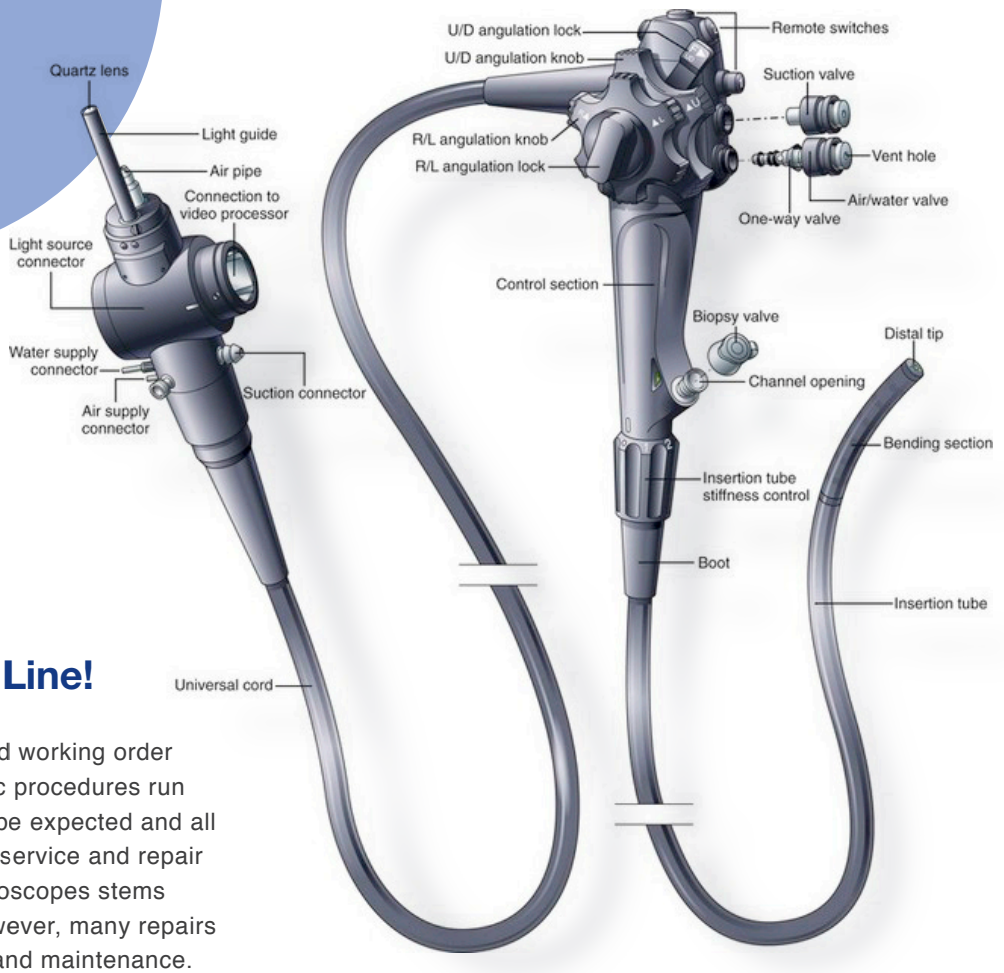
5 TIPS

TO PROPERLY MAINTAIN YOUR FLEXIBLE ENDOSCOPES



Prevent Damage & Preserve Your Bottom Line!

Making sure your equipment is in good working order is essential to ensure your endoscopic procedures run smoothly. Normal wear and tear is to be expected and all flexible endoscopes will likely require service and repair at some point. 85% of damage to endoscopes stems from improper care and handling. However, many repairs are preventable with the proper care and maintenance.

If your equipment is damaged, replacement costs and downtime can really impact the bottom line. Here are the 5 most common issues with flexible endoscopes, the financial impact, and recommendations to help avoid future damage.

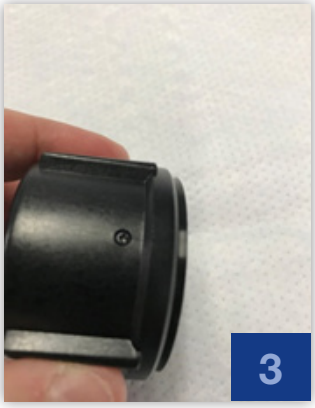
Total Scope, Inc.
The Leader in Medical Device Repair

1 Make Sure the Water-Resistant Cap is in Good Working Order

Issue: The water-resistant cap is the most essential part of an endoscope as it protects the scope from fluid invasion which can easily occur if the cap is damaged. Damage to the water-resistance cap accounts for nearly 25% of all endoscope damage.

Financial Impact: $5,000-$10,000

Tip: It is recommended that you replace your water-resistant cap every 18 months to prevent normal wear and tear from becoming a problem. Make sure you track how many months the water cap has been in use (see pictures **1**, **2**, **3**). A “good” cap should not have any major scuffs or inclusions and there should be no rust or chipping present along the O-ring of the cap (see pictures **4**, **5**, **6**). Corrosion inside the cap, as well as missing silicone around the leak test connection nut, is indicative of a worn or damaged cap.

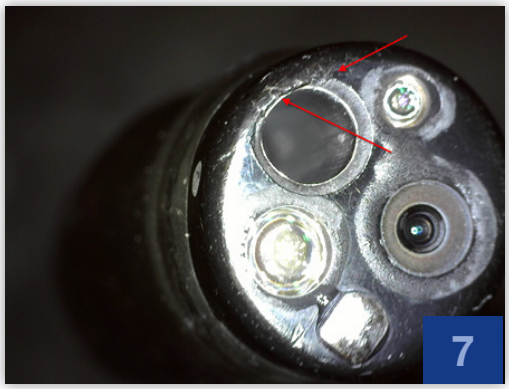


2 Properly Protect and Store the Distal Tip

Issue: Damage to the distal tip, which houses the light lenses, accounts for nearly 45% of all endoscope damage. Proper storage is key to keeping endoscopes functional and that is especially true for the distal tip. Light lenses and the objective lens can crack and leak causing fluid to invade the endoscope. Damaged portions of the distal cap can also cause discomfort or injury to the patient.

Financial Impact: $2,000-$5,000

Tip: To prevent damage (cracking/chipping) to the distal tip and lenses use care when handling, transporting and storing endoscopes. Endoscopes should hang freely in a closed, well-ventilated storage cabinet to avoid damage and facilitate drying. It is also recommended that you avoid crowding equipment together to ensure no further damage is caused by contact. Following any endoscopic procedure, avoid stacking the scopes together or on top of other equipment. You can take extra care by covering the tip of the scope with a soft tip protector.



7 Damaged distal cap - distal cap overlapping forceps channel and chipped light guide lens.

8 Distal cap in good working order.

3 Take Care to Properly Handle and Maintain the Air Water Nozzle

Issue: The air water nozzle on the endoscope has a small opening that flushes water and air over the objective lens to help keep the lens clean and clear during an endoscopic procedure. This part of the endoscope is particularly delicate and if not handled properly can easily experience physical trauma resulting in poor air/water flow.

Financial impact: $250-$500

Tip: Make sure to routinely inspect and clean the scope. Thoroughly brush or wipe all external surfaces of the endoscope using clean lint-free cloths or brushes to ensure debris does not enter the channels of the nozzle. It's also good practice to irrigate the channels of the air water nozzle after every procedure. Cleaning attachments with filters or screens should be inspected regularly. Missing screens or filters will allow material to be introduced into channel and cause blockage. Take care to avoid any impact at the distal end. The nozzle sits higher than other components at the distal end and will bear the brunt of any trauma.

9 & 10 Clogged Air Water Nozzle

4 Do Not Over Angulate the Endoscope

Issue: The angulation system includes a series of control cables connected to a gear/pulley system in the control body. The cables are manipulated through a series of metal wiring that runs throughout the insertion tube and into the bending section. When the metal wiring does not move together properly, abnormal bending of the angles can cause serious issues. When the scope is over angulated, the “bending rubber” gets stretched and becomes vulnerable to many types of physical damage including pinholes and cuts which can lead to fluid invasion.

Financial Impact: $150-$350

Tip: Take care not to over-angulate the scope, as this can cause damage to the internal mesh. Avoid extreme twisting and torque on the insertion tube during procedures and use bite blocks to help prevent damage to the bending section. To avoid bending rubber-holes/leaks while cleaning or storing the endoscope, avoid extended periods of coiling and/or sharply bending the insertion tube. This increases the friction on the cables and puts a great deal of stress on the solder joints. Scopes should be stored to allow insertion tubes to hang straight and untangled in the unlocked position. Leak test the scope thoroughly after each procedure. Routine replacement of the bending rubber is also a good maintenance practice.

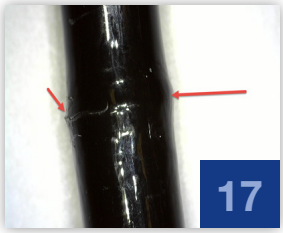
11 & 12 Damaged bending mesh under the bending rubber caused by over angulating the scope causing the wires to snap. In this example, the bending mesh actually “curled up” and distorted the bending rubber itself.

5 Always Use a Bite Block with the Insertion Tube

Issue: The insertion tube is hollow and protects the internal components of the scope from damage while also providing flexibility during a procedure. Because it is inserted into the patient, the insertion tube is prone to damage. Improper handling and not using a bite block are two very common way in which damage occurs.

Financial Impact: $5,000-$10,000

Tip: Bite blocks prevent costly bite damage to your scopes, so it's good practice to use them during all upper endoscopy procedures to minimize damage to the insertion tube. Routinely inspect the insertion tube for any dents or kinks and address them immediately as they can pinch down on the internal components of the scope. Keep sharp objects and instrumentation away from the insertion tube – they can puncture, cut or tear the insertion tube. During cleaning, transportation, and storage make sure the insertion tube/universal cord is not wrapped into a coil with a diameter smaller than 40 cm, as this can also cause damage to the insertion tube & universal cord, as well as the internal components of the endoscope.



13 & 14 Dents from trauma can be removed and repaired easily. Buckling, however is more severe and the cord must be replaced all together. **15** Damage-free insertion tube. **16** Example of a "crushed" insertion tube. **17** Example of a cracked insertion tube. **18** This IS NOT the proper way to store scopes prior to cleaning!