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support  
services, inc.**

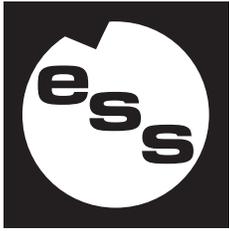
®

# ESS CL-8600

**SELF-CONTAINED ENDOSCOPIC CAMERA / LIGHT SOURCE**



# USER MANUAL



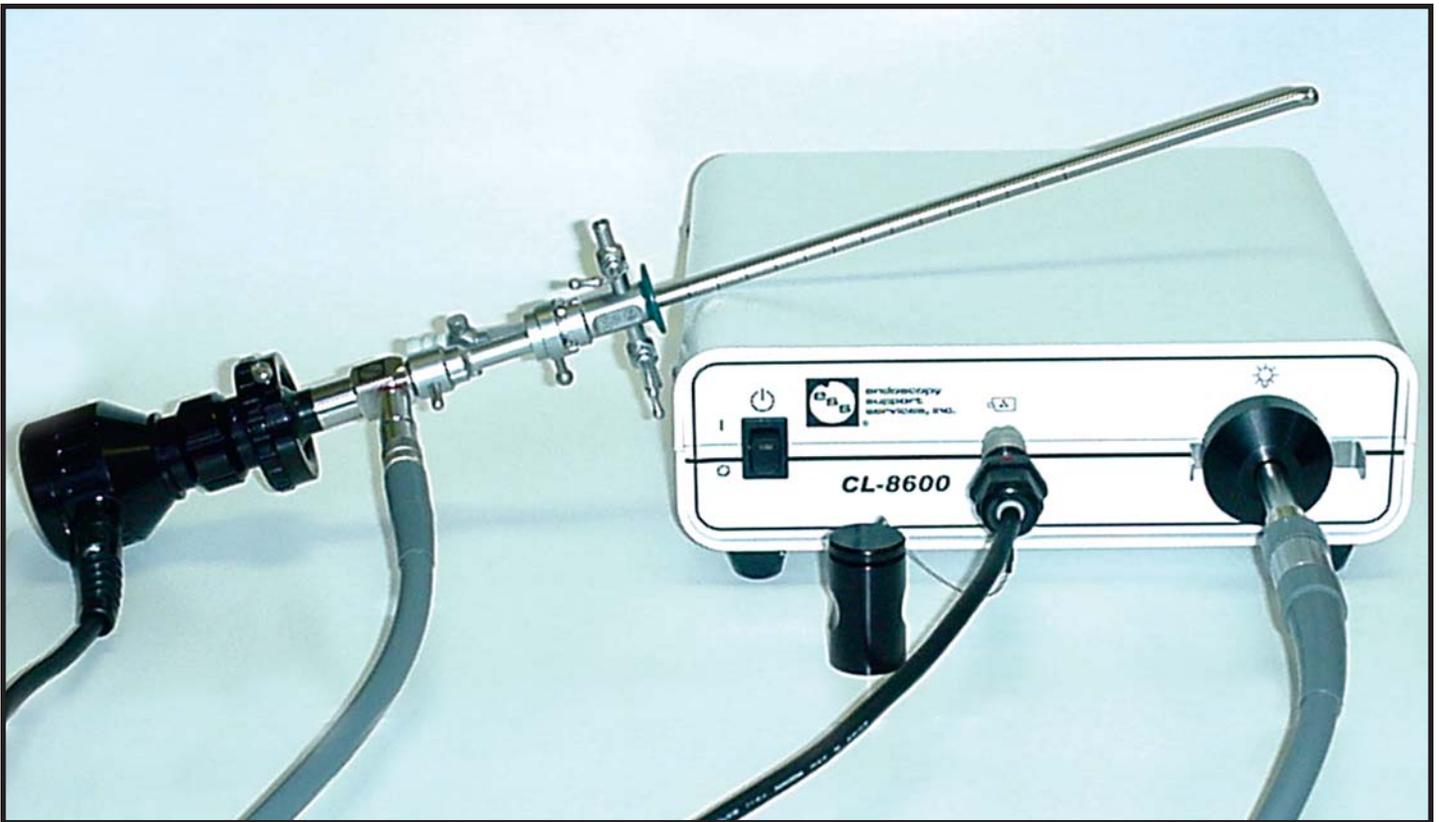
**endoscopy  
support  
services, inc.**

®

*Thank you for choosing the*

# **ESS CL-8600**

## **Camera & Light Source Combination Unit**



Please read through this operating manual to familiarize yourself with the use and care of the camera/light source system. Start by taking inventory of the components that are included with the product as listed on the Unpacking page in the manual. Any damaged/missing components, or questions regarding repairs, please contact ESS, Inc. immediately using the contact information at the back of this manual.

*~ Thank you*

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## Indications For Use

The ESS CL-8600 Self-contained Camera/Light Source illuminates the operative site and provides video images that can be displayed on a video monitor. It is designed for attachment to all forms of endoscopes for surgical and clinical procedures.

## Notice

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

## Precautions & Warnings



ATTENTION, CONSULT  
ACCOMPANYING DOCUMENTS



MEDICAL  
ELECTRICAL  
EQUIPMENT  
81 MF

WITH RESPECT TO ELECTRIC SHOCK, FIRE AND  
MECHANICAL HAZARDS ONLY IN ACCORDANCE  
WITH UL 2601-1 AND CAN/CSA C22.2 NO. 601.1



CLASS I TYPE BF EQUIPMENT



CAUTION: HOT SURFACE

Caution: Provide adequate ventilation to prevent overheating. DO NOT DRAPE THIS LIGHT SOURCE/POWER SUPPLY.

Caution: When replacing the lamp use extreme caution. LAMP MAY BE HOT.

Caution: Lamp must be allowed to cool 10 - 15 seconds prior to restarting the unit.

Caution: The lightsource creates high temperatures and bright light. To minimize injury risk, AVOID DIRECT VIEWING OF LIGHT SOURCE LIGHT OUTPUT.

EXPLOSION HAZARD: Do not use in the presence of flammable anesthetics.

IT IS RECOMMENDED THAT A SPARE LAMP (MC-1824) BE ON HAND IN CASE OF LAMP FAILURE.

Do not use or store liquids above or on the light source/power supply. The CL-8600 self-contained camera ONLY is rated IPX7 (protected against the effects of immersion).



**CAUTION: SHOCK HAZARD**

CAUTION: POWER MUST BE DISCONNECTED PRIOR TO CHANGING FUSES

CAUTION: POTENTIAL SHOCK HAZARD IF OPERATED WITHOUT LAMP INSTALLED

ATTENTION: APPLIANCE INLET SERVES AS MAIN DISCONNECT DEVICE

IMPORTANT: THE S-VIDEO AND COMPOSITE CONNECTORS AT THE REAR PANEL OF THE LIGHT SOURCE / POWER SUPPLY MUST BE CONNECTED TO IEC 601-1 COMPLIANT ACCESSORY EQUIPMENT ONLY AND MUST BE CONFIGURED TO COMPLY WITH THE SYSTEM STANDARD IEC 601-1-1. IF IN DOUBT CONCERNING PROPER CONFIGURATION CONTACT ESS, INC. FOR ASSISTANCE

IMPORTANT: THIS DEVICE GENERATES INTERNAL RADIO FREQUENCY ENERGY AND IF OPERATED PROPERLY ACCORDING TO THESE INSTRUCTIONS, NORMALLY WILL NOT CAUSE HARMFUL INTERFERENCE TO OTHER NEARBY DEVICES. IF THIS DEVICE DOES CAUSE HARMFUL INTERFERENCE, (DETERMINED BY TURNING THIS DEVICE ON AND OFF), TRY THE FOLLOWING TO ELIMINATE SAME:

- MOVE, REPOSITION OR RELOCATE AFFECTED DEVICE
- POWER THIS DEVICE FROM A SEPARATE MAIN CIRCUIT
- CONTACT ESS, INC. IF INTERFERENCE PERSISTS

# Unpacking

Please make sure that you have received the following items packaged with this manual:

1) ESS CL-8600 Video/Light Source Combo Unit



2) Self-Contained Camera Unit



3) Light Guide Cable



4) Endocoupler



5) S-Video Cable

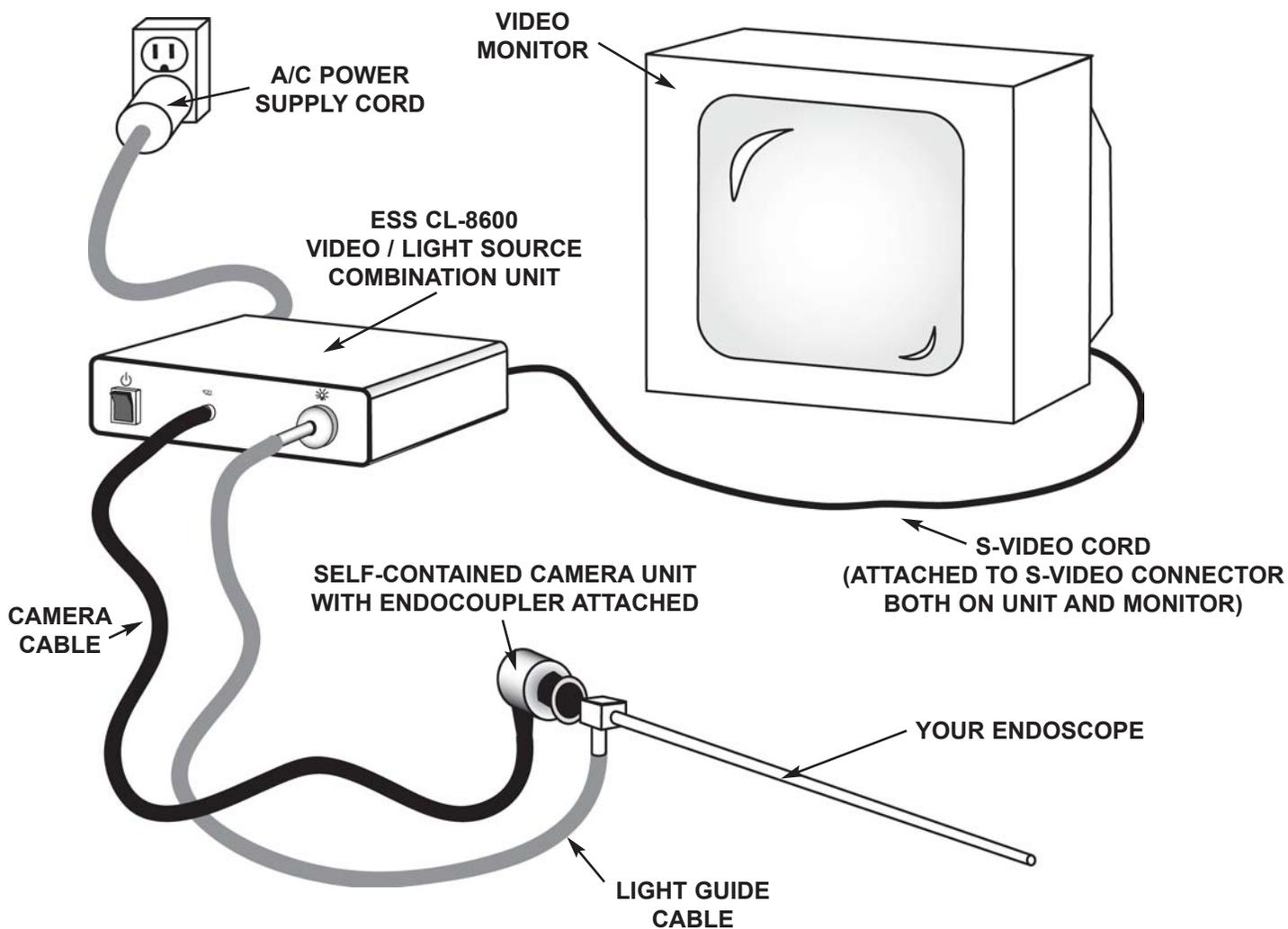


6) A/C Power Supply Cord



# System Connection Diagram

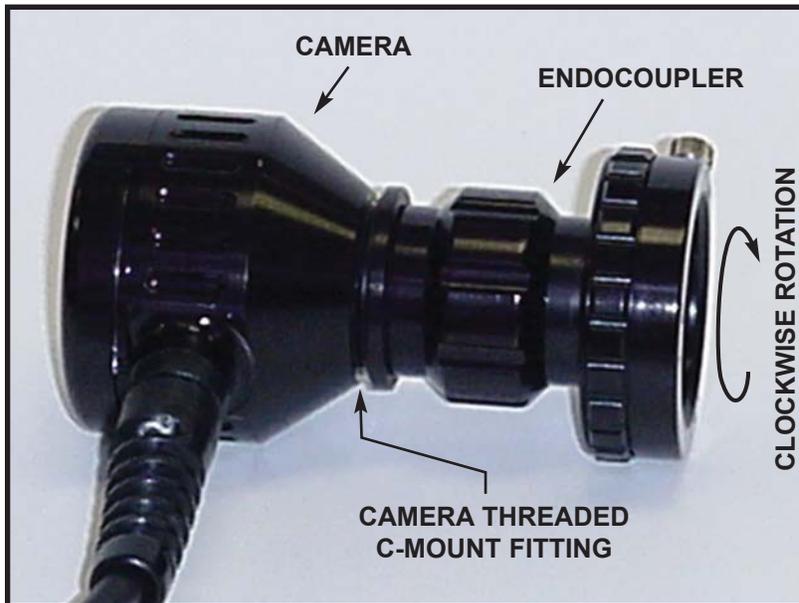
Below is a diagram of how the system is assembled. For more complete instructions, please refer to the ASSEMBLY section of this manual which gives a step-by-step process of connecting the system.



# Assembly

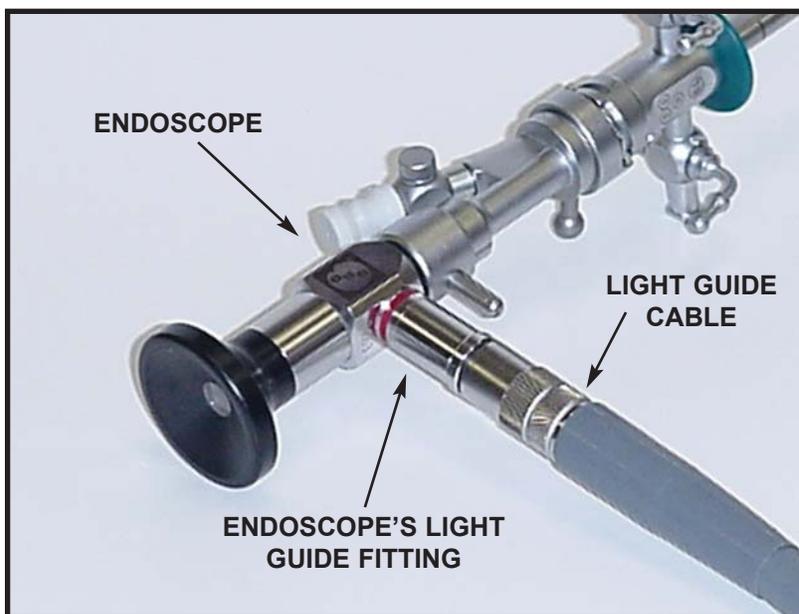
## Camera / Endocoupler

Screw the male threaded endocoupler into the threaded female c-mount fitting of the self-contained camera. Care should be taken to avoid cross threading in this connection. Threading is done in a clockwise direction:



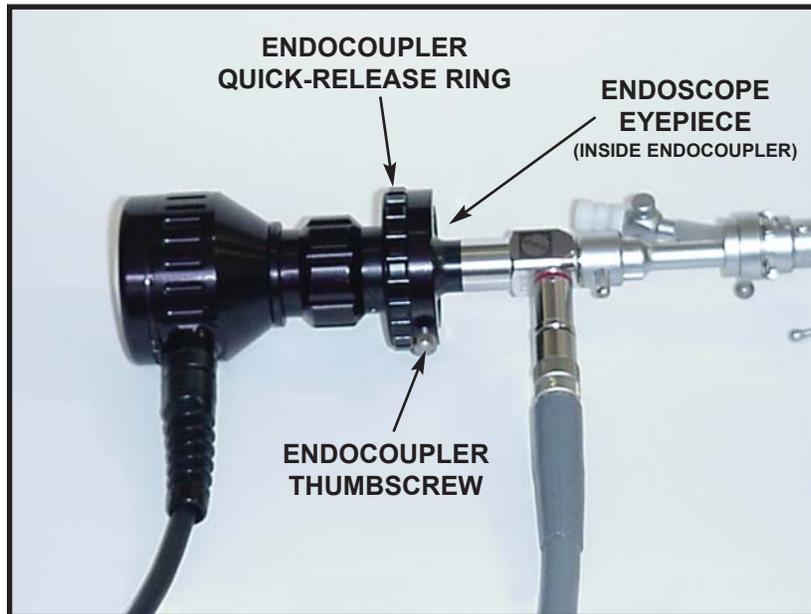
## Light Guide Cable / Endoscope

Thread or clip the light guide cable into the endoscope's light guide fitting (NOTE: the light guide cable's light guide fitting coupler is different depending on the scope used. The endoscope being used should have been specified when ordering the unit. Any problems, contact ESS, Inc.)



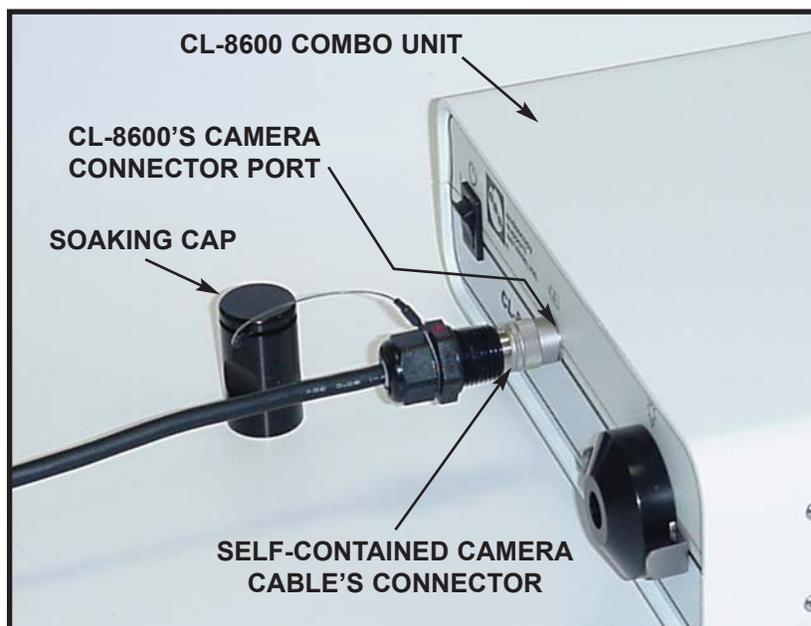
## Endocoupler To Endoscope Connection

If not already done, back out the thumb screw on the endocoupler in a counter-clockwise direction. With the thumbscrew backed out, rotate the quick-release ring on the endocoupler clockwise and insert the endoscope's eyepiece into the endocoupler. Release the ring and tighten thumbscrew finger tight (NOTE: do not over-tighten the thumbscrew for it may cause damage to the threads in the coupler, the thumbscrew, and/or to the eyepiece of your endoscope).



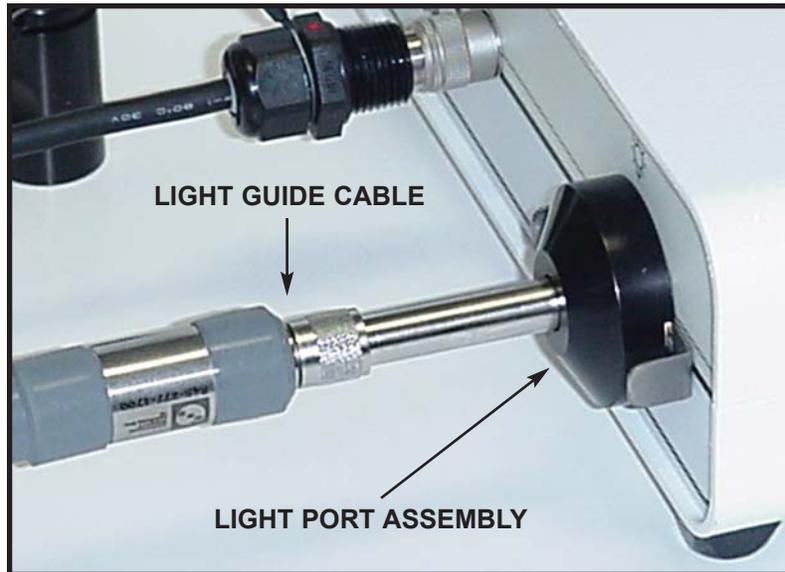
## Connecting The Camera To The CL-8600 Combo Unit

Remove the soaking cap from the self-contained camera cable's connector and align the metal notches in the cable's male pin connector to the notches in the camera connector port on the CL-8600's front panel; then push on to connect. The connectors will audibly click when mating into place.



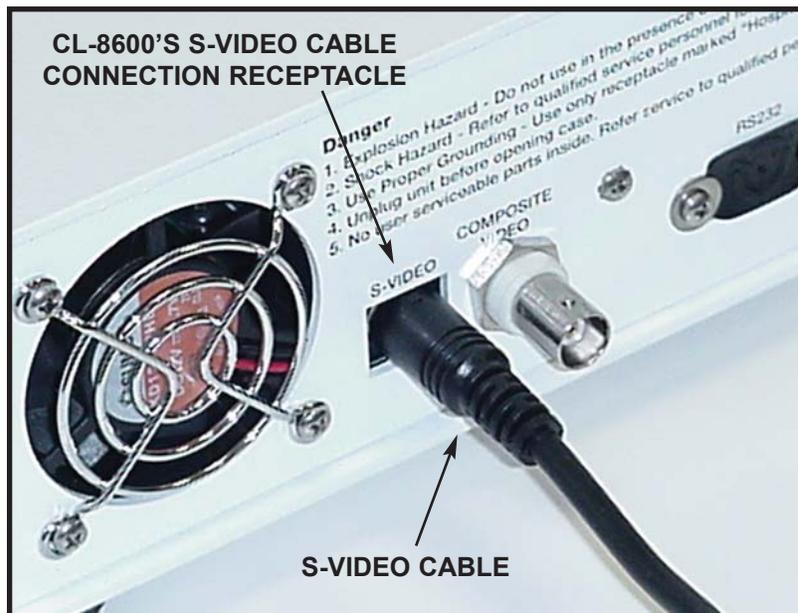
## Connecting The Light Guide Cable To Unit

Insert the light guide cable into the light port assembly on the front of the unit. A proper connection will be accompanied by a noticeable engagement “click.” Push firmly, but be careful not to put too much force so as to bend or break the tip or the light port assembly.



## Connecting The S-Video Cable To The CL-8600

Align the arrow on the S-Video Cable with the top of the S-Video receptacle on the rear panel of the CL-8600 and insert. Connect opposite end to a suitable video monitor accepting S-Video signals (NOTE: in lieu of an S-Video compatible monitor, the composite video connector can be used. Composite video cable is **not** included.)



## Attach The Power Supply Cord To The Unit

Attach the A/C Power Supply Cord to the back of the unit. Then, plug the cord into an A/C power source (NOTE: be careful not to bend any of the plug's pins. If cord is broken, worn, or has exposed wires, do not use.)

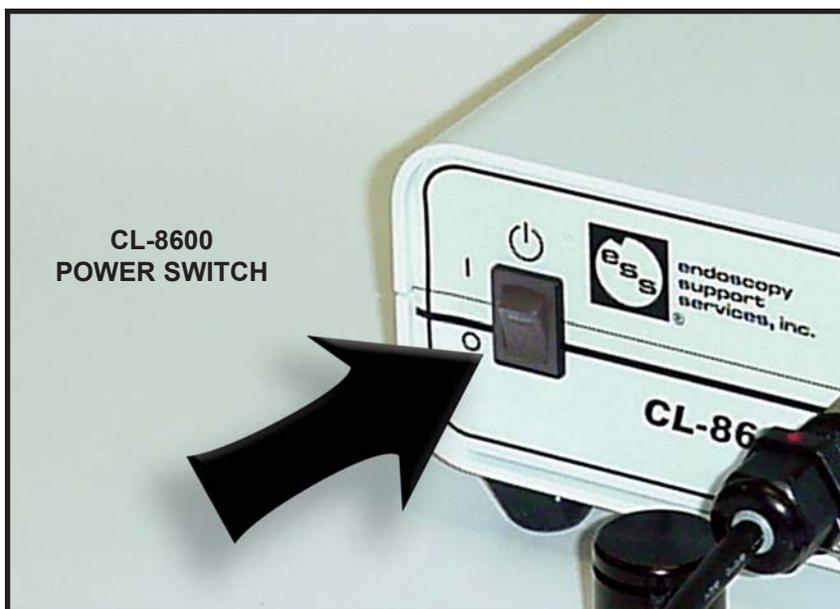


... you are now ready to start using your camera/light source

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## System Operation

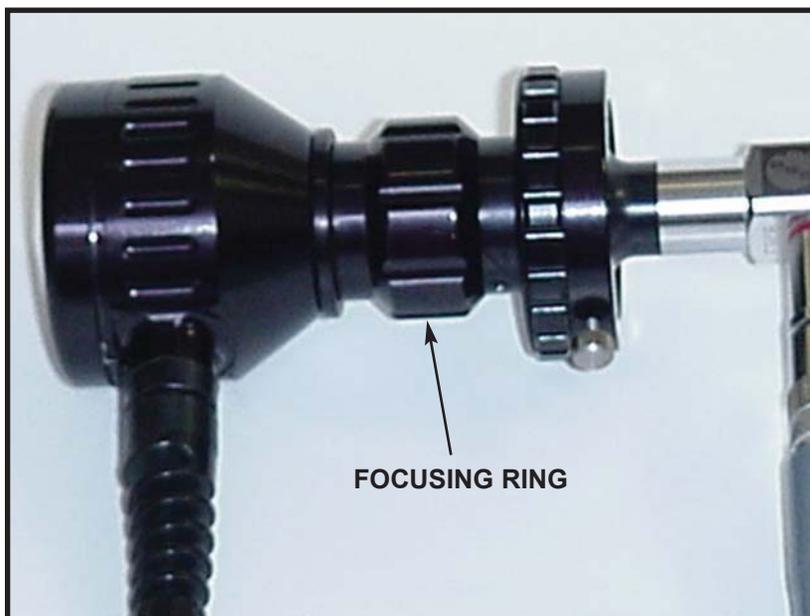
This camera/light source combination provides the means for acquiring a well-lit, high-resolution image for use in all endoscopic surgical and clinical procedures. Automatic camera adjustments for white balance and shutter speed, and the manual light output adjustment, allow this camera/light source combination to work effectively over a wide range of endoscope diameters and types. The automatic features of this system allow the operator to simply assemble the components, apply power with the front panel power switch and commence the procedure after two simple manual adjustments (detailed on next page.)



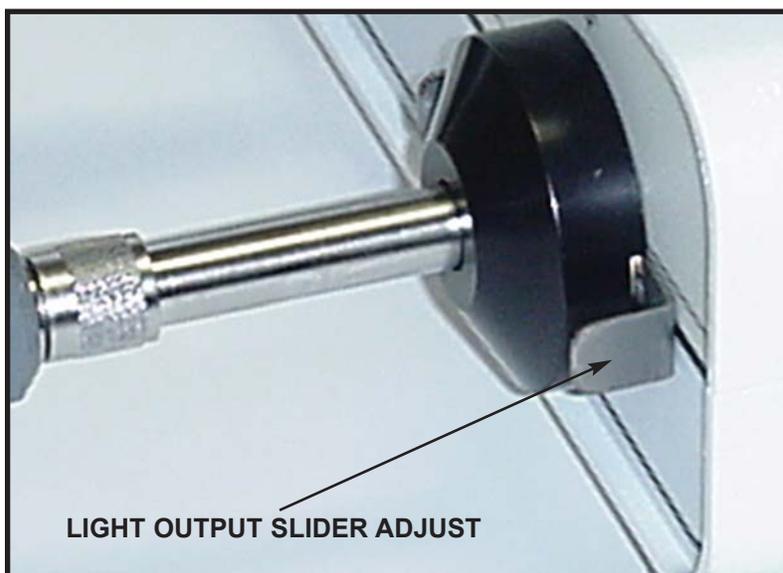
# System Adjustments

The image focus is adjusted with the focus ring on the endocoupler and image brightness with the light output slider adjust on the light source/power supply. Both adjustments are shown in the following photographs:

## Focus Adjustment - Focusing Ring



## Light Adjustment - Light Output Slider Adjust



# Cleaning

Turn off the power on the light source/ power supply and unplug the power cord from the receptacle in rear of the unit. Unplug the self-contained camera, s-video, and the light cables from the light source/power supply.

All external surfaces on the light source/power supply may be cleaned by wiping the surfaces down with a cloth dampened with mild soap and water. DO NOT IMMERSE.

All external surfaces on the self-contained camera unit may be wiped down with a cloth dampened with mild soap and water. DO NOT IMMERSE UNLESS THE SELF-CONTAINED CAMERA IS A SOAKABLE MODEL. Allow to thoroughly dry. DO NOT RECONNECT WET.

The power and s-video cables may be wiped down with a cloth dampened with mild soap and water. DO NOT IMMERSE. Allow to thoroughly dry. DO NOT RECONNECT WET.

DO NOT plug the power cable into the wall outlet until everything is thoroughly dry.

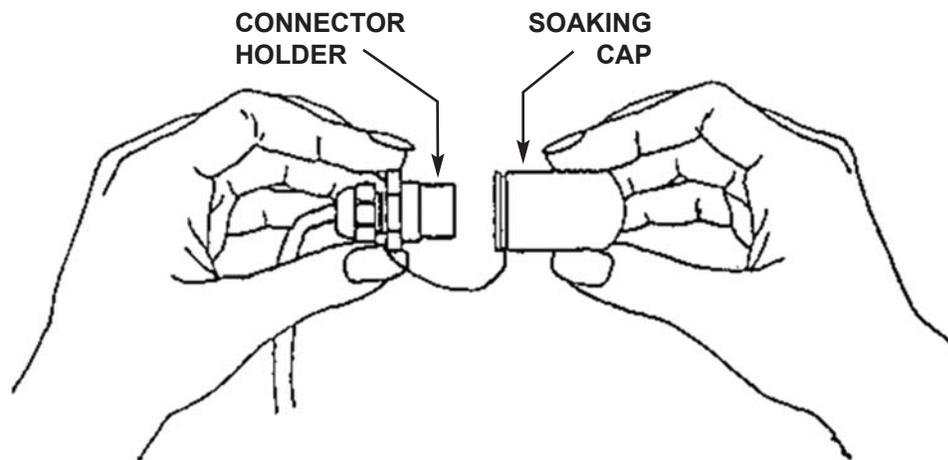
For the soakable self-contained camera and the light cable, cleaning can be accomplished with immersion. See **Soaking Instructions** on page 11

# Soaking Instructions

**These instructions apply to the SOAKABLE VERSION of the self-contained camera and the Light Guide Cable ONLY!**

1. Before soaking the self-contained camera and/or FO light cable:

- Neatly coil the camera cable and/or FO light cable
- Push the soaking cap onto the connector holder assembly until seated.



- Be certain the soakable endocoupler is securely tight on the self-contained camera.

2. Place the self-contained camera with endocoupler and/or FO light cable in an appropriate disinfecting solution for no longer than 30 minutes.

3. At the end of the soak cycle rinse while agitating in sterile water.

4. Thoroughly dry entire assembly with sterile wipe prior to connecting to rest of system.

5. Alternatives to soaking can be used with the self-contained camera and/or FO light cable, such as EtO gas sterilization and the Steris method. Follow the manufacturer's instruction to insure best results and not cause damage to the camera. **DO NOT AUTOCLAVE ANY PART OF THIS SYSTEM UNLESS INDICATED BY ENCLOSED DIRECTIONS FOR SPECIFIC PARTS!**

6. The above procedures do not guarantee disinfection or sterilization which can only be determined by the surgical staff when practicing recognized medical and/or surgical procedures for disinfection and sterilization.

**CAUTION! Should the self-contained camera be soaked without its soaking cap on or securely in place, do not apply power or connect to the video monitor until the camera connector is rinsed with isopropyl alcohol and blown out with warm air until dry.**

# Maintenance & Repair

Only qualified factory personnel may make electrical inspections and repairs of the CL-8600. Contact ESS, Inc. at 845.277.1700 if this unit experiences failures other than those in the troubleshooting section below.

## Troubleshooting:

**NOTE: The Lamp and the fuse are the only user-serviceable parts in the CL-8600.**

### 1. Lamp does not turn on

- Check all power connections to the light source/power supply.
- Turn power off for a minimum of 15 seconds, and re-try
- Bulb may be burned out. Follow bulb replacement procedure.

### 2. No Image on the Monitor

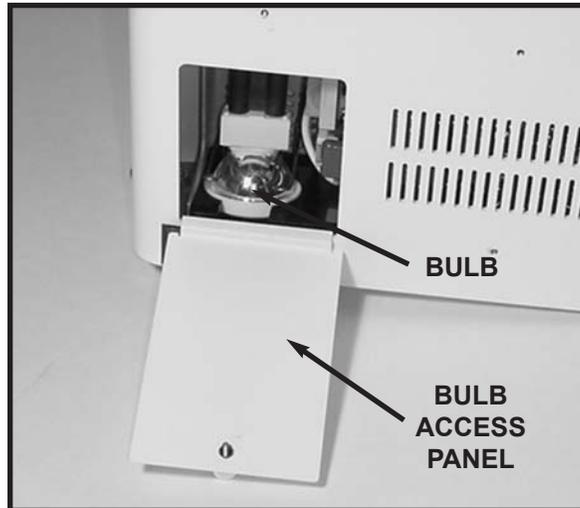
- Turn off power. Then check all video, power and light cable connections. Turn power back on. If problem persists call customer service at 845.277.1700

### 3. Unit does not turn on

- Check all power connections to the light source/power supply.
- Unplug unit and check fuses. Follow fuse replacement procedure to access fuses. Replace fuses if required. Plug unit back in and test.
- Make sure there is power coming from the wall socket - test it by plugging in a desk lamp or something that you know operates properly.
- If problem persists call customer service at 845.277.1700

## Bulb Replacement Procedure

Turn off unit with the switch on the front panel and unplug power cord. Allow system to cool down. **UNPLUG POWER CORD.** Unscrew thumbscrew on the bulb access panel and open door out at bottom of light source/power supply.



**CAUTION:  
HOT SURFACE**



**CAUTION:  
SHOCK  
HAZARD**

Extract by pulling back and then up. When pulling the bulb, apply force such that the angle of the lamp does not change. Failure to do this may result in the lamp not moving or becoming stuck.

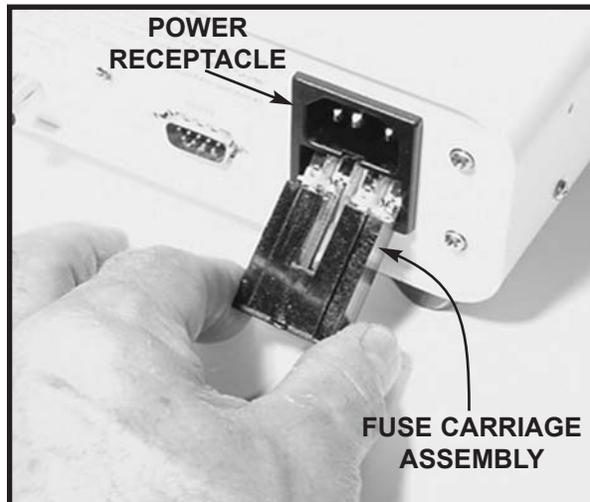


Use the above procedure in reverse order to insert the new bulb. When installing the new bulb, be sure to align the pin on the outer rim of the lamp with the groove in the mating hardware inside the unit.

## Fuse Replacement Procedure

**CAUTION: POWER MUST BE DISCONNECTED PRIOR TO CHANGING FUSES**

Use a small common screwdriver to separate fuse carriage assembly from power receptacle. Deflect plastic center tab in an outward direction to allow the fuse carriage to slide free of the plastic housing.



**CAUTION:  
SHOCK HAZARD**

Replace fuses (using 250V 2.5A AGC 1.25" X .25" or GMA 20mm X 5mm) and re-assemble



# Spare Parts

To obtain spare parts listed on this page or to request service, please contact **Endoscopy Support Services, Inc.** at **1-800-FIX-ENDO (800.349.3636)**

## Replacement Bulb

**BULB TYPE:** Metal Halide Arc Lamp

**PART NUMBER:** AL-1824



# System Features



SELF-CONTAINED CAMERA	LIGHT SOURCE/POWER SUPPLY
1/2" Super HAD CCD ®	High intensity (923 Lumens, average)
Electronic Auto Shutter	High color temperature (5460K)
BNC Composite and S-VHS Outputs	Low IR content spectrum (IR filter not required)
470 TV Lines of Resolution (PAL)	Low power consumption (24 Watts)
Available in NTSC or PAL Versions	Mechanical light attenuation control
3.5 Lux Sensitivity @F1.4	External lamp replacement access
51 db Signal-to-Noise Ratio	
<b>OTHER FEATURES</b>	
Quick Connect Light Cable Attachment	Internal power supply (AC input: 110-240 VAC, 50-60Hz)
Ultra Flexible Camera Cable	Externally accessible power protection fuse (250V 2.5A)

## System Features

# System Specifications

FEATURE	SPECIFICATION
Image Device	1/2" SONY Super HAD® CCD 768 (h) x 494 (v) -NTSC 752 (h) x 582 (v) -PAL
Horizontal Resolution	470 Horizontal TV Lines
Signal System	EIA Standards, NTSC Color System CCIR Standards, PAL Color System
Scanning System	2:1 interlaced, 525 lines, 30 frames/second NTSC, 625 lines, 25 frames/second
Scanning Frequency	Horizontal: 15.734kHz -NTSC, 15.625 KHz -PAL, Vertical 59.94 Hz- NTSC, 50 Hz- PAL
Minimum Illumination	3.5 Lux Sensitivity @F 1.4
Shutter Speeds	1/60 to 1/100,000 seconds
System Gain	Auto
White Balance	Auto Tracking
Signal To Noise Ratio	51 db
Video Outputs	Composite & S-Video
Mode Of Operation	Continuous
Electromagnetic Emissions Tests	EN61000-4-2,-3,-4,-6 & -8 (passed)
Classification	Class I Type BF Equipment
AC Input	110-240 VAC @ 50-60Hz ~
Input Current	Max input current at 120VAC, 60Hz with full rated output load: 1.3A
Light Output	White Light 5460 K (nominal)
Light Delivery into Fiber Bundle	923 Lumens
Reflector Specifications	Elliptical MR-11 numerical aperture: 0.67 Spot size at focal plane: 2mm @ 50% intensity
Replacement Fuse	250 Volt 2.5 Amp (AGC 1.25"x .25") or (GMA 20mm x 5mm)
Replacement Lamp	Metal Halide Arc Lamp (MedCam lamp: MC-1824; ESS: AL-1824)
Regulatory Marks	 <b>CLASSIFIED</b> <b>UL</b> <b>US</b> <b>MEDICAL</b> <b>ELECTRICAL</b> <b>EQUIPMENT</b> <b>81 MF</b> 
FDA 510(k) and Classification	K000299 Class II (21 CFR876.1500)

# Warranty Information

Endoscopy Support Services, Inc. warrants this camera system for one (1) year from the date of purchase to be free of defects in materials and workmanship (EXCLUDING LIGHT SOURCE LAMPS). If a defect in materials and/or workmanship (excluding light source lamp) is found, the camera system will be promptly repaired or replaced at no charge to the customer. This warranty will be voided by misuse, abuse, violation of instructions for use or any other action on the part of the user which constitutes negligence or failure to exercise due caution in the care and use of this camera system.

During the warranty period, defects or malfunctions will be corrected as described if:

1. The camera system is returned to Endoscopy Support Services, Inc., freight prepaid, in either its original packaging or similar packaging affording an equal degree of protection.
2. The camera system has not been altered, repaired, or serviced by anyone other than Endoscopy Support Services, Inc. personnel or an authorized representative.
3. The camera system has not been subjected to accident, misuse, abuse or operated contrary to instructions.

This warranty shall be in lieu of all other warranties expressed or implied and/or statutory, including, but not limited to, warranties of merchantability, fitness, and/or suitability for a particular purpose, and all other obligations or liabilities on the part of Endoscopy Support Services, Inc.

Endoscopy Support Services, Inc. neither assumes nor authorizes any person to assume for it any other liabilities in connection with the sale of said camera.

**For service requests or to report a defective unit, please contact:**

**Endoscopy Support Services, Inc. at 1-800-FIX-ENDO (800.349.3636)**



**Corporate Headquarters:**

**3 Fallsview Lane  
Brewster, NY 10509**

**Phone: (845) 277-1700**

**FAX: (845) 277-7300**

**For Service or Customer Support:**

**1 (800) FIX-ENDO**  
**(800.349.3636)**

**On The Web:**

**[www.endoscopy.com](http://www.endoscopy.com)**

**e-Mail: [ess@endoscopy.com](mailto:ess@endoscopy.com)**



**endoscopy  
support  
services, inc.**  
®

**1-800-FIX-ENDO**

**(1-800-349-3636)**

**Phone: (845) 277-1700**

**Fax : (845) 277-7300**

## Help Us Speed Up Your Repair Time

***PLEASE DISINFECT ALL INSTRUMENTS BEFORE SHIPPING FOR REPAIR***

### RETURN THIS FORM WITH INSTRUMENT BEING SENT FOR REPAIR

Date	Purchase Order #	Model & Serial Number
Account Name:		
Street Address:		
City:	State:	Zip:
Contact Name:	Department:	
Phone No./Ext.:	FAX No.:	
E-Mail Address: (ex: yourname@provider.net):		
Describe Problem: _____ _____ _____ _____		
<p><b><u>Pre-Authorization</u></b> This authorizes ESS, Inc. to complete any repair up to and including the amount indicated:</p> <p><input type="checkbox"/> Up To \$200    <input type="checkbox"/> Up To \$500    <input type="checkbox"/> Up To \$1,000    <input type="checkbox"/> _____ Other Pre-Approved Amount</p>		

**\*\*\* We MUST Have Your Signature On All Pre-Approved Repairs \*\*\***

Print Name: \_\_\_\_\_ Signature For Authorization: \_\_\_\_\_

Shipping Policy: All equipment will be returned by UPS GROUND unless indicated below:

- FedEx P1     FedExStandard     FedEx 2-Day     UPS Red     UPS Blue  
 UPS 3-Day     DHL Airways     Airborne     Other: \_\_\_\_\_

**Service Department  
ENDOSCOPY SUPPORT SERVICES, INC.  
3 Fallsview Lane • Brewster, NY 10509**



**endoscopy  
support  
services, inc.**



***Setting The Industry Standard For Value...***

***In The Field Of Endoscopy***