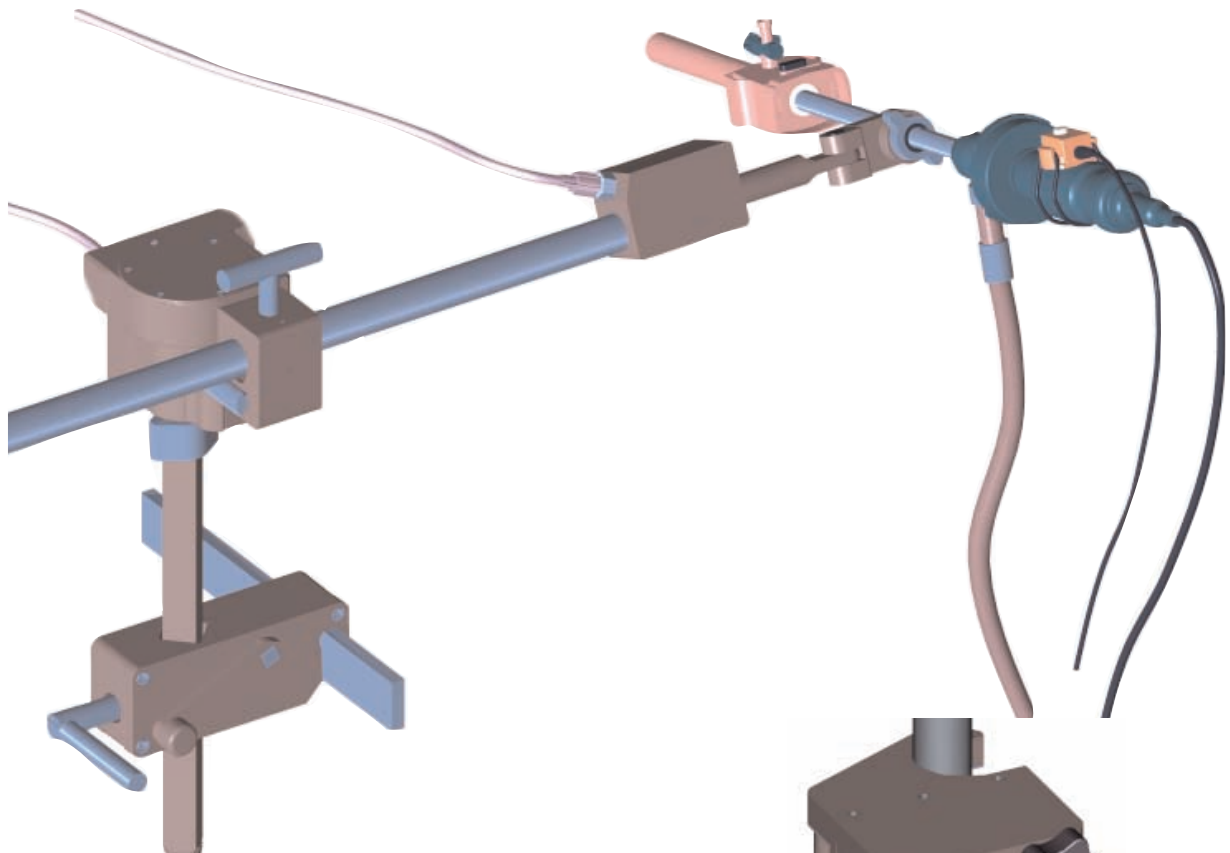


Kronner

**Instructions for
set-up and use**

Low Profile Scope Holder

for holding laparoscopes and other endoscopes



Steady view
Rapid set-up
Surgeon controls scope
Rapid position changes
Scope movement unrestricted
Does not interfere with instruments
Less staff required



U.S. Patent No. 5,957,423

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**KSH-4 Kronner Low Profile Scope Holder
ECB-2 Electronic Control Box**

WITH RESPECT TO ELECTRIC SHOCK, FIRE AND
MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL
2601-1
< 37ZJ>

Using the Holder following Setup

Note: The control button must be pressed when Holder position is changed.

1. **Press the control button and insert the scope shaft** through the scope grip until the camera is positioned next to the scope grip.

The scope can be inserted with the wing nut toward or away from the camera. Note the rotation of the wing nut for tightening. Marks on the wing nut show proper rotation.

2. **Tighten the wing nut.**

During use, the scope penetration depth can be set with the control and Holder, the scope does not have to be re-positioned in the scope grip.

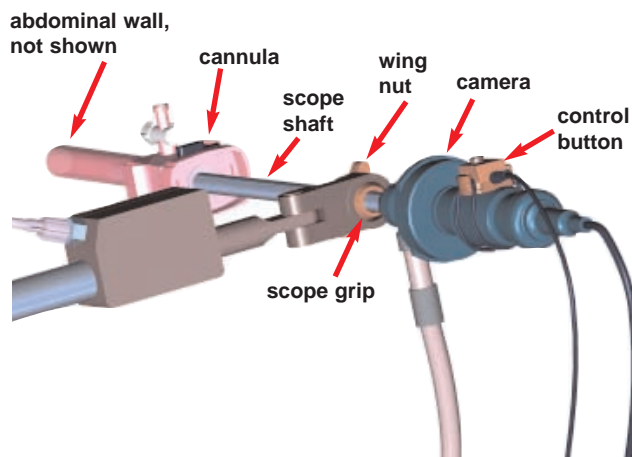
For scopes with angled viewing lenses, it is necessary to control scope rotation. Rotate the scope until the proper view is obtained. Tighten the wing nut to hold the position. Avoid unnecessary torque.

3. **Press the control button and insert the scope into a cannula** that has been previously inserted through the abdominal wall.

4. While viewing the monitor, press the control button and **move the camera and scope from side to side** to verify that the arm is set to provide the range required for the procedure.

To change the side to side viewing range, loosen the arm grip handle and slide the arm in the proper direction. Re-tighten the arm grip handle.

Move the camera up and down to verify that the pivot is set at the proper height.

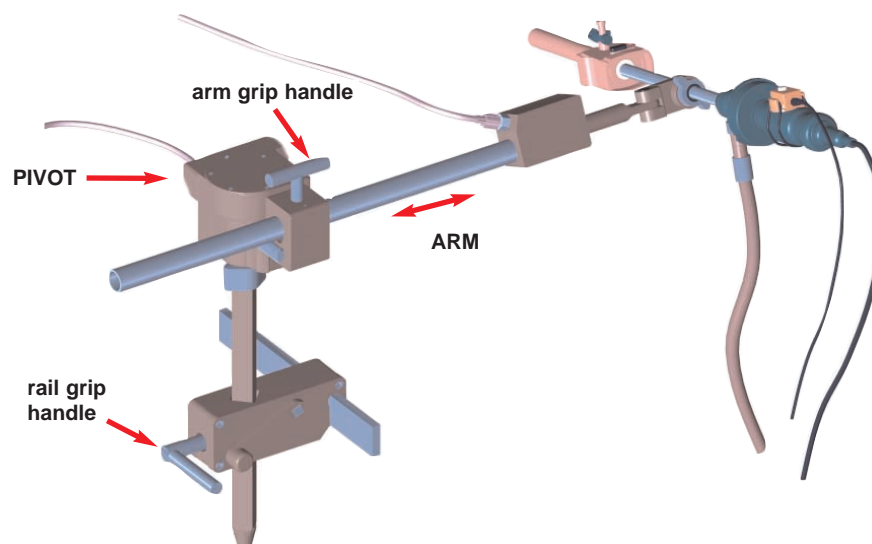


Caution: Remove the scope from the cannula prior to making the following adjustments.

To re-set the pivot height, firmly hold the pivot, loosen the rail grip handle and adjust the pivot height. Tighten the rail grip handle.

If the Holder must be re-positioned along the rail, it may be necessary to detach the pivot and upright from the rail grip.

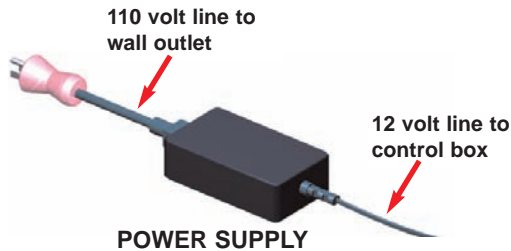
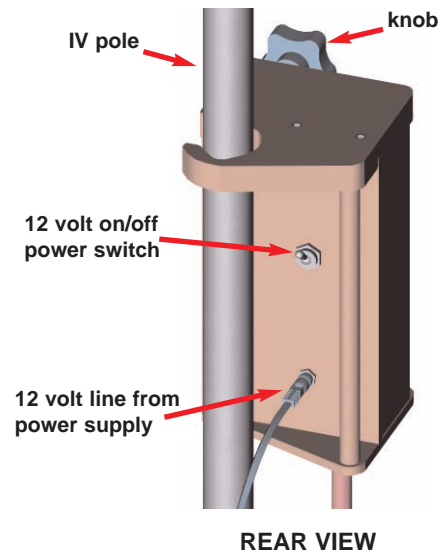
The **Holder is now ready for use.**



Setting up the Electronic Control Box

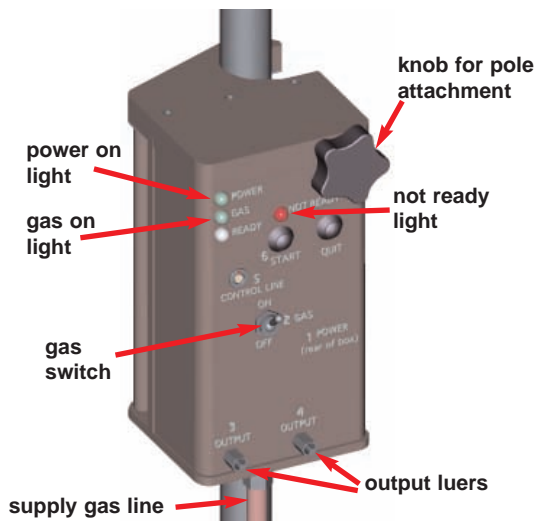
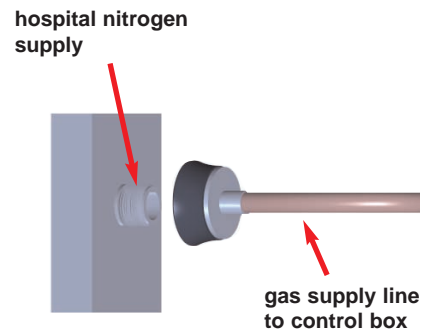
1. **Attach the control box** to the lower section of an **IV (intravenous) pole**. **Tighten the knob** at the front of the box.
2. **Position the pole** close to the operating table, but allow clearance for the operating crew.
3. **Plug in the 110 volt line** of the power supply to a wall outlet, see second figure this page. **Use only the power supply provided by the manufacturer.**
4. **Plug in the 12 volt line** from the power supply to the back of the control box.
5. **Turn on the power switch.** The POWER ON light, on the front of the box should display green. The NOT READY light displays red to indicate that the set-up is not complete. See the bottom figure.

When POWER ON displays, gas will not flow from the output luer until the set-up is complete and START is pressed.



6. **Connect the gas supply line** from the control box to the hospital supply or a portable tank of nitrogen gas. Set the source output regulator at 130-150 psi.

Only nitrogen should be used because it is inert. Do not confuse nitrogen with nitrous oxide, an anesthetic gas.



7. **Turn on the gas switch.** The green GAS light displays and the red NOT READY light continues to display.

The control box **initial set-up is now completed.**

The two gas lines and the control will be connected to the control box later.

Option: The power and gas switches can be turned on after the gas lines and control have been joined to the Holder. It will still be necessary to press START.

Attaching the Non-sterile Holder Components

1. **Select the location to join the rail grip to the side rail** of the operating table. Avoid placing the rail grip over notches in the rail. The Holder should be located away from the area of the surgery but the arm must reach to the scope cannula so the scope can be fully inserted.

2. **Rotate the rail grip handle counter-clockwise** as far as it can be rotated.

3. **Pull up on the side handle and place the rail grip on the rail.**

The upright must not be joined to the rail grip during this step.

The rail grip handle will be tightened later.

Note: Some operating table rails are loose and should be tightened.

For better performance, between procedures occasionally immerse this part in solutions that contain lubricants.

4. **Place the pivot with attached upright into the rail grip.** The square upright can be rotated to any of the four possible positions.

5. **Set the height of the pivot** so the arm, not yet attached, will clear the patient and have the range required for the procedure. Five centimeter index marks on the upright can be used as a guide to set the height. This setting can be changed during the procedure by loosening the rail grip handle.

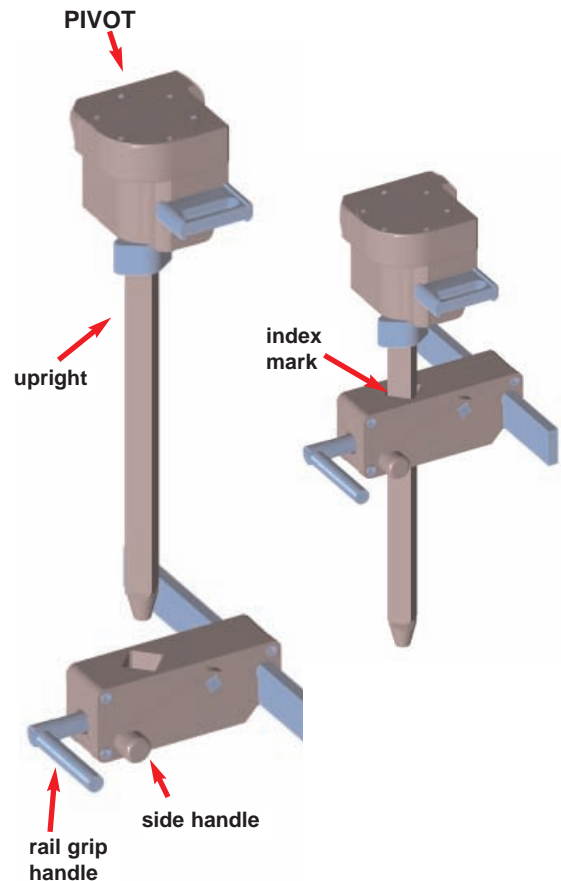
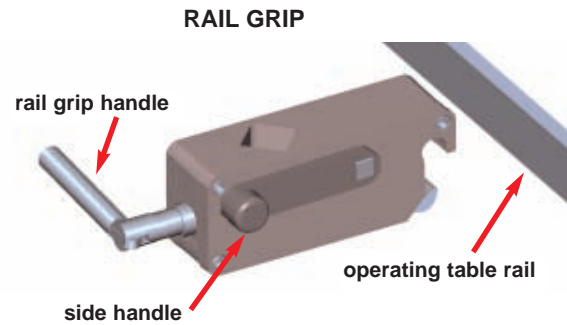
6. **Tighten the rail grip handle.** Test this connection for looseness by pulling the pivot sideways, away from the table. If this connection is loose, the scope will not be properly held by the Holder.

To re-position the Holder along the rail, loosen the rail grip handle, pull up on the side handle and slide the rail grip to the new location. It may be necessary to detach the upright and pivot from the rail grip to make this change.

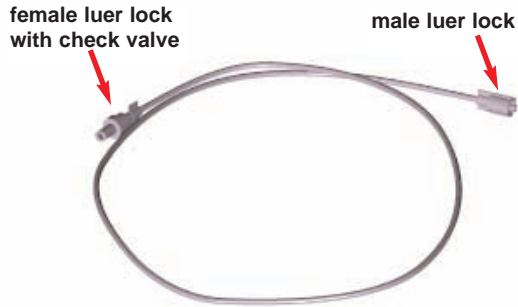
Caution: Support the pivot and upright during this maneuver, and also when changing the height setting, so they do not slide downward.

Note: If QUIT were not pressed after the last procedure, the pivot may be locked by gas. To loosen the pivot press the pin in the center of the luer with a small instrument.

Reverse steps 2 to 6 to remove these components. It may not be necessary to remove these components between procedures if they do not interfere with patient transfer.



Attaching the First Flexible Gas Line



two required

The two flexible, high pressure gas lines are supplied sterile and accommodate the gas pressure required. They fit between the control box and the Holder. Both lines are the same and have a male luer lock on the Holder end and a female luer lock and check valve on the Control box end.

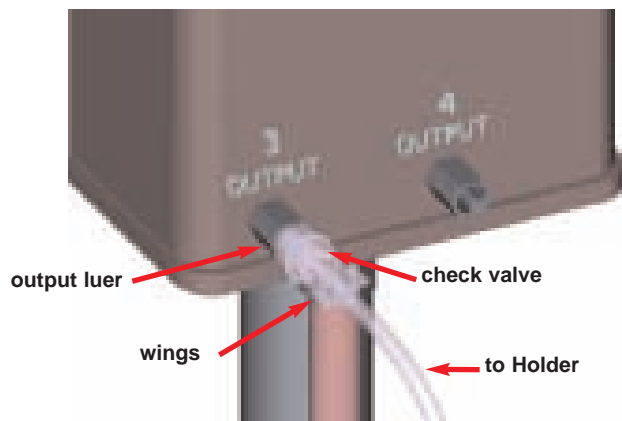
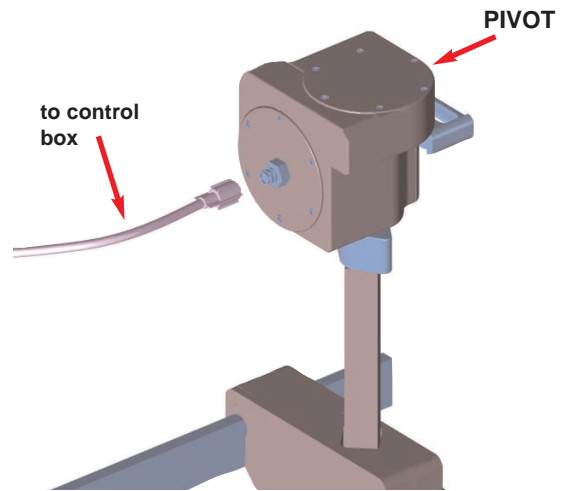
The line to the main pivot can be attached prior to draping and the line to the arm attached after the drape covers the main pivot.

The lines should not be re-used because of damage that may occur when the plastic luers of the lines are joined to the metal luers of the Holder and Control box. Other types of lines should not be substituted for these lines.

The check valve prevents the arm from unwanted movement if a line becomes inadvertently detached.

1. Join the male end of the first line to the luer on the side of the main pivot.

Rotate the luer connector of the line until firm resistance is felt. Make sure this connection and all others are secure.



2. Join the end with the female luer and check valve to either output luer of the control box.

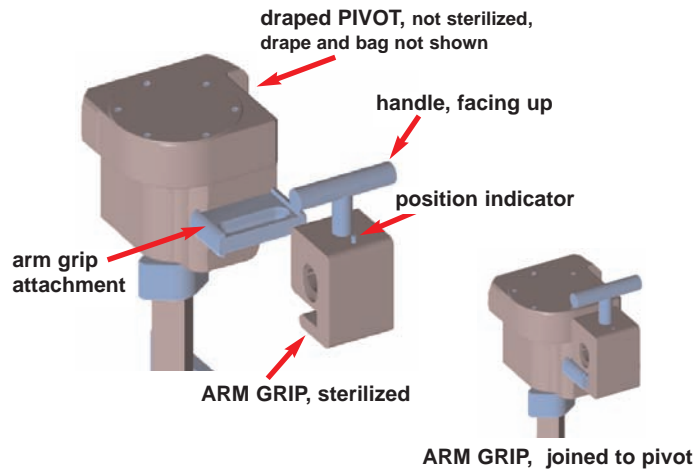
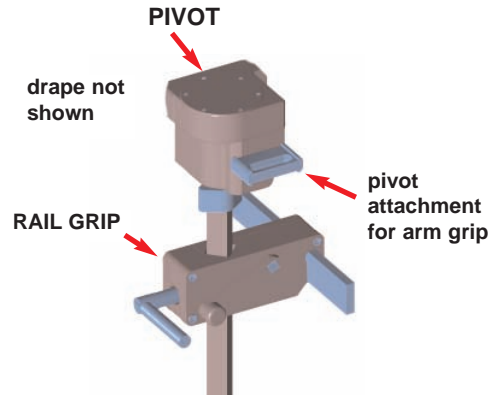
Attach this end by grasping the round check valve, not the wings that are immediately behind the valve.

Attaching the Sterile Holder Components

1. Cover the pivot with a clear plastic bag. A soft drape can be used if a bag is not available. The bag allows easy visualization of the pivot attachment during future steps.

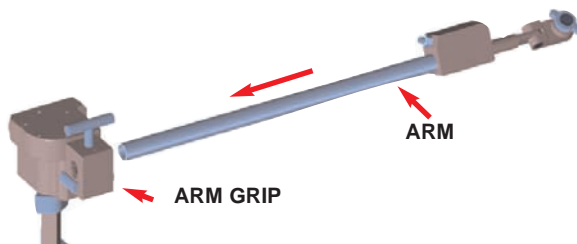
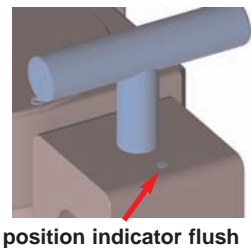
2. Cover the patient, upright and rail grip with a sterile drape.

The drape and bag are not shown for clarity.



3. Rotate the handle as far as possible counterclockwise. Join the sterilized arm grip over the covered pivot attachment. The handle should face upward. "UP" is displayed on one edge of the arm grip.

4. Rotate the handle clockwise, until the position indicator is flush with the top surface of the arm grip.

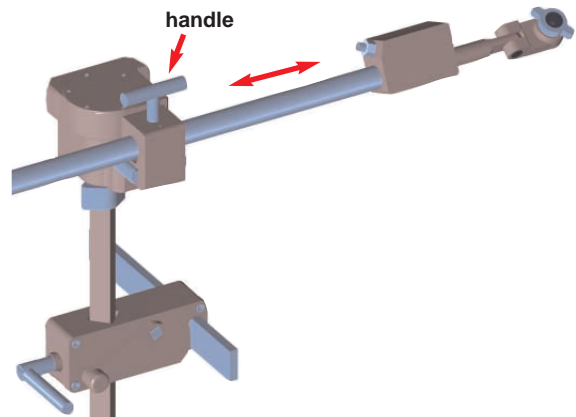


5. Slide the sterilized arm into the arm grip.

6. **Position the arm** in the arm grip so the scope will have the required side to side movement range. This setting can be changed during the procedure, if necessary.

7. Firmly **tighten the arm grip handle**.

To remove these components, reverse these steps.



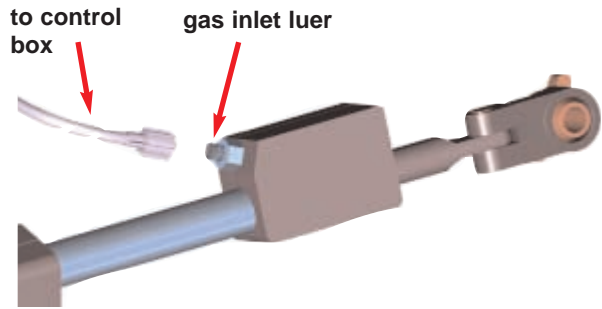
Attaching the Second Flexible Gas Line

1. **Attach the male luer of the second line** to the luer of the arm.

Be sure this connection is secure.

2. **Attach the female luer to the remaining luer connection** of the control box. See bottom figure.

This line is kept sterile, except for the end that is attached to the control box.

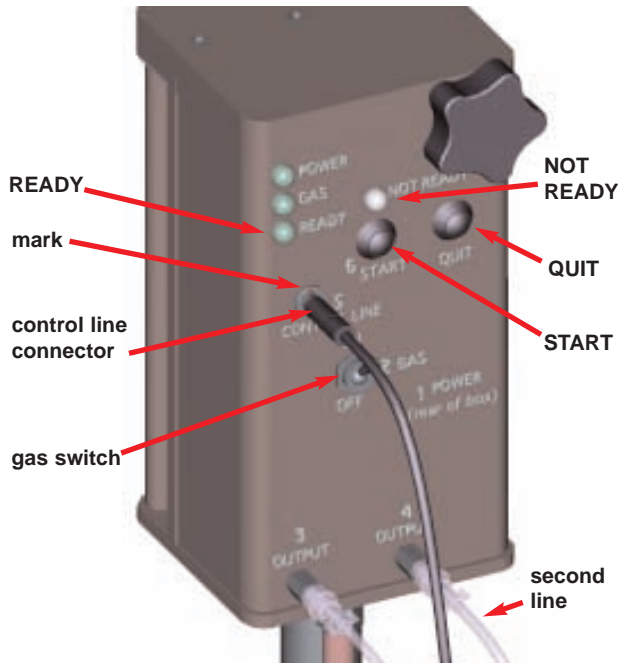
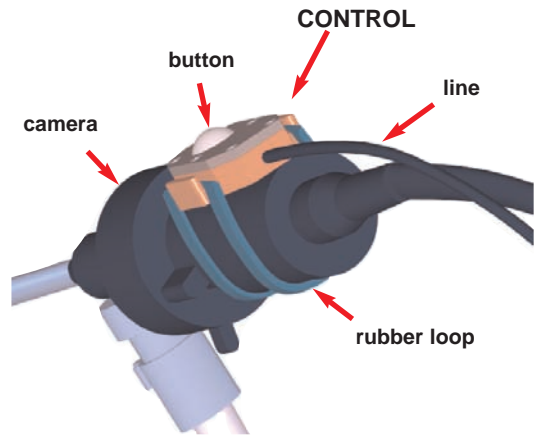


Attaching the Control

1. **Use the rubber loop to attach the control to the camera.** Position the control on top of the camera with the line pointed away from the scope. This position will allow access to the camera focus control.

The loop fits over one ear of the control, around the camera and over the ear on the opposite side.

If access to camera buttons is required, the control may be positioned on the side of the camera.



2. Remove the cover for the control line connector, see first figure page 12.

3. Align the red mark of the line connector to the red mark on the control box fitting and push the connector straight into the box fitting. Do not rotate the connector

Note: Pull on the leading edge of the connector, not the line, when disconnecting the control line from the control box.

4. Press START. The red NOT READY light no longer displays. The green READY light displays along with the green POWER and GAS lights. The Holder is now ready for use.

At the end of the procedure press QUIT to release the Holder joints prior to Holder disassembly. If this step is not performed, the joints will remain locked. The NOT READY light display red and the READY and GAS lights quit displaying.

Removing the Holder

After each procedure:

1. **Release the wing grip.** See first figure page 4. **Press the control button and pull the scope from the cannula and the scope grip.**

2. **Hold the arm so it cannot fall and press QUIT on the control box to release the Holder joints,** see bottom figure, page 9.

3. When the NOT READY light displays, **detach** one or both **gas lines** from the Holder and control box.

Note: The gas line to the pivot may be left attached for the next procedure if the Holder does not interfere with patient transfer.

4. **Detach the control from the camera and the control line connector from the control box,** see second and third figures, page 9.

5. **Loosen the arm grip and remove the arm.** See third figure, page 8.

6. **Further loosen the arm grip handle until the arm grip can be removed** from its attachment to the pivot. See second figure, page 8.

If this is the last procedure, or the Holder interferes with patient transfer, continue with the following steps.

7. **Support the pivot, release the rail grip handle and pull up to detach the pivot and upright from the rail grip.** See second figure, page 6.

8. **Pull up on the side handle of the rail grip and remove the rail grip.** See first figure, page 6.

After each procedure and after the last procedure:

1. **Turn off the gas switch** on the control box. See bottom figure, page 5.

2. **Turn off the power.** See first figure, page 5.

If this is the last procedure:

Disconnect the power transformer and supply gas line from the wall.

Removing the Holder should Lock-up Occur

1. **Release the scope wing grip and remove the scope.**

2. **Turn off the gas switch.**

3. **Disconnect the flexible line from the arm luer.**

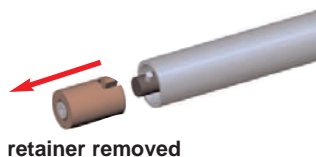
4. **Release the arm grip and remove the arm.** Under some circumstances it may be necessary to remove the arm grip with the arm.

After the procedure is finished, remove the remaining components.

Removing the Inner Rod

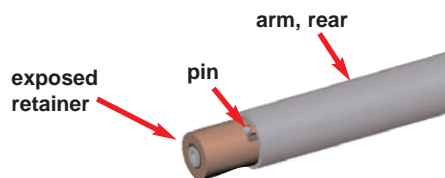
If the user prefers, the Arm can be disassembled for cleaning and sterilization. It can be reassembled just prior to use.

1. **Push the inner rod rearward in the arm to expose the retainer.**



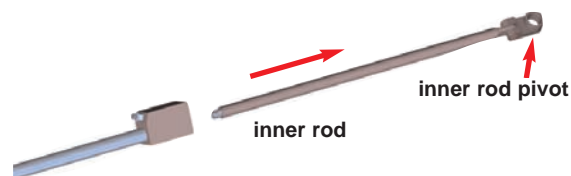
3. **Pull the inner rod from the front end of the arm.**

To re-assemble reverse these steps. Be sure the pin is located in the short longitudinal groove.

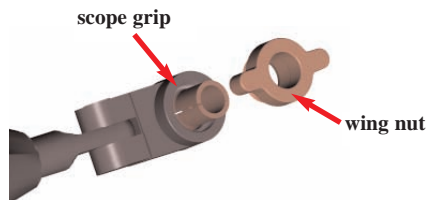


2. **Push and rotate the retainer counterclockwise to disengage it from the inner rod.**

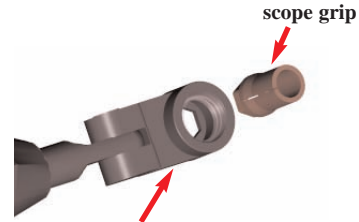
Pull to remove the retainer.



Disassembling and Reassembling the Scope Grip



1. Remove the wing nut.



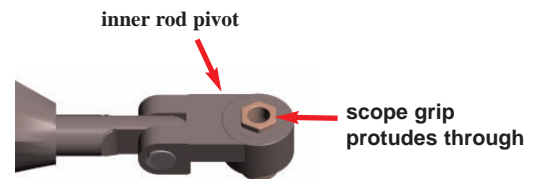
2. Remove the scope grip.

3. Clean the components according to previous instructions.

Reassembling the Scope Grip:

1. Insert the scope grip into the inner rod pivot. The scope grip can be rotated to any position. **Be sure the scope grip protrudes through the opposite surface of the inner rod pivot.**

2. Join the wing nut to the inner rod pivot over the scope grip. See first figure this page.



Cleaning and Sterilizing Components

The Arm Assembly

Special attention must be given to cleaning the arm assembly because it attaches to the scope.

1. Use **enzymatic detergent**, which is protein solubilizing, safe for use with metal instruments, and prepared according to the manufacture's recommendations.
2. **Soak the complete arm assembly** for five minutes.
3. **Agitate, and scrub the submerged assembly** with a soft bristled brush. Scrub internal channels with a small cytology brush. Maneuver movable parts to loosen trapped soil.
4. **Rinse the assembly** with warm tap water at 38-49° C.

5. **Agitate the assembly by hand** for at least one minute in a bath of warm water at 38-49° C.

6. **Repeat steps 4 and 5 two additional times.**
7. **Rinse the assembly** with clean tap water for at least one minute.
8. **Dry the exterior of the assembly** with a clean, lint free cloth.

Note: If QUIT were not pressed prior to detaching the flexible gas line, the inner rod may be locked by gas. To unlock the inner rod press the pin in the luer with a small instrument.

Cleaning and Sterilizing the Control

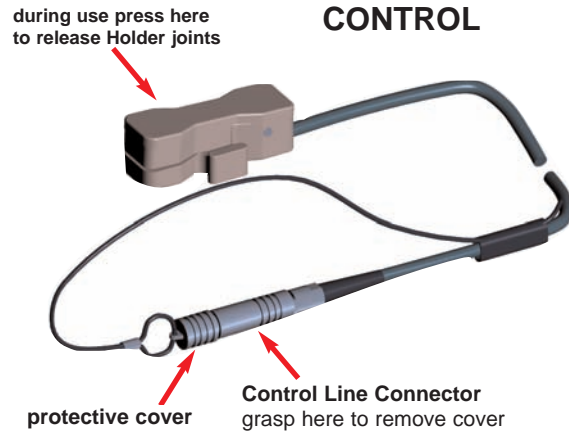
1. **Attach the protective cover to the control line connector.** This will prevent moisture from contacting the pins of the electrical connection. When separating the cover from the rest of the connector, grasp the connector near the cover.

2. **Clean** the control, line and connector of any visible contamination.

The Control can be sterilized with the other components requiring sterilization.

Note: The camera mounted control shown here replaces all other camera mounted controls.

It can be steam autoclaved multiple times.

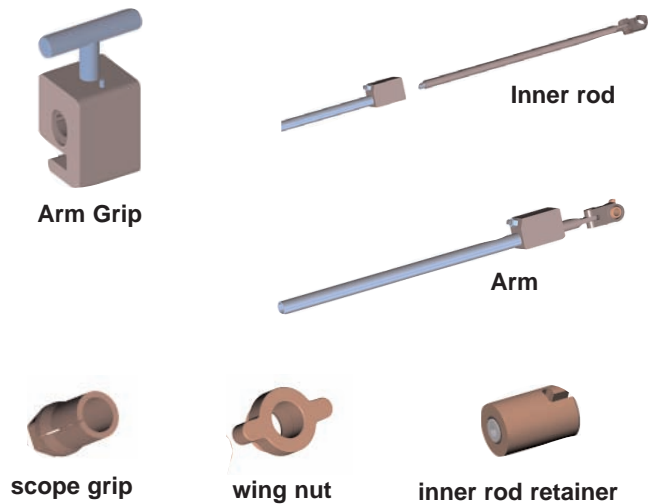


Sterilizing the Arm Grip and Arm Assembly

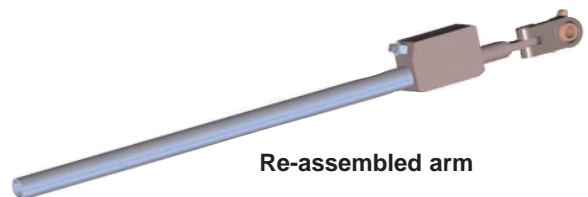
1. **Steam autoclave** the arm grip, the arm components and the control at 270° F. for 10 minutes at 30 psi. If the user chooses, the arm can be assembled prior to sterilization.

It is not necessary to sterilize the remaining components if they will be covered by a drape or a bag. However, all Holder components can be immersed in liquids and steam autoclaved.

The flexible gas lines and rubber loop strap for the control are supplied sterile and are disposable. The gas lines cannot be steam autoclaved. The rubber loop can be steam autoclaved.



2. Re-assemble the arm according to previous instructions.

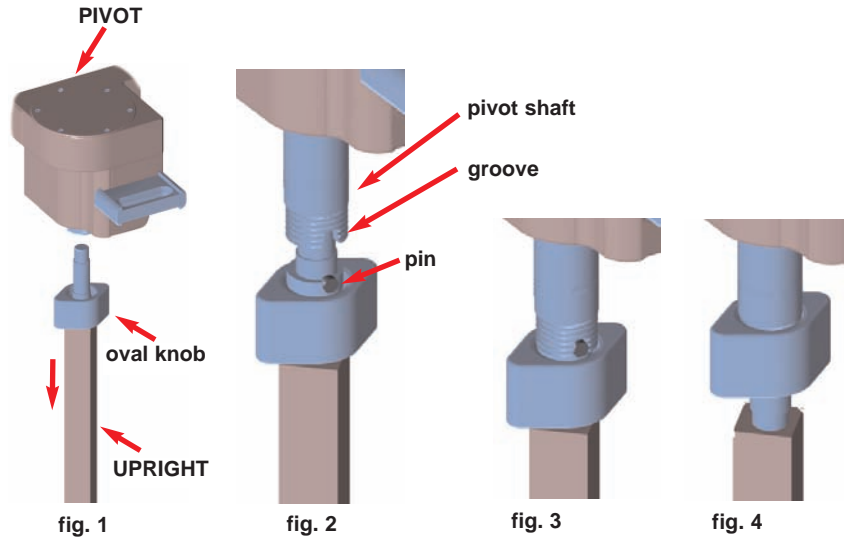


Detaching and Re-attaching the Upright to the Pivot

As an option, the upright may be detached from the pivot assembly. This aids in cleaning and allows both components to fit into sterilizer trays, if they are to be sterilized.

1. To detach the upright, loosen the oval knob and pull the upright from the bottom of the pivot, fig. 1
2. When attaching the upright, align the cross pin with the notches in the bottom of the pivot shaft, fig. 2.
3. Advance the oval knob to the thread of the pivot shaft and join the upright, fig. 3.
4. Hold the upright to keep from rotating and firmly tighten the oval knob, fig 4.

Note: Uprights of other lengths or shapes may be substituted when needed.



To Order:

1. **KSH-4 Kronner Low Profile Scope Holder**, for abdominal and thoracic surgery
Includes Holder assembly, remote control that attaches to camera, electronic control box, with cord for wall connection
2. **HPL2-CRL High pressure flexible line set**, for abdominal and thoracic surgery
each set includes two 8 ft. flexible gas lines with attached luer lock fittings and check valves, and one rubber loop for the control
3. **K-1000 Control**, Second control provides backup
4. **K-2600 Foot Pedal Control**
4. **KSA-1 Storage Accessory**, attaches to iv pole and holds non-sterile components between use.
5. **KST-1 Sterilizer tray**, holds components that require sterilization

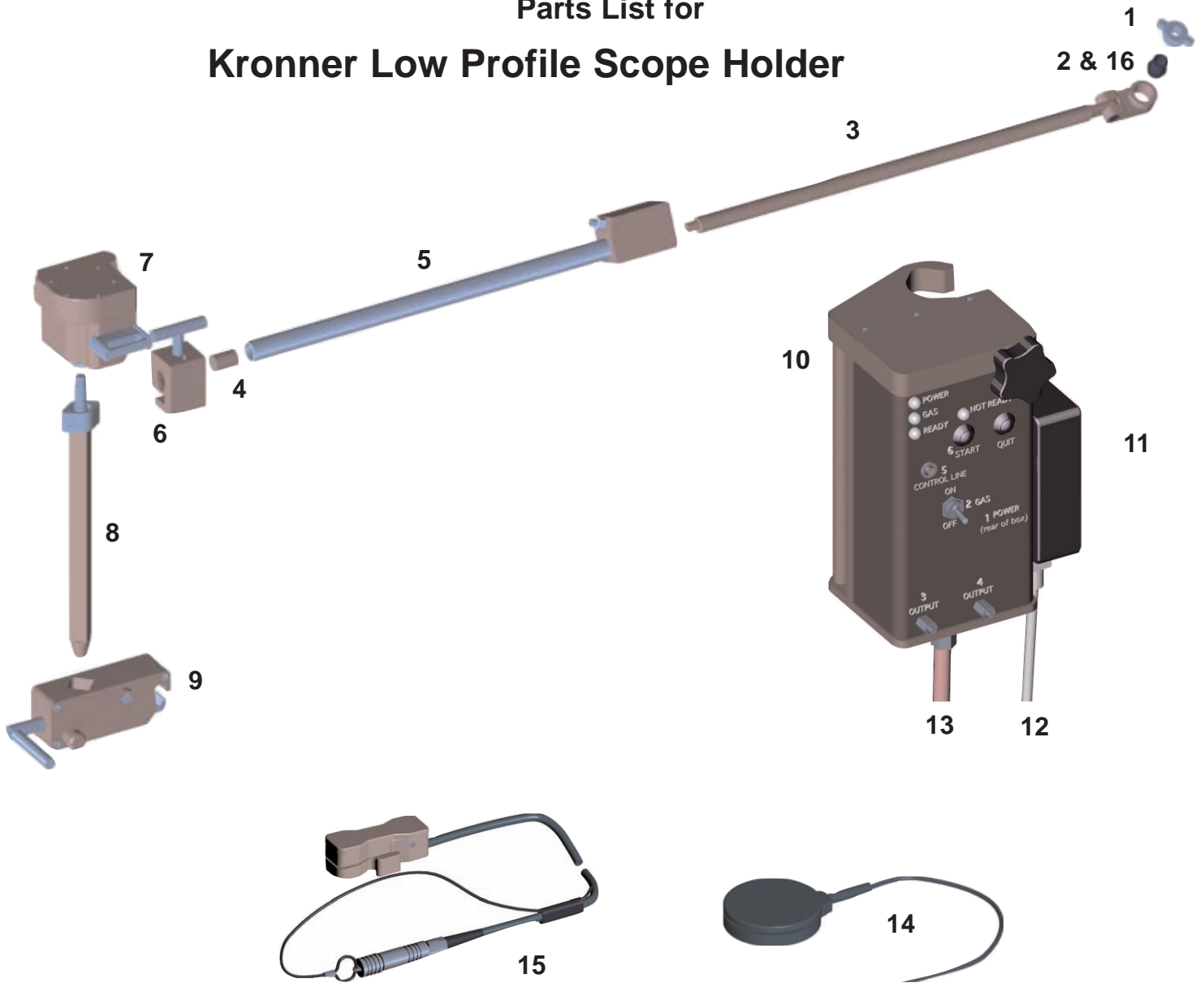
Warranty: Two years parts and labor

Caution: Federal law restricts this device to sale by or on the order of a physician.

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E-mail: kronner@rosenet.net Website: www.kronner.com

*U.S. Patent No. 5,957,423

Parts List for Kronner Low Profile Scope Holder



1. Kronner 503
2. Kronner 502
3. Kronner 500
4. Kronner 515
5. Kronner 400
6. Kronner 3100
7. Kronner 3000
8. Kronner 3200
9. Kronner 100
10. Kronner 1100
11. Ault Power supply SW172
12. Kronner 1107
13. Kronner 1130
14. Kronner 2600
15. Kronner 1000
16. Kronner 510

1. Wing Nut
2. Scope Grip, collet 10 mm, square end
3. Inner Rod for collet scope grip
4. Inner Rod Retainer
5. Outer Arm
6. Arm Grip
7. Main Pivot, two axis
8. Upright, length, 15 inches
9. Rail Grip
10. Control box, pole mounted
11. Power Supply, 110 volt
12. 110 volt Power supply cord
13. Nitrogen Gas Supply Line
14. Control, Foot Pedal
15. Control, camera mounted
16. Scope Grip, 5 mm, square end

set wall nitrogen pressure
140-150 PSI