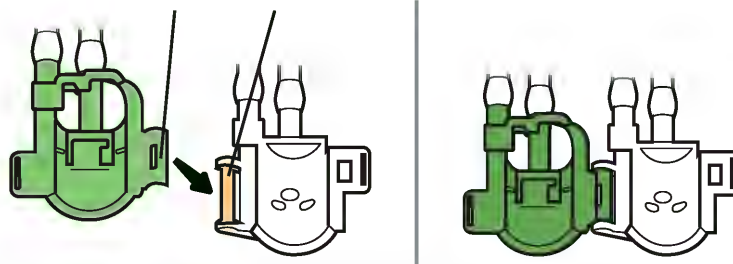
# 7.

Completely immerse the channel plug and the injection tube in the disinfectant solution.

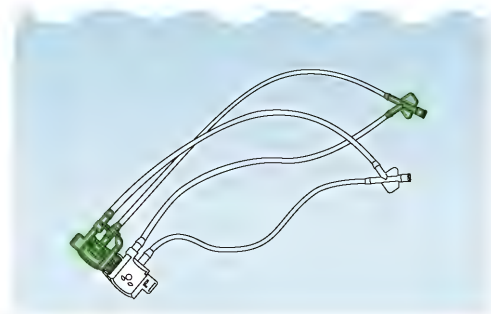


- 8.** Assemble the distal-end flushing adapter (MAJ-2319) by attaching the clip on the green cover to the shaft on the white cover.

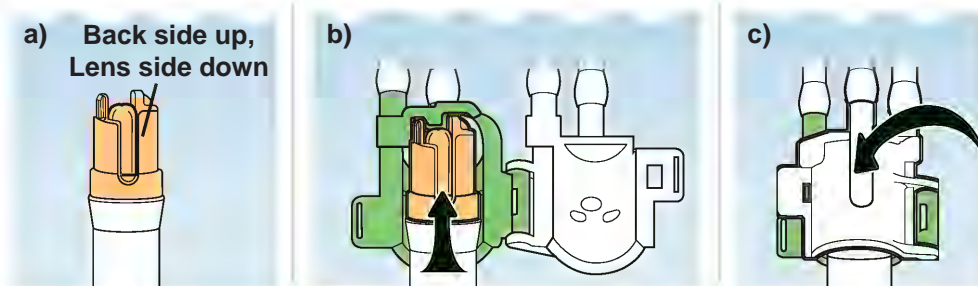
Clip on green cover    Shaft on white cover



- 9.** Completely immerse the distal-end flushing adapter in the disinfectant solution.



- 10.** Keeping the distal-end flushing adapter immersed in the disinfectant solution, attach the distal-end flushing adapter to the endoscope's distal end, as follows:
- Hold the distal end so you can see the back side surface (lens side is down);
  - Put the distal end in the green cover so the lens is against the green cover and the top lines up against the top of the green cover;
  - Shut the white cover onto the green cover so that it snaps closed.



- 11.** Keeping the endoscope and the distal-end flushing adapter immersed in the disinfectant solution, hold the distal-end flushing adapter and gently pull the endoscope to ensure that the distal end does not come out of distal-end flushing adapter.

