FUJIFILM

English

Light Source

OPERATION MANUAL

BL-7000

Thank you for purchasing our product. Read this manual carefully before use to avoid unexpected accidents and to take full advantage of the product's capabilities.

CE 0123

897N120551J

Contents at a Glance

Introduction

Read and understand this manual fully before using this product.

Chapter 1 Precautions

This chapter describes the warnings and cautions for safe operation of this product.

Chapter 2 Components and System Configuration of BL-7000

This chapter describes the composition of the endoscope set of accessories and system configuration.

Chapter 3 Name and Function of Each Part

This chapter describes the name and function of each part of this product.

Chapter 4 Installation and Connection of the Equipment and Peripherals

This chapter describes the installation and connection methods of the equipment and peripherals.

Chapter 5 Preparation and Inspection of the System

This chapter describes the inspection and preparation methods to be performed for using this product.

Chapter 6 Method of Use

This chapter describes a series of operations of this product.

Chapter 7 Storage and Maintenance

This chapter describes the methods of storage and maintenance of this product.

Chapter 8 Troubleshooting

This chapter describes actions should be taken if problems occur in this product.

Chapter 9 Main Specification

This chapter describes the main specification of this product.

Contents

Introduction

Read and understand this manual carefully before operating this product.

About This Manual

This manual describes how to use and store the light source BL-7000.

BL-7000 is used with the processor VP-7000.
For details on how to use this system and combined equipment, refer to the VP-7000 operation manual.

◆ Operation Manuals

Manage and store the operation manuals related to this product together as a set.

Processor VP-7000 Operation Manual

This manual provides necessary information for using the processor such as the equipment overview, operation procedures and precautions to observe.

Light Source BL-7000 Operation Manual

This manual provides necessary information for using the light source such as the equipment overview, operation procedures and precautions to observe.

Note This product is used in combination with peripherals. Refer to the operation manual of each peripheral device described in the VP-7000 Operation Manual, “2.2 Equipment Using in Combination”.

CAUTION

- No part or all of this manual may be reproduced in any form without prior permission.
- The information contained in this manual may be subject to change without prior notice.
- FUJIFILM Corporation shall not be liable for malfunctions or damages caused by installation, relocation, remodeling, maintenance, and repair performed by dealers other than those specified by FUJIFILM Corporation.
- FUJIFILM Corporation shall not be liable for malfunctions or damages of FUJIFILM Corporation products due to products of other manufacturers not supplied by FUJIFILM Corporation.
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- FUJIFILM Corporation shall not be liable for malfunctions or damages resulting from negligence of the precautions and operating methods contained in this manual.
- FUJIFILM Corporation shall not be liable for malfunctions or damages resulting from use under environment conditions outside the range specified for this product, such as the power supply, installation environment, etc., as described in this manual.
- FUJIFILM Corporation shall not be liable for malfunctions or damages resulting from natural disasters, such as fires, earthquakes, floods, lightning, etc.

- This product has heavy metal parts. When disposing of this product, comply with local laws and regulations in your area. Determine whether or not the product is to be treated as a biohazard, then handle and dispose of accordingly.
- Before disposing of this product or an endoscopic accessory, perform cleaning and disinfection (or sterilization) according to the procedure described in the operation manual. There is a risk of being a source of infection.

How to Read This Manual

◆ Conventions Used in This Manual

This manual uses the following conventions for easier understanding.

General Conventions

Convention	Description
WARNING	Explains dangerous situations that may cause death or serious injury if not avoided.
CAUTION	Explains situations that may cause slight or moderate levels of injury if not avoided. Explains situations that may cause damage to equipment if not avoided.
(1), (2), (3), ...	Indicates consecutive numbers in operating procedures for the order in which successive steps in the procedure should be taken.
Note	Indicates a comment or supplementary information.
→	Indicates a reference.

Chapter 1 Precautions

1.1 Safety

Before using this product, read this section carefully so that you can operate it correctly. Whenever you operate this product, be sure to observe those precautions. Failure to do so may cause you to subject to injuries or property damage to occur.

WARNING

- The institution is responsible for the use and maintenance of this product. In addition, this product should not be used by persons other than doctors or suitably trained staff.
- Be sure to prepare a spare endoscope against unexpected accidents such as the failure of this product. Otherwise, you may not be able to continue the endoscopic procedure. If the spare endoscope is not available, prepare other alternative means such as abdominal surgery. This product is intended for use by medical professionals who have received proper training in endoscopic procedures. This manual does not provide information about clinical procedures or any aspects of endoscopic techniques.

CAUTION

- Do not modify this product or its components, and do not disassemble, repair or in any other way reverse-engineer these products. Even if you find a defect, do not attempt to repair these products yourself. FUJIFILM Corporation shall not be liable for any defects or device failures caused by such modifications, disassembly, repairs or reverse-engineering. If this product is disassembled or modified, it creates a risk of human injury or equipment damage, and is unable to ensure its functionality.

◆ Category of Equipment

<Classification of Medical Electrical Equipment>

1. Type of protection against electric shock:	Class I equipment (Power supply: Protective earth plug)
2. Degree of protection against electric shock:	Type BF applied part
3. Degree of explosion protection :	Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air or with oxygen or nitrous oxide

Note Combination with VP-7000

1.1.1 Warnings

This product utilizes a flashing light. Do not expose a flashing light to an epilepsy patient. Doing so may cause the patient to have seizures, difficulty in breathing and suffocation. Stop using this product immediately and take proper action if the patient develops such signs and symptoms.

1.1.2 Direct Harm to Human Body

WARNING

- If any peripherals not described in the VP-7000 Operation Manual, “2.2 Equipment Using in Combination” are used, this product may not function properly and it may cause damage to the peripherals or injury to patients or physicians.
- This product conforms to the EMC standard. However, the radio waves radiated from this product may cause medical devices such as a pacemaker to malfunction. When this product is used for a patient with an active implantable medical device, consult a cardiovascular specialist and the manufacturer of the active implantable medical device. For the EMC standard that this product complies with, refer to “9.2 Electromagnetic Compatibility (EMC) Information” in this manual.
- To avoid damage to eyes, do not look at the light directly while the light is turned on. Do not look directly at the light from the endoscope.

CAUTION

- While the light is turned on, do not look into the light emitted from the distal end of endoscope. Doing so may cause damage to the eyes.
- Do not touch the light guide prong until it has cooled down (approximately 5 minutes). Touching the light guide prong with hands immediately after use of the endoscope may cause a burn.
- When connecting the endoscope, insert it fully so as to produce no clearance. Do not look into the connecting part of the endoscope. The light emitted from the light source may cause damage to the eyes.

CAUTION

- If the brightness level is high, the surface temperature at and around the distal end of the endoscope may exceed 41°C. Do not allow the distal end to remain in contact with the same site for an extended period of time. It may cause burn injury.

1.2 Cautions/Warnings

Observe the following cautions when handling this product. Also, there are same cautions in each chapter.

1.2.1 Intended Use

WARNING

- This product is intended to be used in combination with a FUJIFILM medical endoscope, processor, monitor, recorder and various peripherals for observation, diagnosis, endoscopic treatment, and image recording in medical facilities under the management of physicians. Never use this product for any other purposes.
- Do not rely on the BLI observation mode alone. Perform comprehensive observation and diagnosis including normal observation for all target regions. Not doing so may result in improper observation and diagnosis. Information obtained from the BLI mode image should be regarded as reference information and it does not assure the validity of diagnosis.

1.2.2 Clinical Procedures

WARNING

- This manual assumes that the product will be used by medical specialists who have received proper training in endoscopic procedures. This manual does not provide information about clinical procedures. Proper clinical judgment should be exercised for all clinical procedures.

1.2.3 Loss of Function

WARNING

- During an examination, if an abnormality occurs on the endoscopic image (if it disappears, becomes darker or brighter, etc.), the imaging section may be damaged. If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use.
  Stop using the equipment immediately, and consult your local dealer. Continued use of the endoscope may cause overheating of the distal end, possibly resulting in burn injury.

Note

- Wait for 5 seconds or more before turning the power back to ON.
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.

1.2.4 Combination of Equipment

WARNING

- This product is used in combination with peripherals. To avoid electric shock, do not use peripherals that are not specified in the VP-7000 Operation Manual, “2.2 Equipment Using in Combination”.

CAUTION

- If the range of the operating environment for a peripheral device is narrower than the range of the operating environment for this product, use this product within the range of the operating environment for the peripheral device.

1.2.5 Electric Shock

WARNING

- Use the rated voltage only. Not doing so may cause a fire or electric shock or malfunction.
- Connect the power plug directly to the protective earth receptacle. Use peripherals that are compliant with the medical safety standards. Not doing so may cause an electric shock.
- Do not simultaneously touch the patient and any terminals of the devices that make up the system. Doing so may cause electric shock.

1.2.6 Explosion

WARNING

- Do not use the equipment in an oxygen-rich environment or in a flammable gas atmosphere. Doing so may cause explosion or fire.

1.2.7 Maintenance

CAUTION

- The equipment will wear out and deteriorate after repeated use over a long period. The equipment is required to be inspected by specialists once every six months. Also, if any abnormality is found during clinical use, carefully withdraw the endoscope from the patient as per instructions provided in the operation manual of the endoscope.
- Do not disassemble or modify the equipment. For details on the inspection, consult your local FUJIFILM dealer.

1.2.8 Preparation and inspection before use

CAUTION

- Prior to using this product, prepare a spare one to avoid unexpected accidents such as equipment failure. If a replacement is not available, you may not be able to continue endoscopic procedures.
- Make sure to check the equipment before use according to the procedures provided in this manual, to avoid unexpected accidents, and take full advantage of the equipment's capabilities.
- In particular, errors in images may cause false diagnosis. If the inspection result shows any abnormality, do not use the equipment.

1.2.9 Installation of Equipment

CAUTION

- Since there are ventilation holes on the bottom surface of the light source BL-7000, take care not to cover the bottom surface with foreign substances.
- Install equipment so that the power cord or connected endoscope cannot be caught by anything. If the power cord or connected endoscope is caught by something, it may cause overturning or falling of equipment, disappearance of the endoscopic image or damage to the patient and/or operator.

1.2.10 Handling

CAUTION

- Keep metals except for the endoscope away from the power supply section. Otherwise, metals may generate heat.
- Do not disassemble or modify this product. Otherwise, the radiant intensity may exceed Class I specifications.
- Clean the equipment in the proper way as specified. Otherwise, the equipment may be damaged.
- Do not wash the light source with running water or immerse it in disinfectant. The equipment may be damaged.
- Do not disinfect or sterilize the light source. The equipment may be damaged.
- Wear personal protective equipment (such as goggles, facemask, chemical-resistant and waterproof gloves, antifouling protective clothing, cap and shoe covers) when handling an endoscope to prevent infection and electrostatic discharge.

1.2.11 Foreign Matter and Liquid

CAUTION

- Before connecting the endoscope, ensure that no foreign matter is caught in the scope connector section. If any foreign matter is caught in the power supply section, it may cause malfunction or failure of the devices and may also generate heat. If any foreign matter is caught, do not touch it directly with your hand but remove it after disconnecting the endoscope.
- Ensure that there is no foreign matter or dirt on the receiving window or on the communication window before connecting the endoscope. If there is any foreign matter or dirt on the receiving window or on the communication window, it may cause malfunction or failure of the devices.
- Make sure that the scope connector including the power-receiving section is thoroughly dry before connecting it to the light source. In addition, make sure that no moisture or foreign matter (such as metallic fragments, chemical residues, water deposits, grease, dust, and gauze fibers) adheres to the power-receiving section. If the connector mount is wet or soiled with foreign matter, it may cause malfunction or failure of the devices.
- Foreign matter, water and chemicals entering the equipment may cause a fire or electric shock. In such a case, stop using the equipment immediately, disconnect the power plug from the power outlet, and consult your local FUJIFILM dealer.

1.2.12 Disposal

CAUTION

- Follow the legal procedures when discarding the product. For the details, consult your local FUJIFILM dealer.

1.2.13 Software Version

- Software is used to control the BL-7000. Therefore, the control method differs depending on the version of the software being used. This instruction manual describes operation of Ver. 1.0 - 1.99. The version is shown under the heading “Software” displayed on the screen by pressing the [Shift] and [Note] keys at the same time.

1.2.14 Temperature at distal end

- Turn off the light when this product is not used for a long time, such as while hanging it on a hanger before use. If the light is left on, the distal end may become hot, causing burn injury to the patient.

1.2.15 Electromagnetic interference

- This product generates, uses and can radiate electromagnetic energy. To prevent electromagnetic interference within the vicinity of this product, read the following precautions and properly handle this product and other devices in the vicinity.
  Install and use this product according to "Electromagnetic Compatibility (EMC) Information" in Main Specification.

WARNING

- Do not use this product adjacent to or stacked with other equipment. If such use is necessary, this product and the other equipment should be observed to verity that they are operating normally. Failure to do so could result in improper operation.
- Do not use portable and mobile RF communications equipment closer than 30 cm to any part of this product. Otherwise, degradation of the performance of this product could result.
- Use the cable specified in this manual. Use of other cables may cause an increase in electromagnetic emission or decrease in electromagnetic immunity of this product.

CAUTION

- Use this product in the specified environment and with specified methods. Otherwise, unintended images (abnormal color tone, etc.) may be displayed.

- This product has been tested and found to comply with the limits for medical devices defined in EN 60601-1-2 *1. These limits are designed to provide reasonable protection against harmful electromagnetic interference in a typical installation at professional healthcare facilities such as hospitals and clinics.
  However, it is possible that it may cause harmful interference to other devices in the vicinity, if it is installed and used in accordance with the instructions. Also, there is no guarantee that interference will not occur in a particular installation. Therefore, if this product does cause harmful interference to other devices, which can be determined by turning this product off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Change the orientation or position of any affected device.
  - Increase the spacing between devices.
  - Consult the manufacturer or dealer of the device.

*1 The leftmost alphanumeric character of the serial numbers of this product that complies with the requirements of EN 60601-1-2:2015 is 4 or higher or any of J to Z.If the serial number is other than any of those above, this product complies with the requirements of EN 60601-1-2:2007.

- Do not use this product near devices that generate strong electromagnetic waves, such as MRI systems. Doing so may cause malfunction of this product.
  (If this product is used in combination with an electrosurgical unit, follow the instructions provided in the operation manuals of the electrosurgical unit and high-frequency endotherapy device.)
- Noise may appear on the monitor of this equipment due to the effect of electromagnetic waves. In this case, turn off the device emitting the electromagnetic waves or move the device away from this equipment.

Chapter 2

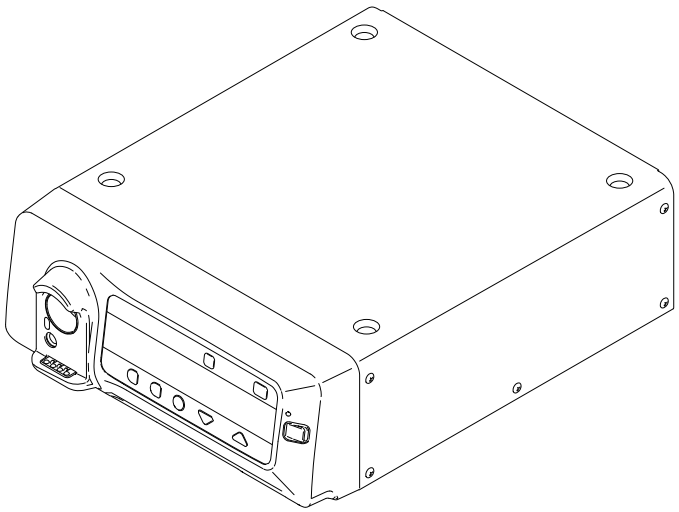
Components and System Configuration of BL-7000

2.1 Components of BL-7000

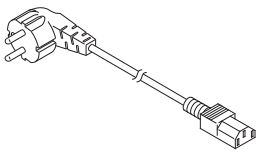
The BL-7000 consists of the following items.

◆ BL-7000 Components

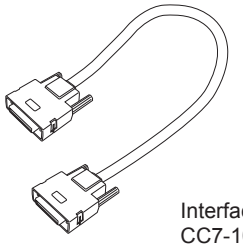
Note
- The operation manual (this document) is a component of BL-7000.
- The figure in parentheses indicates the quantity.



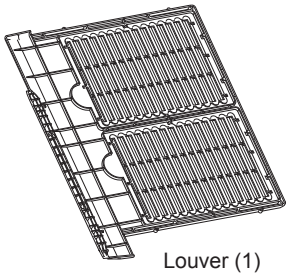
Light Source
BL-7000 (1)



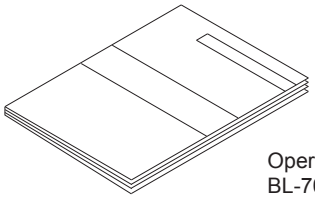
Power Cord (1)



Interface Cable
CC7-101 (1)



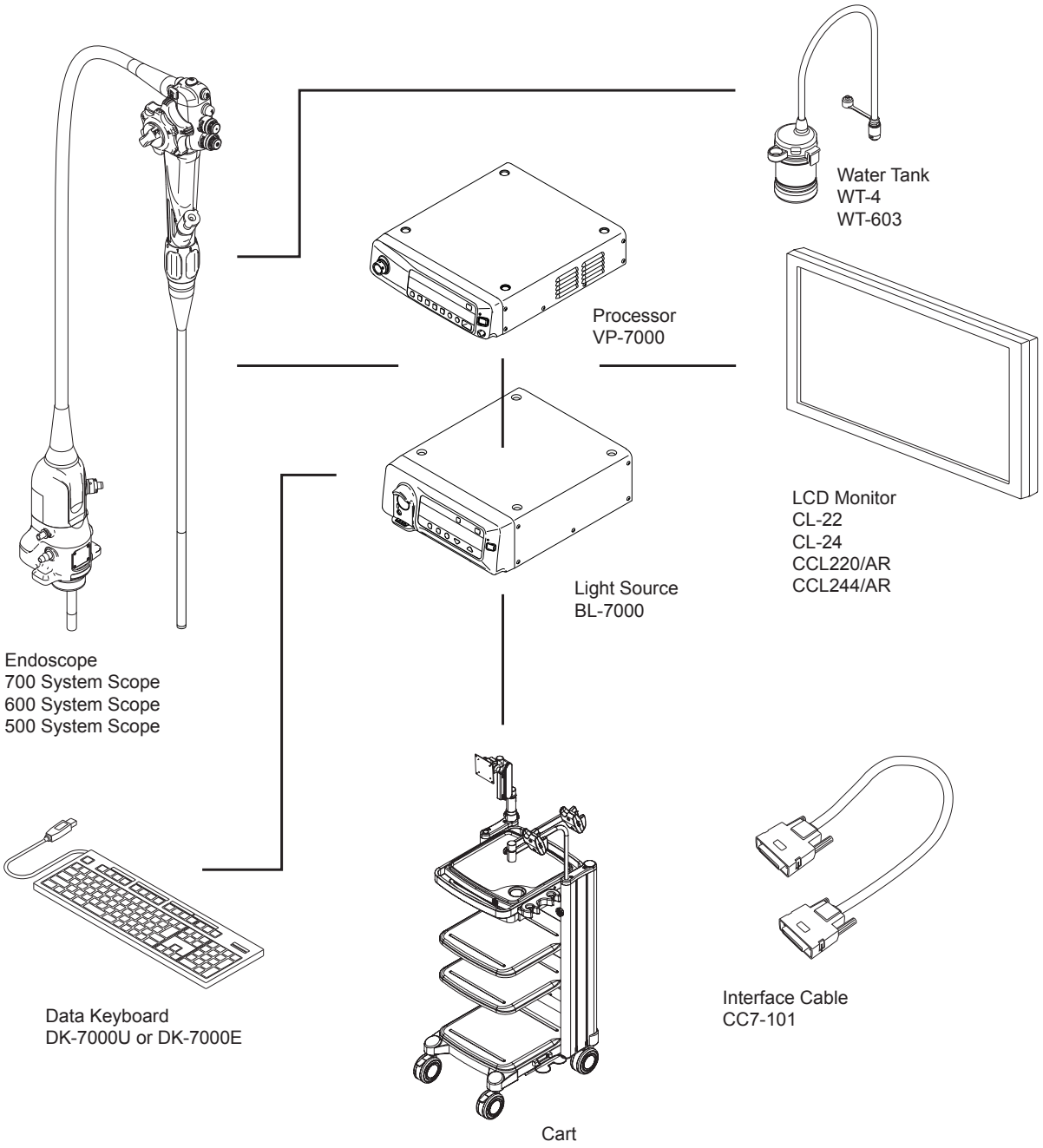
Louver (1)



Operation Manual
BL-7000 (1)

2.2 Standard System Configuration

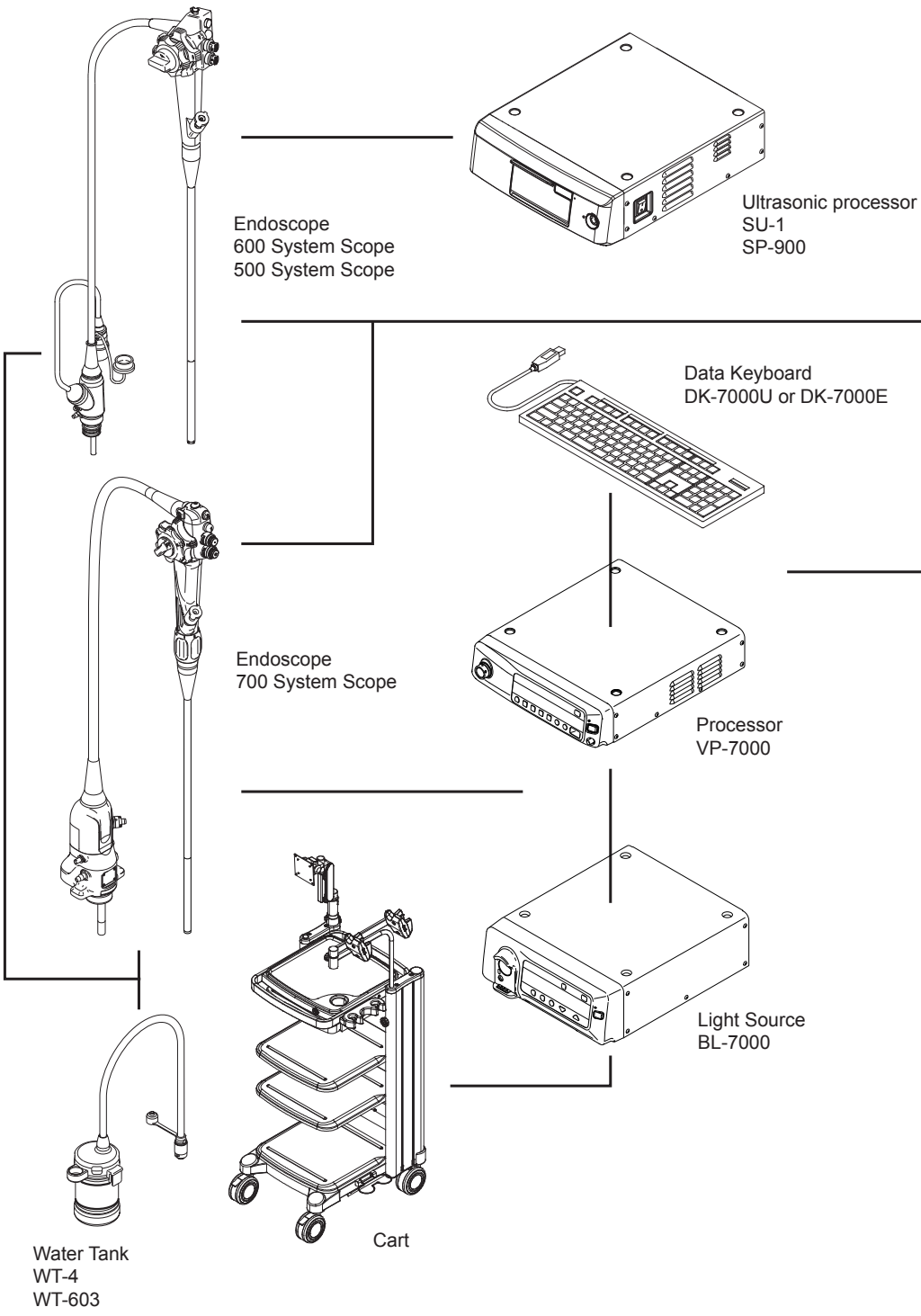
The standard system configuration is the minimum configuration required for general endoscopy. Observation (diagnosis) and biopsy can be performed on the monitor.



2.3 System Expansion

This system can be extended by connecting various peripherals to the standard system configuration. Extension makes the following possible.

- Endoscopic treatment
- Ultrasonic examination
- Recording of video images
- Printing of still images

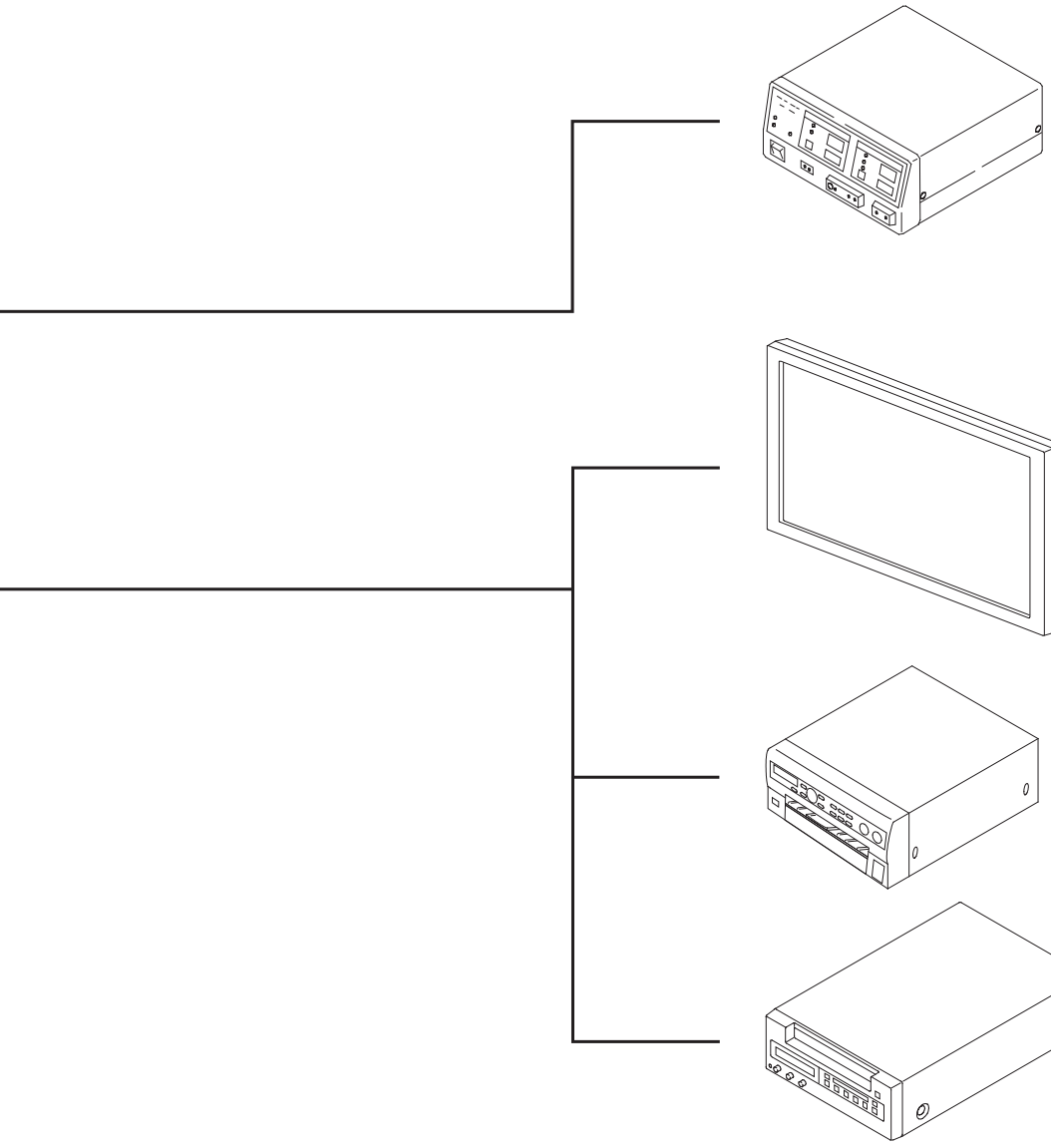


Note For details on the connections of peripherals other than listed here, consult your local FUJIFILM dealer.

CAUTION

- When some models of the 530 series scopes and 590 series scopes are used, place the VP-7000 processor on the lower shelf and the BL-7000 light source on the upper shelf. Otherwise, it may cause malfunction of the endoscope. For the applicable models of the 530 series scopes, contact service personnel.

➞ VP-7000 Operation Manual, “4.1.6 Installation for System Expansion”



Electrosurgical Unit

LCD Monitor
CL-22 (FUJIFILM)
CL-24 (FUJIFILM)
CCL220/AR (JVC KENWOOD)
CCL244/AR (JVC KENWOOD)

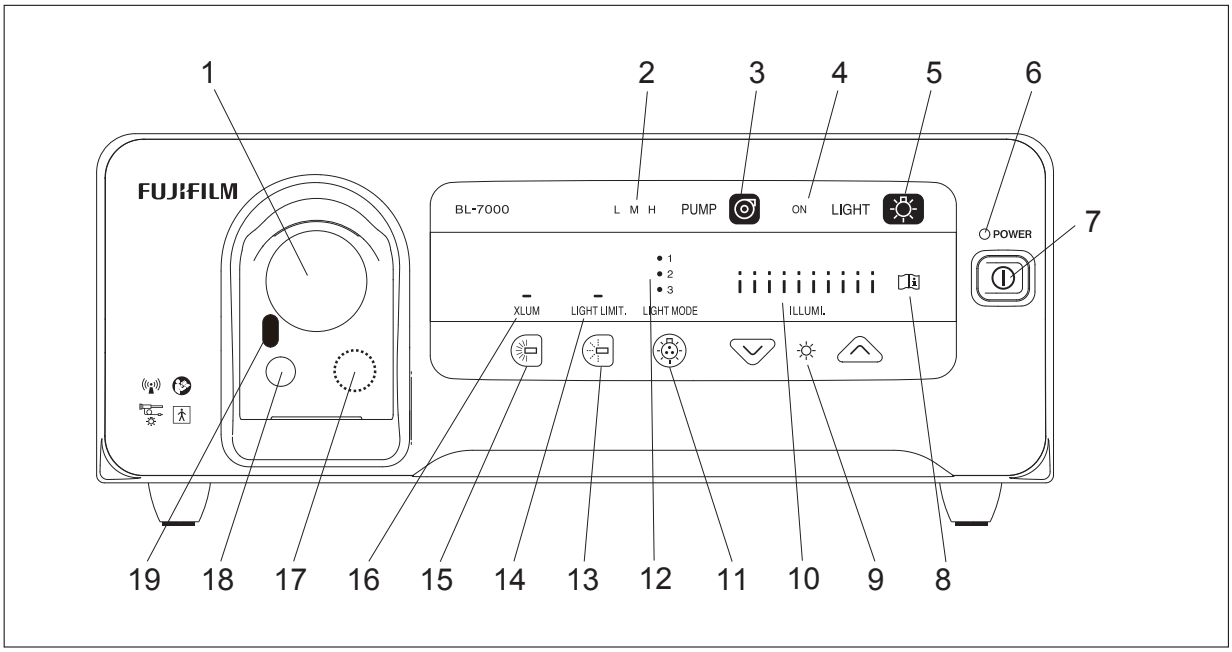
Printer
UP-25MD (SONY)
UP-55MD (SONY)
UP-D25MD (SONY)

Video Recorder
HVO-1000MD (SONY)
HVO-550MD (SONY)

Chapter 3

Name and Function of Each Part

3.1 Front Panel



1. Scope Connector Socket

Accepts the scope connector or LG connector of the endoscope.

2. Air Supply Indicator

L M H Displays the air supply pump's level of "HI", "MID" or "LOW".

3. Pump Button

PUMP  Switches the air supply amount in the four levels of "HI", "MID", "LOW" or "OFF".

4. ON Indicator

ON This indicator lights up when the light is turned on.

5. Light Button

LIGHT 

Turns on/off the light.
ON: Lights up in blue.
OFF: Lights up in orange.

6. Power Indicator Lamp

○ **POWER** Lights up when the power is ON.

7. Power Button

Used to turn the power supply ON/OFF.

8. Light Source Status Lamp

If any abnormality occurs in the light source, this indicator flashes.

9. Brightness Adjustment Button

Adjusts the level of the automatic light control.

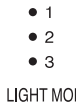
10. Indicator

Indicates the light intensity when the light is turned on.
When the brightness adjustment button is pressed, this indicator displays the level of brightness to be used as a standard.

11. Light Mode Button

Switches the Light mode to “1”, “2”, “3” or “OFF”.

12. Light Mode Indicator



Displays the Light mode “1”, “2” or “3”.

13. Light Limit Button

Controls the light intensity of the light.

14. Light Limit Indicator

This indicator blinks when the light save function is turned on.

15. XLUM Button

The light flashes with the maximum light intensity.

16. XLUM Indicator

This indicator blinks when the transmitted illumination is turned on.

17. Power Supply Section

Supplies power to the endoscope.

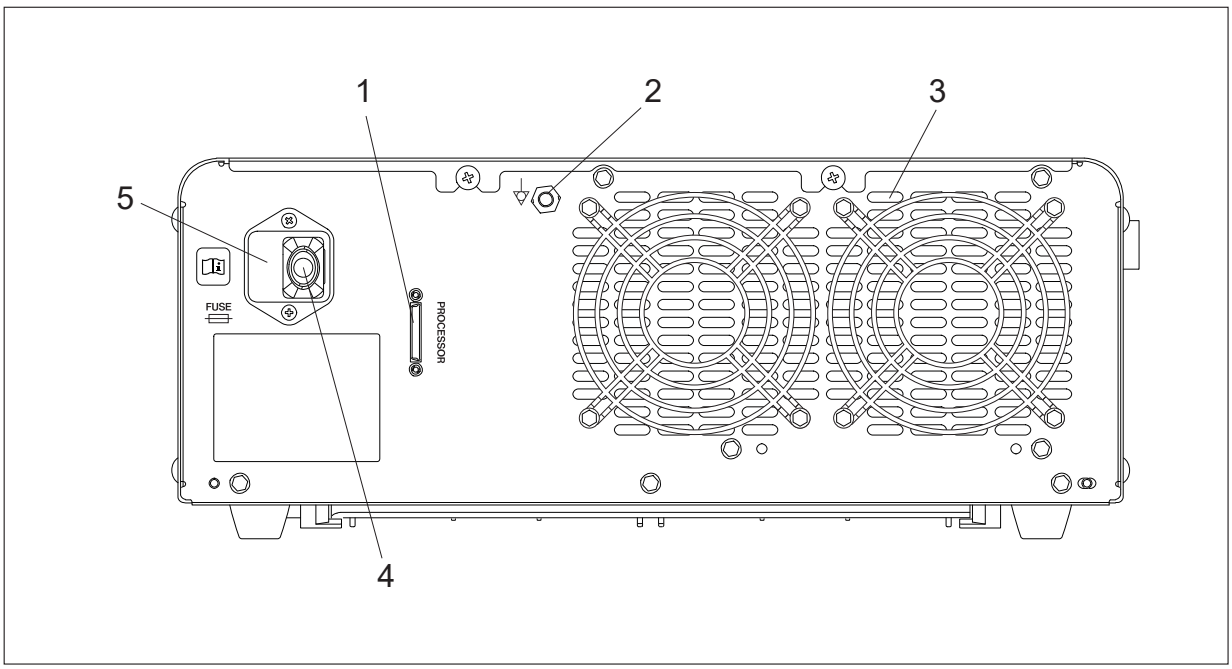
18. Receiving Window

Receives data from the endoscope.

19. Communication Window (LED)

Performs information communication with the endoscope.

3.2 Rear Panel



1. Interface Cable Connector (Processor)

   Used to connect to the VP-7000 using the interface cable (CC7-101).

2. Potential Equalization Terminal

   Connects to the equalization plug.
   When necessary for safety, this product is connected to a peripheral using this terminal to equalize the potential between the devices.

3. Ventilation Holes

   Provide ventilation to keep the inside of the equipment cool.

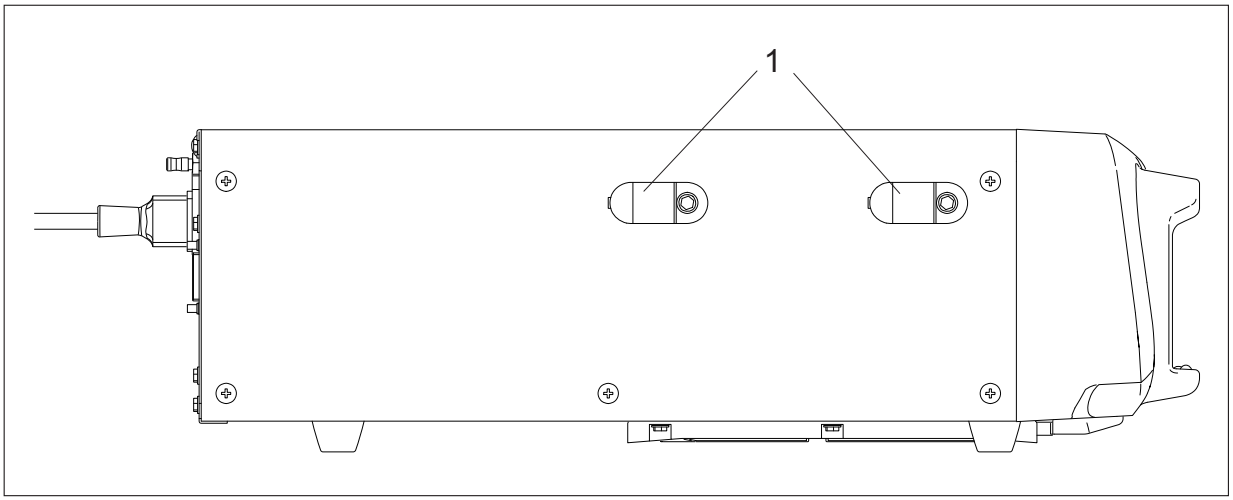
4. Power Supply Connector

   Used to connect the power cord.

5. Fuse Holder

   Contains two T4AH 250V fuses.

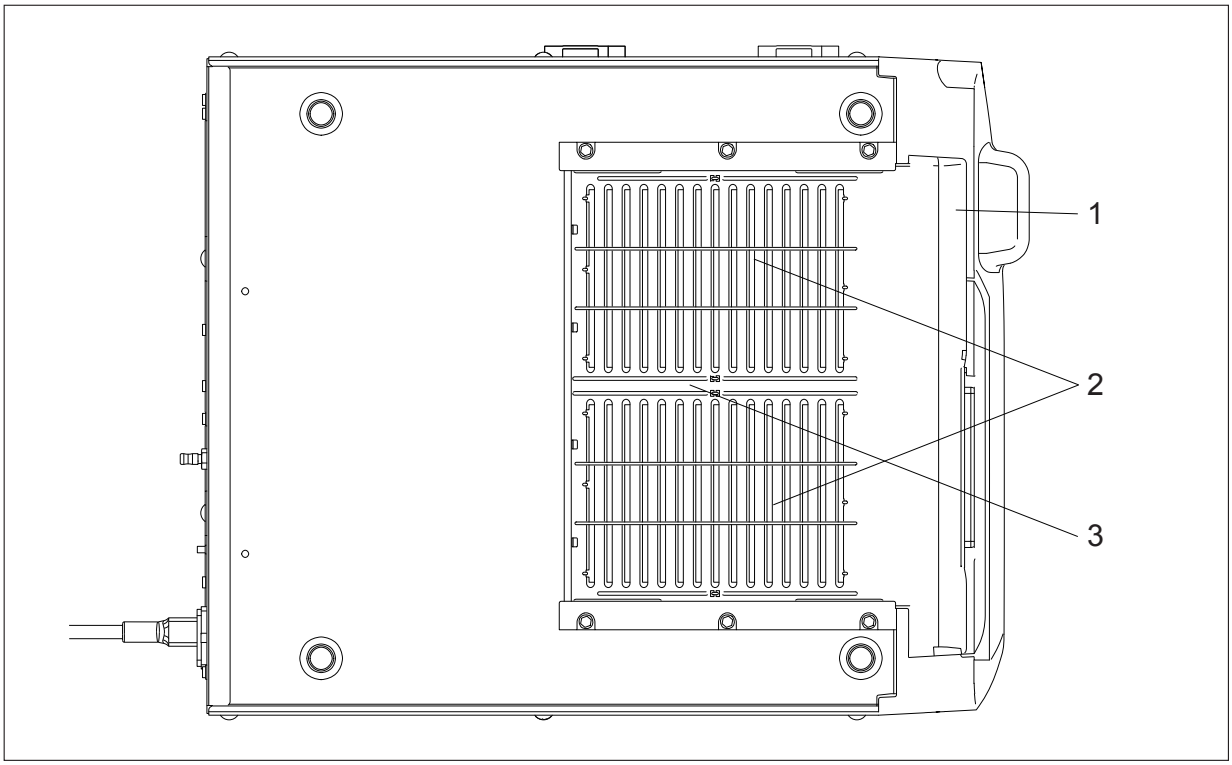
3.3 Left Side Panel



1. Water Tank Hook

   Used to mount the water tank.

3.4 Bottom



1. Louver

   The filers are set.

2. Filter

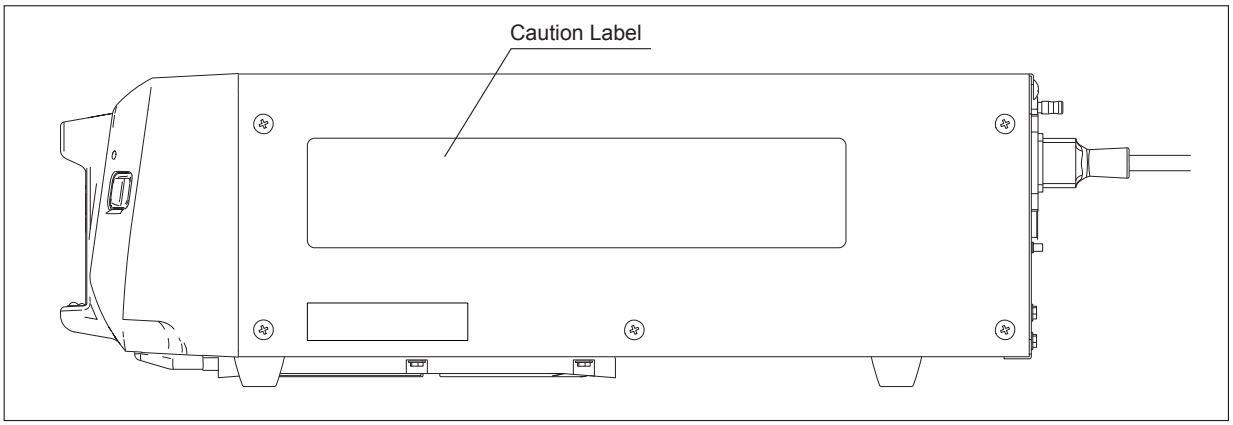
   Prevents intrusion of dust.

3. Ventilation Holes

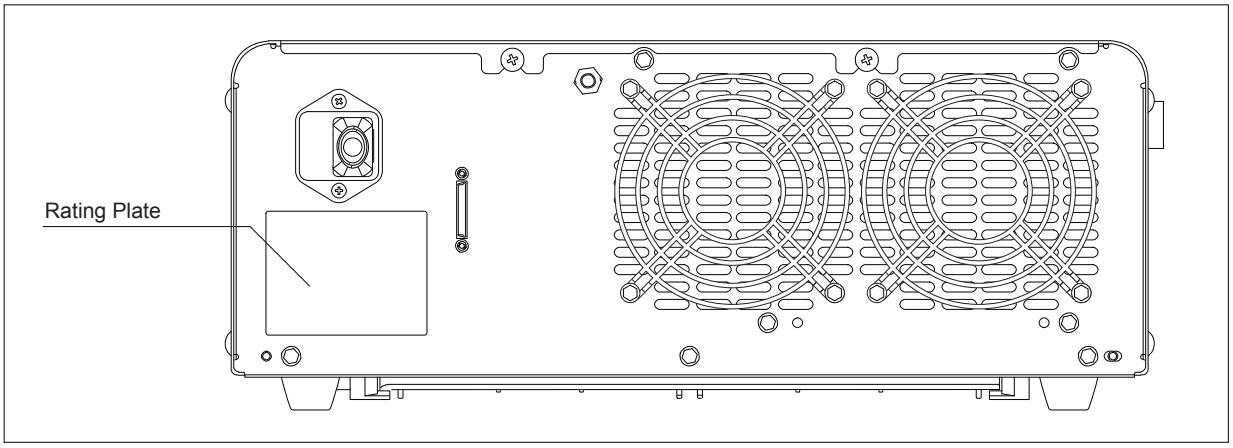
   Provide ventilation to keep the inside of the equipment cool.

3.5 Warning Labels

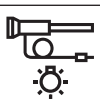
◆ Caution Label



3.6 Rating Plate



3.7 Symbols

Symbol	Description
SN	Serial number
	Date of manufacture
	Manufacturer
EC REP	Authorised representative in the European Community
	Front Panel : Light Source Status Lamp (Consult instructions for use) Rear Panel : Consult instructions for use
	Consult instructions for use
	Temperature limitation
	Keep dry
CE 0123	CE marking
	Type BF applied part
	WEEE marking *
	Humidity limitation
	Atmospheric pressure limitation
	Alternating current
	Fuse
	Potential equalization terminal
	RF electromagnetic energy
	Scope Connector Socket

* This product shall not be treated as household waste.

Chapter 4

Installation and Connection of the Equipment and Peripherals

WARNING

- Use the rated voltage only. Not doing so may cause a fire or electric shock.
- Connect the power plug directly to the protective earth receptacle. Use peripherals that are compliant with the medical safety standards. Not doing so may cause an electric shock.
- Do not simultaneously touch the patient and any terminals of the devices that make up the system. Doing so may cause electric shock.
- Do not use the equipment in an oxygen-rich environment or in a flammable gas atmosphere. Doing so may cause explosion or fire.

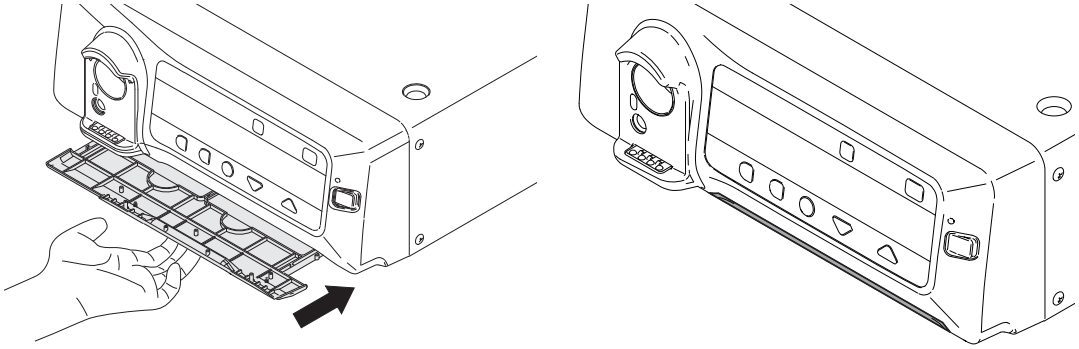
CAUTION

- Since there are ventilation holes on the bottom surface of the light source BL-7000, take care not to cover the bottom surface with foreign substances.
- Install equipment so that the power cord or connected endoscope cannot be caught by anything. If the power cord or connected endoscope is caught by something, it may cause overturning or falling of equipment, disappearance of the endoscopic image or damage to the patient and/or operator.

Note Install the system according to the VP-7000 Operation Manual, “Chapter 4 System Installation and Initial Settings”.

4.1 Attaching the Louver

Attach the louver, a component of the light source.
Make sure that the louver is fully inserted into the light source.
Not doing so may cause equipment damage.



Chapter 5 Preparation and Inspection of the System

5.1 Installing and Connecting the Equipment

Prepare and inspect the system according to the VP-7000 Operation Manual, “Chapter 6 Preparation and Inspection of the System”.

WARNING

- If any peripherals not described in the VP-7000 Operation Manual, “2.2 Equipment Using in Combination” are used, this product may not function properly and it may cause damage to the peripherals or injury to patients or physicians.
- This product conforms to the EMC standard. However, the radio waves radiated from this product may cause medical devices such as a pacemaker to malfunction. When this product is used for a patient with an active implantable medical device, consult a cardiovascular specialist and the manufacturer of the active implantable medical device. For the EMC standard that this product complies with, refer to “9.2 Electromagnetic Compatibility (EMC) Information” in this manual.

Note

- If the battery in the processor discharges, it may impede the clock function displayed on the monitor (the clock may lose time). If the processor has been left unused for more than three months, turn ON the power to the processor to charge the battery for about three hours. (It is not necessary to connect the Endoscope or turn ON the lamp.)
- If the clock displayed on the monitor is not correct, set the date and time again.

5.1.1 Installing the Endoscope and Water Tank

CAUTION

- Before connecting the endoscope, ensure that no foreign matter is caught in the scope connector section. If any foreign matter is caught in the power supply section, it may cause malfunction or failure of the devices and may also generate heat. If any foreign matter is caught, do not touch it directly with your hand but remove it after disconnecting the endoscope.
- Ensure that there is no foreign matter or dirt on the receiving window or on the communication window before connecting the endoscope. If there is any foreign matter or dirt on the receiving window or on the communication window, it may cause malfunction or failure of the devices.
- Make sure that the scope connector including the power-receiving section is thoroughly dry before connecting it to the light source. In addition, make sure that no moisture or foreign matter (such as metallic fragments, chemical residues, water deposits, grease, dust, and gauze fibers) adheres to the power-receiving section. If the connector mount is wet or soiled with foreign matter, it may cause malfunction or failure of the devices.
- Keep metals except for the endoscope away from the power supply section. Otherwise, metals may generate heat.
- When connecting the endoscope, insert it fully so as to produce no clearance. Do not look into the connecting part of the endoscope. The light emitted from the light source may cause damage to the eyes.

Note
- To avoid damage or malfunction, turn OFF the processor, and then connect or remove the endoscope. Wait for 5 seconds or more before turning the power back to ON. Do not touch the electrical contacts directly with your hand. Prevent the contacts from exposure to xylocaine spray, etc. Dry the moist contacts of the endoscope before connecting the endoscope to the processor.
- To prevent damage or malfunction, press the EXAM. button, make sure that the STANDBY indicator lamp lights up in orange, and then connect or remove the endoscope.
- Connecting the endoscope with moisture on the contacts will cause damage or malfunction, for example, image defects. If a scope connector socket is not connected to the endoscope, cover the socket with the included socket protection cap (CC-203) to protect the contacts.

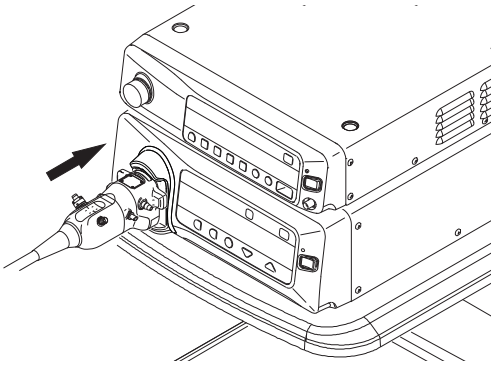
The connecting method varies depending on the endoscope to be connected.

Turn OFF the processor or press the EXAM. button to light up the STANDBY indicator lamp in orange, and then install the endoscope. First, connect the scope connector or LG connector of the light source.

◆ 700 System Scope

(1) Insert the scope connector into the scope socket of the light source until it stops.

Note Insert the scope connector straight into the scope socket.



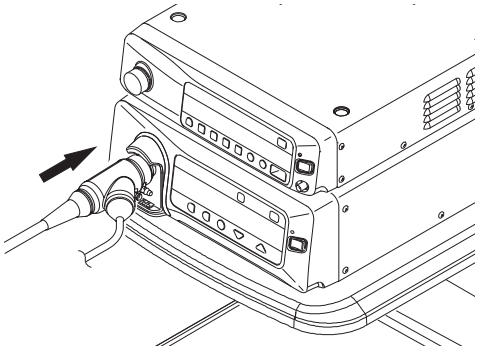
(2) Hook the water tank filled with sterile water onto the light source.

(3) Connect the water tank connector to the endoscope.

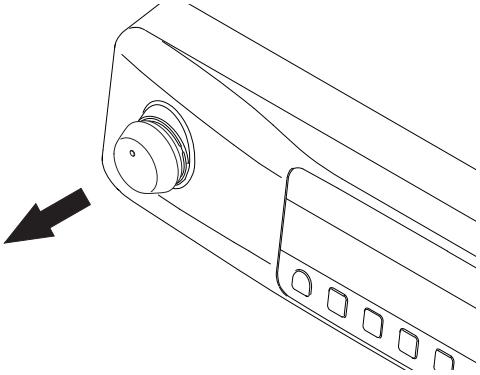
◆ 600 System Scope and 500 System Scope

(1) Insert the LG connector into the scope socket of the light source until it stops. Hold the LG connector with both hands, align the index on the LG connector and the index on the light source, and then insert the LG connector right into the light source until it stops.

Note Insert the LG connector straight into the scope socket.

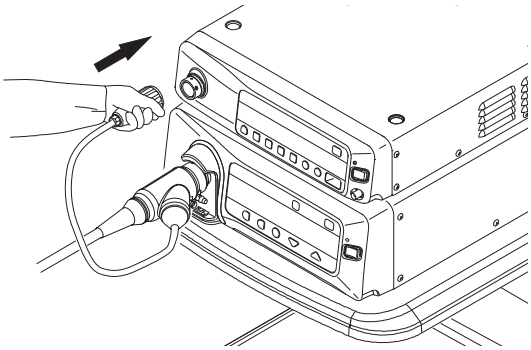


(2) Remove the socket protection cap from the processor to be connected to the endoscope.



To connect the electrical connector, align it with the electrical connector index, and then rotate the connector clockwise while lightly pressing it.

Note
- Make sure to rotate the connector index 90 degrees clockwise.
- Do not connect more than one endoscope.



(3) Hook the water tank filled with sterile water onto the light source.

(4) Connect the water tank connector to the endoscope.

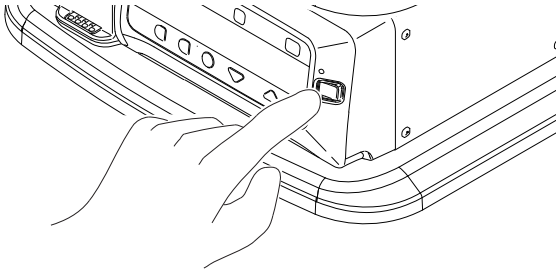
5.1.2 Operation Check of Light Source

CAUTION

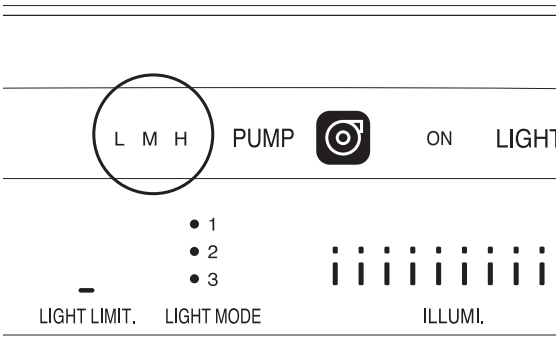
- To avoid damage to eyes, do not look at the light directly while the light is turned on. Do not look directly at the light from the endoscope.
- While the light is turned on, do not look into the beam emitted from the distal end of endoscope. Doing so may cause damage to the eyes.

Note With regard the light seen through the ventilation holes, there are no safety problems.

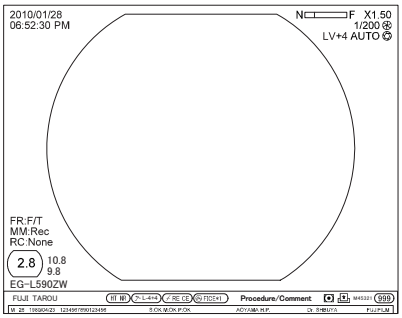
(1) Turn on the power to the cart and the light source. The power indicator lamp lights up.



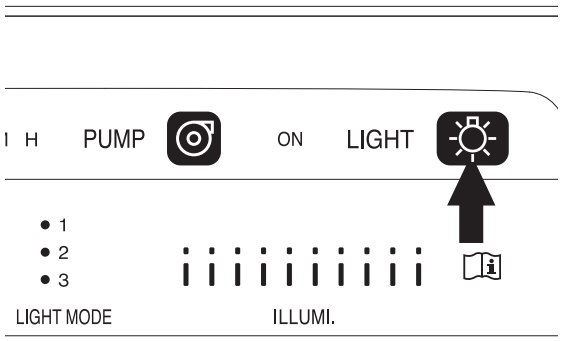
(2) Press the Pump button to make sure that the air supply pump's operation switches in the order of "HI," "MID," "LOW," "OFF," and "HI."



(3) Turn ON the power to the processor.
The power indicator lamp lights up. The EXAM. lamp of the EXAM. button lights up in blue. The observation screen is displayed on the monitor.



(4) Press the Light button of the light source.
The Light button lights up in blue, the ON lamp at the left-hand side of the Light button lights up, and then the light turns on. The pictogram for brightness level lights up in blue.

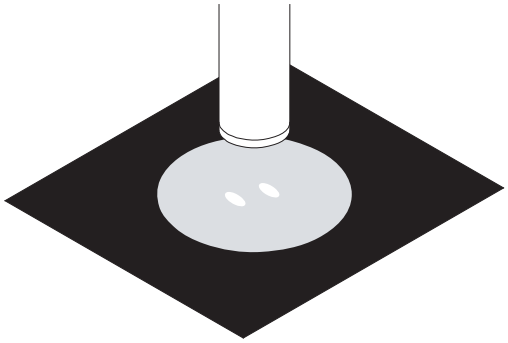


Note If the light source status lamp ( ) flashes, stop using the equipment.

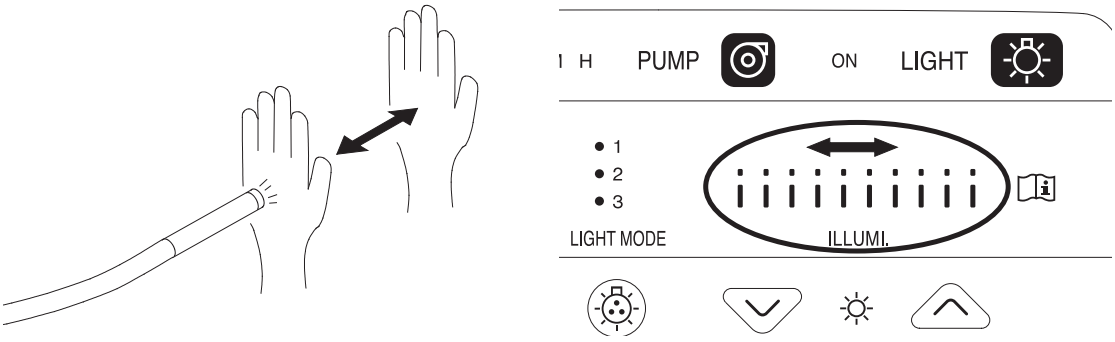
➞ “7.5 When the Light Source Status Lamp Flashes”

(5) Press the Light button. With ON at the left-hand side of the Light button turned on, make sure that light is emitted from the distal end of endoscope.
Put the distal end of endoscope close to a black sheet of paper and check the reflected light. When two points of light are seen, the system is operating normally.
If only one point of light or no light is seen, stop using the equipment immediately, turn off the equipment and consult your local FUJIFILM dealer.

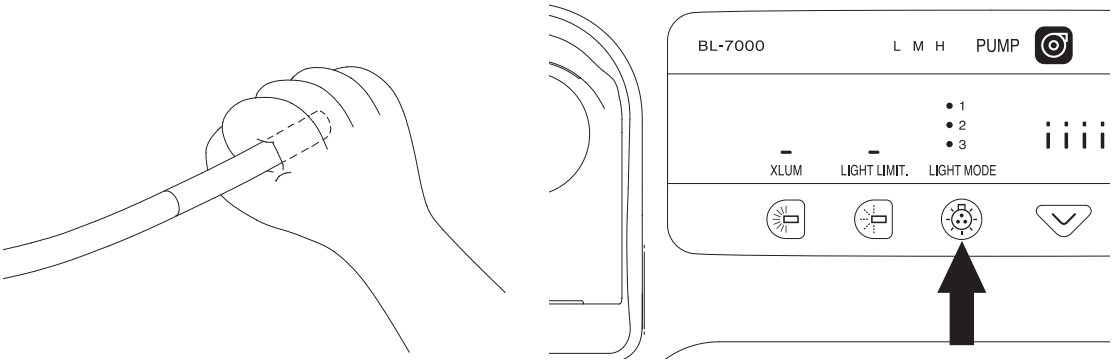
Note If the light emitted from the distal end of endoscope is viewed directly, it may cause damage to the eyes.

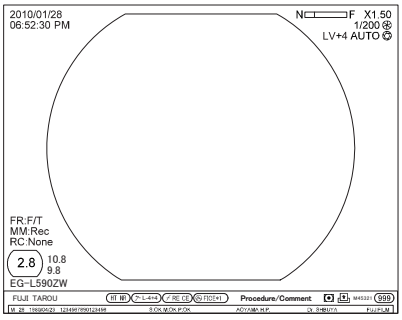


(6) Apply your palm against the distal end of the endoscope, and make sure that the indicator level of the light source changes when you move your hand toward and away from the distal end.



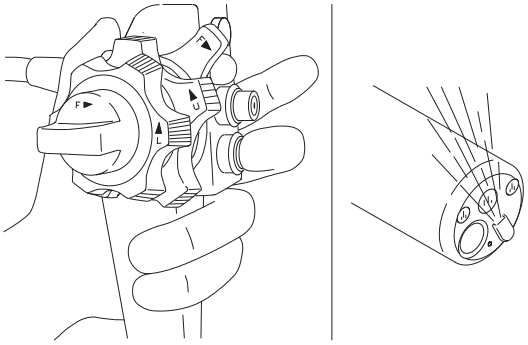
(7) Apply the palm of the hand to the distal end of endoscope and make sure that the image of a part of the hand can be seen.
Press the Light Mode Button to make sure that the Light Mode Indicator and monitor image are switched.



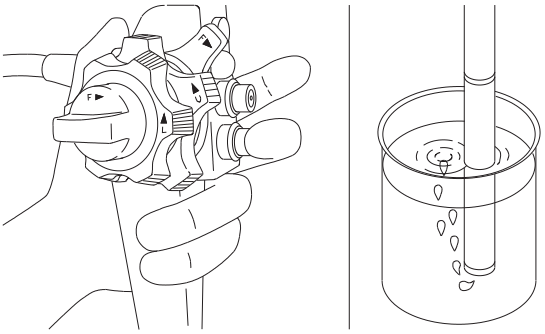


(8) Press the Pump button to set the air supply pump's operation to "HI."
Leave the distal end of the endoscope in the air, press the air/water valve, and make sure that water comes out of the air/water nozzle.

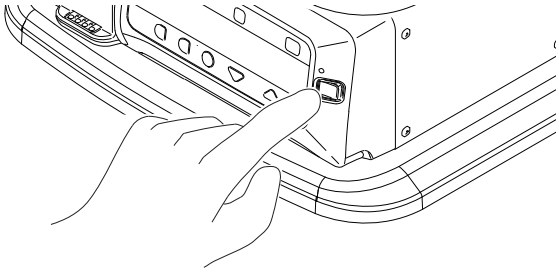
Note Be careful of the direction when water comes out.



(9) Immerse the distal end of the endoscope in the water, cover the center hole on the air/water valve with a finger, and make sure that air comes out of the air/water nozzle.
Then, take your finger off the hole and make sure that no air comes out of the air/water nozzle.



(10) Press and hold the EXAM. Button on the front panel of the processor for 2 seconds or more. Make sure that the STANDBY indicator lamp lights up in orange, and then turn off the light source.
The operation check is now completed.



Chapter 6 Method of Use

Ensure that no debris adheres to this product.
Adhesion of debris may cause malfunction or failure of the devices.

→ "Chapter 7 Storage and Maintenance"

Introduction

The operation flow of this product is shown below. For details on each operation, refer to the relevant section.

1 Perform inspections before use. → “Chapter 5 Preparation and Inspection of the System”

⇩

2 Connect the endoscope. → “5.1.1 Installing the Endoscope and Water Tank”
→ “3.1 Front Panel”

⇩

3 Turn on this product. → “6.1 Turning On the Light”

Note When starting an examination (second one or later), refer to the VP-7000 Operation Manual,“7.17.2 Starting the Second Examination or Later”.

Location of the power button → “6.1 Turning On the Light”

⇩

4 Turn on the light. → “6.1 Turning On the Light”
→ “3.1 Front Panel”

⇩

5 Adjust the brightness of the light. * → “6.2 Adjusting the Brightness”

⇩

6 Perform an endoscopic examination

- Change the air supply level. * → “6.3 Operation of Air Supply Pump”
→ “3.1 Front Panel”
- Change the Light mode. * → “6.6 Light mode”
→ “3.1 Front Panel”

Note For details on how to set the Light mode, refer to the VP-7000 Operation Manual, "5.3.8 Special Light Observation Preset Setup".

⇩

7 Finish the examination. → "6.7 Turning Off the Light" and "6.8 Turning Off the Power"

Note Refer to the VP-7000 Operation Manual, "7.17.1 Finishing the First Examination" and "7.17.3 Finishing All Examinations".

Location of the power button → "3.1 Front Panel"

⇩

8 When necessary, perform maintenance on this product after all examinations are finished. → "7.1 Care after Use" → "7.2 Cleaning the Filter"

* This step may be skipped depending on the examination method.

Note Finish the examination with the EXAM. button during standby in order to reduce the environmental burden.

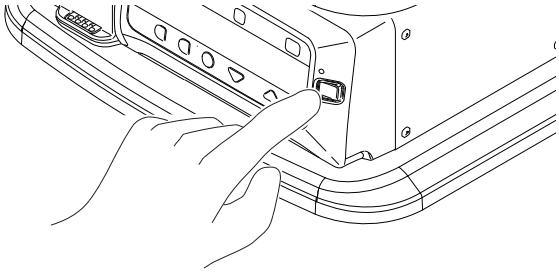
6.1 Turning On the Light

CAUTION

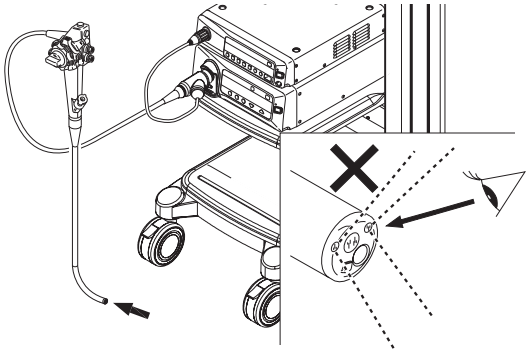
- While the light is turned on, do not look into the beam emitted from the distal end of endoscope. Doing so may cause damage to the eyes.

Note With regard the light seen through the ventilation holes, there are no safety problems.

(1) Turn the power of the light source ON.
The Power Indicator Lamp is lit.

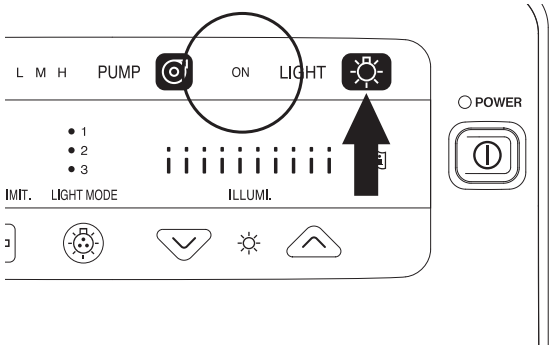


Note While the light is turned on, do not look into the beam emitted from the distal end of endoscope. It may cause damage to the eyes.



(2) Press the Light button.
The Light button lights up in blue, the ON lamp at the left-hand side of the Light button lights up, and the light turns on. The pictogram for brightness level lights up in blue.

Note
- The light does not turns on when the scope connector or LG connector of the endoscope is not connected to the scope socket.
- If the light source status lamp blinks while the light turns on, refer to “7.5 When the Light Source Status Lamp Flashes”.



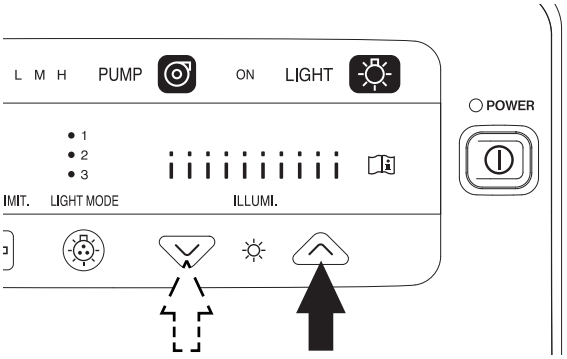
6.2 Adjusting the Brightness

CAUTION

- If the brightness level is high, the surface temperature at and around the distal end of the endoscope may exceed 41°C. Do not allow the distal end to remain in contact with the same site for an extended period of time. It may cause burn injury.

To obtain the appropriate brightness for an object, adjust the brightness by pressing the Brightness Adjustment button on the light source.

(1) When ⌃ or ⌄ is pressed, the brightness level to be used as a standard can be adjusted. Press ⌃ to make the image brighter, and press ⌄ to make the image darker.



The brightness level can be adjusted from -4 to +5. The level is displayed in the indicator as follows.

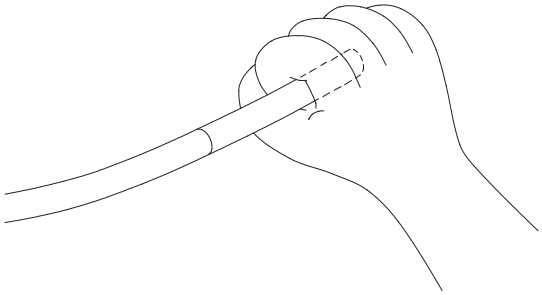
Brightness level 0 (standard):

Brightness level -4:

Brightness level +5:

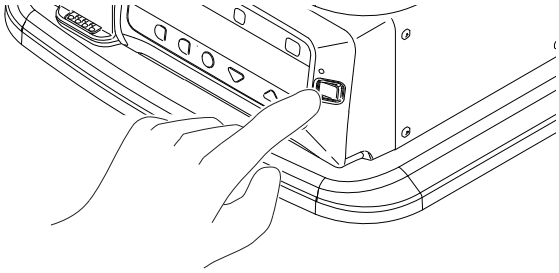
(2) When ⌃ or ⌄ is released, the indicator shows the light intensity again.

(3) Apply the palm of the hand to the distal end of endoscope and make sure that the image of a part of the hand can be seen.

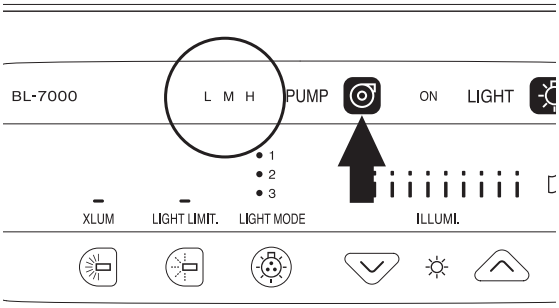


6.3 Operation of Air Supply Pump

(1) Turn the power of the light source ON.

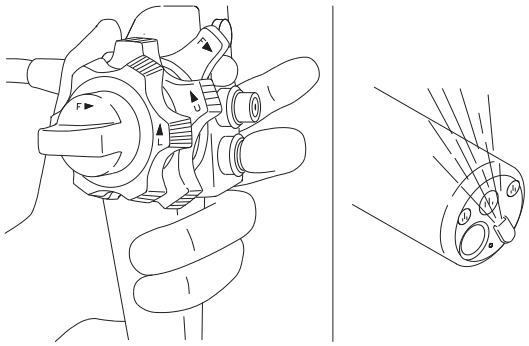


(2) The air supply level changes in order of “HI”, “MID”, “LOW” and “OFF” by pressing the Pump button. Select “HI,” “MID” or “LOW.”



(3) Press the air/water valve of the endoscope to discharge water from the nozzle.

Note Be careful of the direction when water comes out.



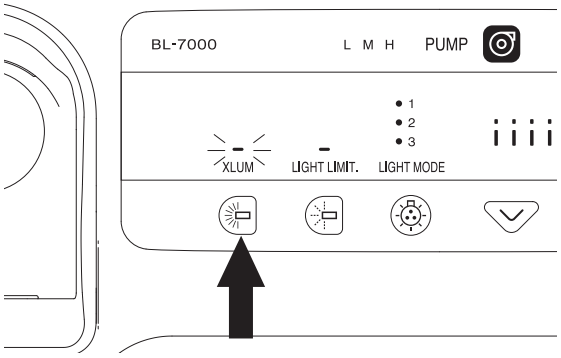
(4) Close the center hole on the air/water valve of endoscope to discharge air from the nozzle.

Note Switch the air supply level in order of “HI”, “MID”, “LOW” to make sure that the air supply amount changes.

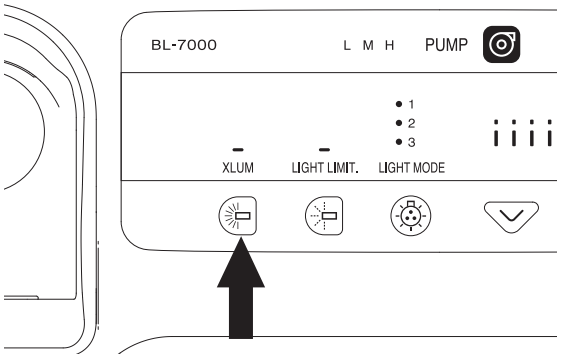
6.4 Transmitted Illumination

The transmitted illumination is used to check the position of the distal end from outside the body. The light flashes with the maximum light intensity.

(1) Press the Transmitted Illumination button. The $\overline{\text{XLUM}}$ lamp above the button flashes.
The light flashes with the maximum amount of the light.



(2) To reset the light intensity to the default, press the Transmitted Illumination button again.
The $\overline{\text{XLUM}}$ lamp above the button is turned off.
The light intensity of the light returns to the default.

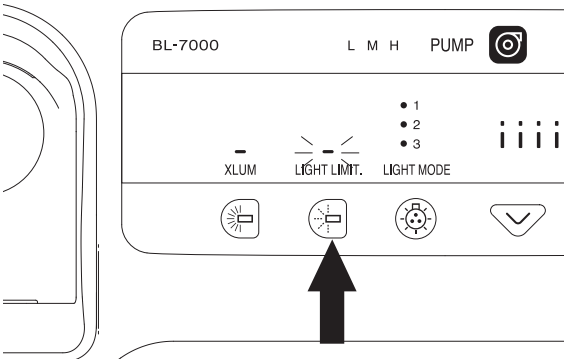


6.5 Light Save

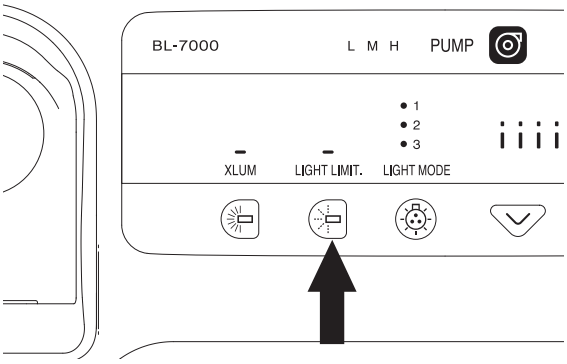
To avoid the blood of a bleeding patient becoming clotted by the illuminating light, the light save function is used to limit the maximum light intensity of the light.

Note
- Blood may become clotted in some cases even if the light save function is used.
- The Light Save mode varies depending on the setting of the processor.

(1) Press the Light Limit button.
The maximum light intensity of the light is limited, and the LIGHT LIMIT. lamp above the Light Limit button flashes.



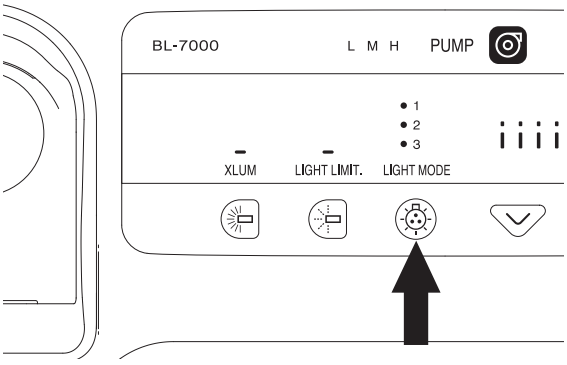
(2) To reset the light intensity to the default, press the Light Limit button again.
The light intensity of the light is reset to the default, and the LIGHT LIMIT. lamp above the Light Limit button is turned off.



6.6 Light Mode

The Light Mode can be switched to “1”, “2”, “3” or “OFF”.

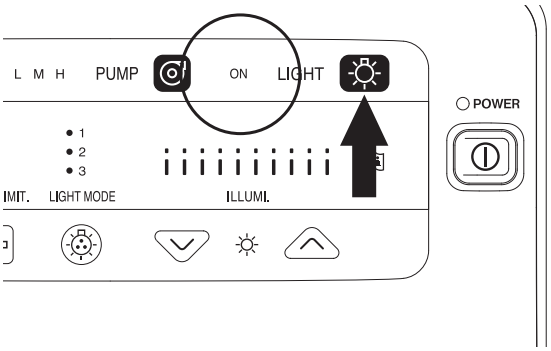
(1) Press the Light Mode button. The Light Mode changes in the order of “1” (● 1 ○ 2 ○ 3), “2” (○ 1 ● 2 ○ 3), “3” (○ 1 ○ 2 ● 3) and “OFF” (○ 1 ○ 2 ○ 3) each time the Light Mode button is pressed.



Note Whether or not the Light mode “3” is available depends on the processor settings or endoscope type.

6.7 Turning Off the Light

(1) Press the Light button.
ON at the left-hand side of the Light button turns off, and the light emission stops.



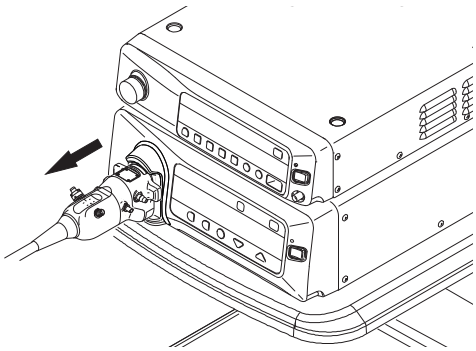
6.8 Turning Off the Power

CAUTION

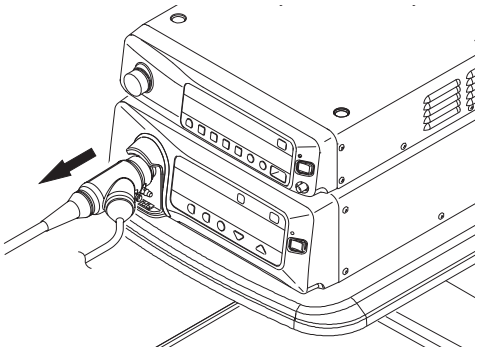
- Do not touch the light guide prong until it has cooled down (approximately 5 minutes). Touching the light guide prong with hands immediately after use of the endoscope may cause a burn.

(1) Press and hold the EXAM. Button on the front panel of the processor for 2 seconds or more. Make sure that the STANDBY indicator lamp lights up in orange, and then remove the endoscope.

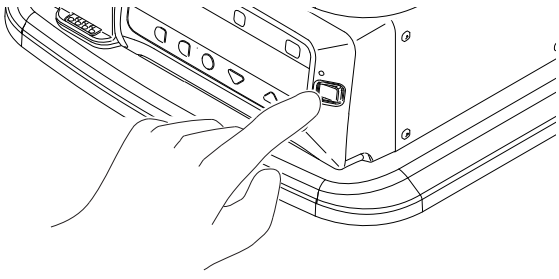
Note Pull the scope connector straight out.



Note Pull the LG connector straight out.



(2) Press the Power button.
The power to this product turns off and the Power lamp goes off.



Note When the light source is not to be used for a long period, disconnect the power plug from the power outlet.

Chapter 7 Storage and Maintenance

Wear personal protective equipment (such as goggles, facemask, chemical-resistant and waterproof gloves, antifouling protective clothing, cap and shoe covers) when performing maintenance work of this product.

CAUTION

- Do not disassemble or modify this product. Otherwise, the radiant intensity may exceed Class I specifications.

7.1 Care after Use of Light Source

Remove debris adhering to this product if it is found after use or while not in use.

CAUTION

- Clean the equipment in the proper way as specified. Otherwise, the equipment may be damaged.
- Do not wash the light source with running water or immerse it in disinfectant. The equipment may be damaged.
- Do not disinfect or sterilize the light source. The equipment may be damaged.

(1) Turn off the light source.

(2) Gently wipe off dust or dirt with clean lint-free gauze, etc.

(3) If any dirt is still present, wipe it off with clean lint-free gauze, etc. moistened with medical-grade neutral detergent.

Note Use detergent according to the detergent manufacturer's instructions.

(4) Wipe the surface with clean lint-free gauze, etc. moistened with 70% ethanol.

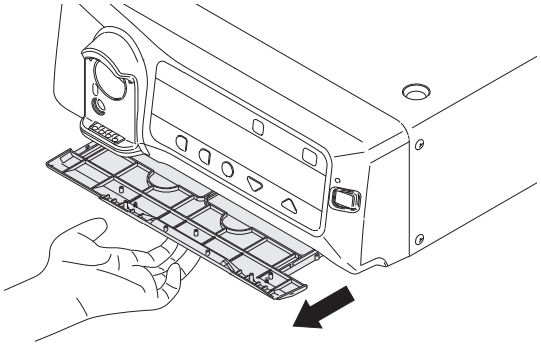
(5) For uneven surfaces, wipe them with a clean cotton swab, etc. moistened with 70% ethanol.

Do not clean the inner side of the scope connector socket or the receiving window. If it becomes dusty or dirty, consult your local FUJIFILM dealer. For details on the cleaning, maintenance and disinfection of the endoscope, refer to the operation manual of the endoscope.

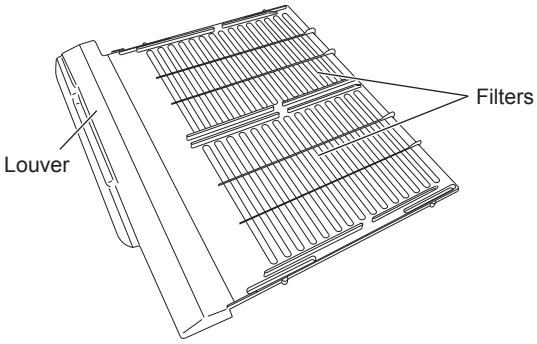
7.2 Cleaning the Filter

(1) Turn off the light source.

(2) Remove the louver from the light source.

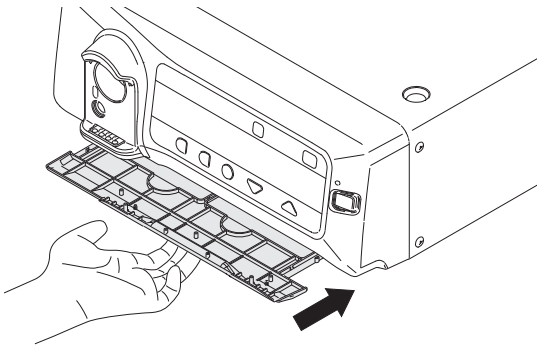


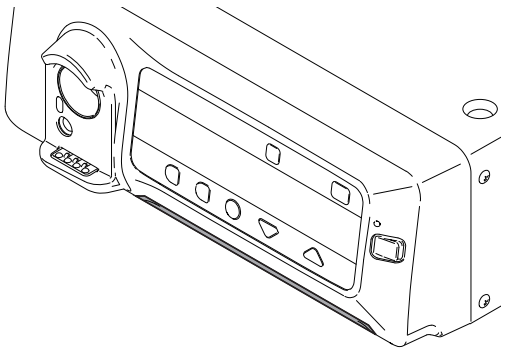
(3) Remove dust from the filters of the louver.



(4) Attach the louver to the light source.
Make sure that the louver is fully inserted into the light source.
Not doing so may cause equipment damage.

Note If the filters are wet, dry them before attachment.





7.3 Storage

7.3.1 Storage of Light Source

Note Do not store the equipment in a place which does not meet the storage conditions. Store the equipment in a state where no force is applied to the cables. The equipment may be damaged.

Store the BL-7000 system in a place that meets the following conditions.

<Storage Environment>

Temperature: -20 to +60°C
Humidity: 10 to 90%RH (no dew condensation)
Pressure: 70 to 106 kPa

Note **<Operating Environment>** Non-operating conditions

Temperature: -10 to +45°C
Humidity: 30 to 95%RH (no dew condensation)
Pressure: 70 to 106 kPa

When the equipment has been out of use for a long period, check the operation again as performed at the installation.

➡ VP-7000 Operation Manual, “Chapter 6 Preparation and Inspection of the System”

7.3.2 Storage of Water Tank

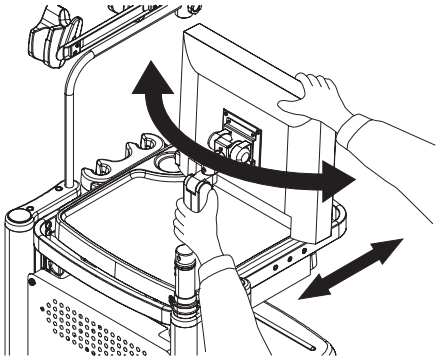
For details on how to store the water tank, refer to the operation manual of the water tank.

7.4 Relocation

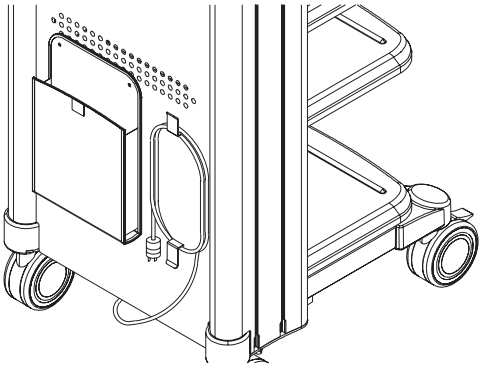
Note Do not apply strong impact on the scope connector or LG connector of the endoscope by hitting it against other objects, etc. Install the light source so that no strong impact is applied to the endoscope connected to the light source. When operating an electric bed, etc., avoid hitting it against the scope connector or LG connector of the endoscope connected to the light source. There is a risk of damaging the endoscope or light source.

When moving the light source installed on the cart, follow the procedure below.

(1) Turn off the power to the light source, processor and cart in advance.
Make sure that the monitor is fixed on the cart.

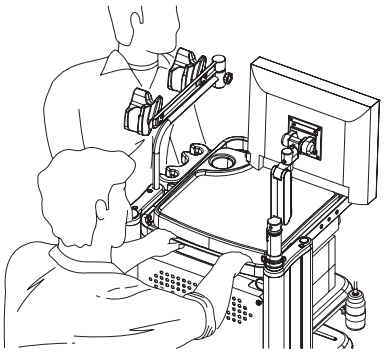


(2) Unplug the power cord of the cart from the receptacle, and wind it around the handle on the rear side. Unlock the cart casters.

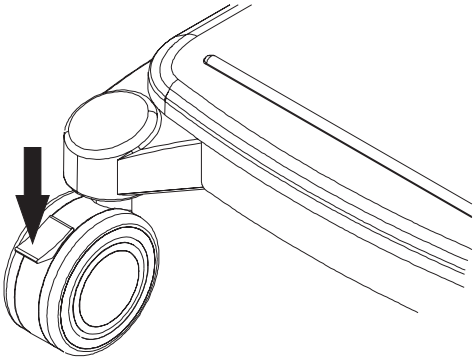


(3) Move the cart carefully not to give any vibration or impacts to the equipment, paying close attention to bumps and slopes.

Note
- Use two persons to move the cart.
- Pay close attention to prevent the monitor and the scope hanger from hitting anything.



(4) Lock the casters of the cart at the place where it is relocated.



7.5 When the Light Source Status Lamp Flashes

<When the Light Source Status Lamp flashes during the clinical procedure>

When the alarm flashes during the clinical procedure, operate the endoscope by following the instruction on the screen, and pull out the endoscope immediately.

After the clinical procedure, check the light source according to the following procedure in “<When the Light Source Status Lamp flashes when it is on>”.

If the light does not turn on, the lighting device is faulty. Straighten the bending section of the endoscope to unlock and release the angle knob. Move your hand away from the knob and pull out the endoscope slowly.

Note For details on how to operate the endoscope, refer to the operation manual of the endoscope.

<When the Light Source Status Lamp flashes when it is on>

If the alarm flashes when you turn on the light, consider the following possible cause.

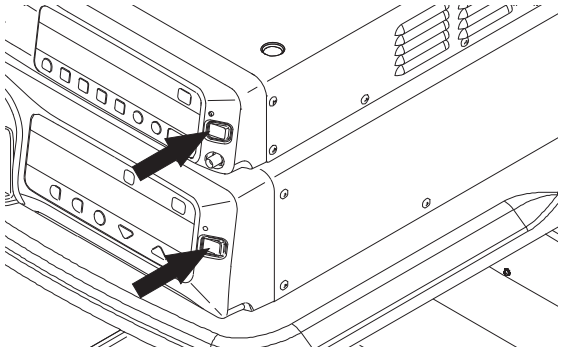
- Overheat of the light
- The lifetime of the light has expired.
- Failure of the lighting device
- Malfunction of the alarm because of noise or other cause.

Inspect the light source according to the procedure described in the following page.

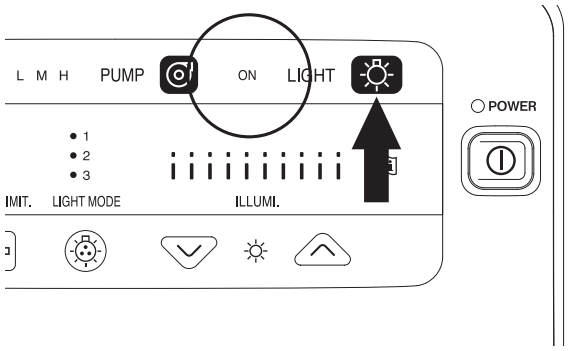
If the lighting device is faulty, the light does not turn on. Straighten the bending section of the endoscope to unlock and release the angle knob. Move your hand away from the knob and pull out the endoscope slowly.

Note For details on how to operate the endoscope, refer to the operation manual of the endoscope.

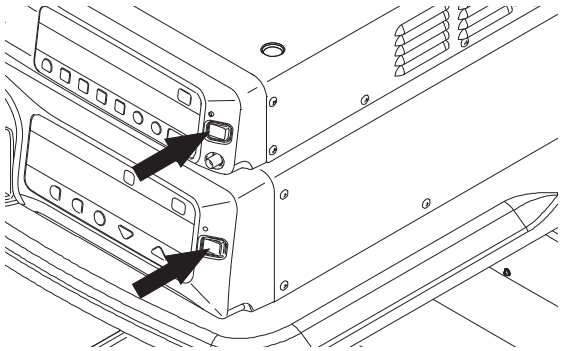
(1) Turn off the power of the processor and light source. After 5 to 10 seconds, turn the power on.



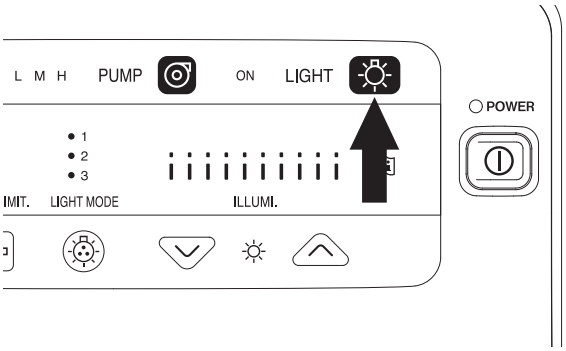
(2) Press the Light button to turn on the light.
If the light turns on, the equipment is ready to operate.
If not, follow the procedure in (3).



(3) Turn off the power of the light source and processor, and turn on the power again.
Do not press the Light button at this time.
The cooling fan for the light source starts cooling down the light.



(4) Cool it down for 2 to 3 minutes, and press the Light button.
If the light turns on, the equipment is ready to operate.



7.6 Cleaning and Disinfecting (or Sterilizing) the Water Tank

For details on how to clean and disinfect (or sterilize) the water tank, refer to the operation manual of the water tank.

Chapter 8 Troubleshooting

8.1 Troubleshooting

If the equipment does not work, or if any abnormality is found during operation, perform inspections and take appropriate measures referring to the table below. If the phenomenon persists, or it is not listed in the table below, stop using the equipment immediately and consult your local FUJIFILM dealer.

Phenomenon	Possible cause	Countermeasure
Turning “ON” the power button does not actuate the equipment. (The Power Indicator Lamp does not light up.)	1) The main switch on the cart is turned “OFF.”	1) Turn “ON” the main switch on the cart.
	2) The power cord is defective.	2) Check the power cord.
	3) The receptacle is defective.	3) Check that the rated voltage is applied.
	4) The fuse is blown.	4) Consult your local FUJIFILM dealer.
The light does not turn on even if the Light button is pressed.	1) The endoscope is not connected.	1) Securely lock the endoscope.
	2) The LG detection sensor is faulty.	2) Consult your local FUJIFILM dealer.
	3) The LED is faulty.	3) Consult your local FUJIFILM dealer.

Note
- Wait for 5 seconds or more before turning the power back to ON.
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.

Phenomenon	Possible cause	Countermeasure
An image disappears during examination or treatment.	1) The imaging section of the endoscope is damaged.	1) 3) 4) 5) If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
	2) The endoscope is not connected completely. 3) The system is malfunctioning due to phenomena such as electrostatic discharge. 4) The internal part of the light source is faulty. 5) The system malfunctions due to abnormal power supply conditions (such as voltage drop).	2) Withdraw the endoscope, ensure that there is no foreign matter or dirt on the power supply section, receiving window or communication window, and connect the endoscope again.
A live image is not displayed after freeze mode is cancelled during examination or treatment.	The system is malfunctioning due to phenomena such as static charges.	If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
An image is suddenly discolored during examination or treatment.	1) The imaging section of the endoscope is damaged. 2) The system is malfunctioning due to phenomena such as electrostatic discharge. 3) The video signal cable is broken or shorting.	1) 2) 3) If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
	4) The endoscope is connected incompletely.	4) Withdraw the endoscope, ensure that there is no foreign matter or dirt on the receiving window or on the communication window, and connect the endoscope again.

Note
- Wait for 5 seconds or more before turning the power back to ON.
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.

Phenomenon	Possible cause	Countermeasure
The light disappears during examination or treatment.	1) The LG detection sensor is faulty. 2) The LED is faulty.	If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
Images displayed are dark.	1) The imaging section of the endoscope is damaged.	1) 5) 6) If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
	2) The Endoscope is not connected completely.	2) Connect the endoscope correctly. ➞ VP-7000 Operation Manual, “7.2 Connecting the Endoscope and Equipment”
	3) The brightness level is approximately - 4.	3) Set the brightness level to approximately 0. ➞ “6.2 Adjusting the Brightness”
	4) The iris mode is “Peak”.	4) Set the iris mode to “Ave.” ➞ VP-7000 Operation Manual, “7.13 Switching the Iris Mode”
	5) The system is malfunctioning due to phenomena such as electrostatic discharge. 6) The internal part of the light source is faulty.	
Distorted image	1) High-frequency interference.	1) Stop power supply to the high-frequency endotherapy device to restore image output. The endoscope is working properly.
	2) The endoscope is connected incompletely.	2) Withdraw the endoscope, ensure that there is no foreign matter or dirt on the receiving window or on the communication window, and connect the endoscope again.

Note
- Wait for 5 seconds or more before turning the power back to ON.
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.

Phenomenon	Possible cause	Countermeasure
Highlight areas in images are too bright.	1) The imaging section of the endoscope is damaged.	1) 4) 5) If an error message appears, follow the displayed instructions. If no error message appears, slowly withdraw the endoscope by following the instructions described in the operation manual of the endoscope in use. Stop using the equipment immediately, and consult your local dealer.
	2) The iris mode is “Ave.”	2) Set the iris mode to “Peak”. ➞ VP-7000 Operation Manual, “7.13 Switching the Iris Mode”
	3) The brightness level is approximately +5.	3) Set the brightness level to approximately 0. ➞ “6.2 Adjusting the Brightness”
	4) The system is malfunctioning due to such as electrostatic discharge. 5) The internal part of the light source is faulty.	
The lens cleaning is insufficient.	1) The tube of the endoscope is clogged. 2) The air supply pump is faulty.	1) 2) Straighten the bending section and then pull out the endoscope slowly. After removing the endoscope from the system, according to the VP-7000 Operation Manual, “Chapter 6 Preparation and Inspection of the System”, make sure the water and air are discharged from the nozzle of the distal end. If air and water are not discharged smoothly, stop using the equipment and consult your local FUJIFILM dealer.
Air and water cannot be supplied.	1) The air supply pump is “OFF”.	1) Press the Pump button to set the air pressure to “HI”, “MID” or “LOW.”
	2) The water tank cover is not closed completely.	2) Close the cover firmly.
	3) Too much water in the water tank.	3) Pour in the water up to 80% of the water tank’s capacity.
	4) The water tank is empty.	4) Pour water into the water tank.
	5) It is not connected to the endoscope firmly.	5) Connect the connector firmly.

Note
- Wait for 5 seconds or more before turning the power back to ON.
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.

Phenomenon	Possible cause	Countermeasure
Suction cannot be performed.	1) The suction unit is not operating.	1) Turn “ON” the suction unit.
	2) The suction tube is bent.	2) Check if the suction tube is not bent. If it is bent, straighten the bent part.
	3) The suction tube is disconnected.	3) Connect the suction tube.

Note For details on how to operate the endoscope, refer to the operation manual of the endoscope.

8.2 Error Messages

If an error occurs, an error message appears on the monitor.

Error message	Possible cause	Countermeasure
Check cable connection between light source and processor and turn off and on light source and processor. Cause: Light source is connected improperly or turned off.	1) The light source is OFF. 2) The processor is not connected to the light source properly.	1) Turn on the BL-7000. 2) Securely connect the interface cable.
Unplug and plug back endoscope, reset the processor and the light source. If the problem persists, contact your local FUJIFILM dealer. Cause: The light source is in abnormal state.	1) The BL-7000 system is faulty. 2) The built-in light source of the BL-7000 is faulty.	Consult your local FUJIFILM dealer.

Note
- For details on how to operate the endoscope, refer to the operation manual of the endoscope.
- For inquiry to our service representatives, the error message and the error code displayed with the error message are required.

Chapter 9 Main Specification

9.1 Specification

CAUTION

- If the range of the operating environment for a peripheral device is narrower than the range of the operating environment for this product, use this product within the range of the operating environment for the peripheral device.

◆ Classification of Medical Electrical Equipment

1. Type of protection against electric shock:	Class I equipment (Power supply: Protective earth plug)
2. Degree of protection against electric shock:	Type BF applied part
3. Degree of explosion protection:	Use is prohibited in an oxygen-rich environment or in a flammable gas atmosphere.
4. Degree of protection against ingress of water:	IPX0
5. Mode of operation:	Continuous operation

Note Combination with VP-7000

◆ Applied Part

Insertion portion of applicable endoscope

◆ Specification

Power	100 - 240V ~ 50/60Hz
Current consumption (rated)	1.2 - 0.7A
Fuse	T4AH 250V×2 (Rating: 4A/250V)
Light control	Automatic light control by the control signal from the processor
Light cooling method	Forced air cooling
Air supply pump	HI/MID/LOW/OFF
Applicable Endoscope	700 system scope, 600 system scope, 500 system scope
Dimensions (W × H × D)	390 × 155 × 485 mm (including projection)
Mass	12kg
Maximum air supply pressure	65 kPa
Maximum water supply pressure	65 kPa
illumination source	LED
Maximum light output (light source)	1400 lm
Optical radiation safety (LED for infrared communication)	Class 1 LED product * (IEC 60825-1: 1993+A1: 1997+A2: 2001: 2007)
Power transmission frequency	110 to 205 kHz
Effective radiatied power	15 W or less

* “Chapter 3, 3.1 Front Panel, (19) Communication Window (LED)” falls into this class.

◆ Operating Environment

Operating conditions

Temperature	+10 to +40°C
Humidity	30 to 85%RH (no dew condensation)
Pressure	70 to 106 kPa

Non-operating conditions

Temperature	-10 to +45°C
Humidity	30 to 95%RH (no dew condensation)
Pressure	70 to 106 kPa

◆ Transport and Storage Environment

Temperature	-20 to +60°C
Humidity	10 to 90%RH (no dew condensation)
Pressure	70 to 106 kPa

◆ Term of Validity/Period for Use (Durability)

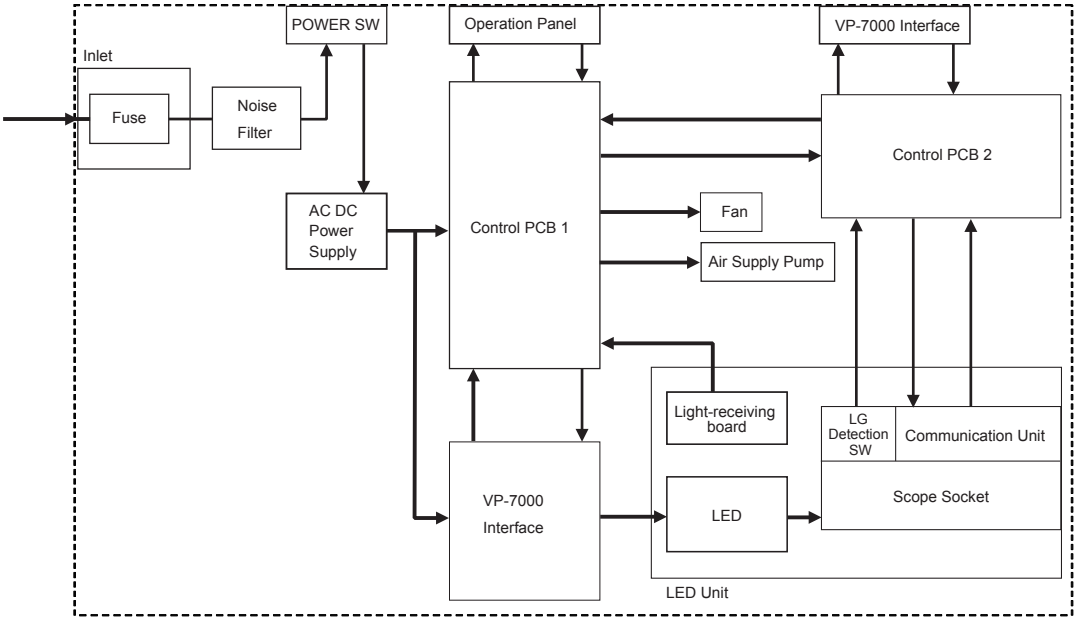
The term of validity (durability) is 6 years from the first use of this product, providing that this product undergoes periodic servicing. “Based on our company’s criteria”

◆ Input/Output Connector

Control connector
I/F connector 1 channel

◆ Block Diagram

The main unit is provided with the power supply section, control section, operation switches (on the front panel), interface section, LED drive section, endoscope (scope) connector section, and the endoscope connector section is electrically isolated (floating). The main unit provides the light whose intensity is adjusted in the LED drive section and supplies the air from the air supply pump to the connected endoscope. The main unit is also equipped with a function that communicates with the endoscope to send information from the interface section to the processor.



◆ Medical Device Directive

This product complies with the requirements of European Directive 93/42/EEC.
Classification : Class II a

CE 0123

9.2 Electromagnetic Compatibility (EMC) Information

Medical electronic equipment requires special care with regards to EMC. This product must be installed and used according to the EMC information provided in Table 1 through Table 4 if both this product *1 and the endoscope and processor *2, which are used in combination, comply with the requirements of EN 60601-1-2:2015 or that provided in Table 5 through Table 8 if either this product *1 or the endoscope and processor *2 comply with the requirements of EN 60601-1-2:2007.

*1 The leftmost alphanumeric character of the serial numbers of this product that complies with the requirements of EN 60601-1-2:2015 is 4 or higher or any of J to Z.
If the serial number is other than any of those above, this product complies with the requirements of EN 60601-1-2:2007.

*2 Refer to the operation manual of the endoscope and processor.

Electromagnetic Emission Compliance Information and Guidance

Table 1

Guidance and Manufacturer Declaration - Electromagnetic Emission -		
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.		
Emission standard	Compliance	Guidance
RF emissions EN 55011	Group 1	This product uses RF energy for internal functions only. Accordingly, the RF emission is very low and unlikely to cause any interference with nearby electronics.
RF emissions EN 55011	Class B (Combination with the 700 system scope, EB-580S or EB-580T and the VP-7000 processor) Class A (Combinations other than above)	[RF emissions] With the Class B combination, this product is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. With the Class A combination, this product is intended for use in medical facilities and commercial facilities. Therefore, if this product is used in domestic establishments, electromagnetic interference may occur in any devices. In addition, this product may not offer adequate protection to radio-frequency communication services. The user may need to take mitigation measures, such as relocating or reorienting the equipment. In these cases, it is recommended to take corrective measures according to “Chapter 1 Precautions.”
Harmonic emissions EN 61000-3-2	Class A	
Voltage fluctuation/ flicker emissions EN 61000-3-3	Applicable	

Electromagnetic Immunity Compliance Information and Guidance

Table 2

Guidance and Manufacturer Declaration - Electromagnetic Immunity -			
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.			
Immunity test	IEC 60601 Test level	Compliance level	Guidance
Electrostatic discharge (ESD) IEC/EN 61000-4-2	±8 kV contact ±2 kV air ±4 kV air ±8 kV air ±15 kV air	±8 kV contact ±2 kV air ±4 kV air ±8 kV air ±15 kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst IEC/EN 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Main power quality should be that of a typical commercial or hospital environment.
Surge IEC/EN 61000-4-5	±0.5 kV, ±1.0 kV line to line ±0.5 kV, ±1.0 kV, ±2.0 kV line to earth	±0.5 kV, ±1.0 kV line to line ±0.5 kV, ±1.0 kV, ±2.0 kV line to earth	Main power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC/EN 61000-4-11	0% U_T for 0.5 cycles and 1 cycles 70% U_T for 0.5 second 0% U_T for 5 seconds	0% U_T for 0.5 cycles and 1 cycles 70% U_T for 0.5 second 0% U_T for 5 seconds	Main power quality should be that of a typical commercial or hospital environment. If the user of this product requires continued operation during power mains interruptions, it is recommended that this product is powered from an uninterruptible power supply or battery
Power frequency (50/60 Hz) magnetic field IEC/EN 61000-4-8	30 A/m	30 A/m	The power frequency magnetic field should have the same level of characteristics as a common location in standard business and hospital environments.

Note U_T is the a.c. mains voltage prior to application of the test level.

Portable and Mobile RF Communications Equipment Compliance Information and Guidance
Table 3

Guidance and Manufacturer Declaration - Electromagnetic Immunity -			
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.			
Immunity test	EN 60601 Test level	Compliance level	Guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz 6 Vrms ISM Frequency Band[c]	3 Vrms 6 Vrms ISM Frequency Band[c]	Portable and mobile RF communications equipment should be used no closer to any part of this product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.7 GHz Where “P” is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and “d” is the recommended separation distance in meters (m). The electric field intensity from a fixed RF transmitter determined by an electromagnetic field study[a] should be lower than the compliance level in each frequency range[b]. Interference may occur near devices that display the following symbol. 
Radiated RF IEC/EN 61000-4-3	3 V/m 80 MHz to 2.7 GHz	3 V/m	
Immunity to proximity fields from RF wireless communications equipment IEC/EN 61000-4-3	380 - 390 MHz, 27 V/m 430 - 470 MHz, 28 V/m 704 - 787 MHz, 9 V/m 800 - 960 MHz, 28 V/m 1422 - 1512 MHz, 10 V/m 1700 - 1990 MHz, 28 V/m 2400 - 2570 MHz, 28 V/m 3480 - 3600 MHz, 10 V/m 5100 - 5800 MHz, 9 V/m	380 - 390 MHz, 27 V/m 430 - 470 MHz, 28 V/m 704 - 787 MHz, 9 V/m 800 - 960 MHz, 28 V/m 1422 - 1512 MHz, 10 V/m 1700 - 1990 MHz, 28 V/m 2400 - 2570 MHz, 28 V/m 3480 - 3600 MHz, 10 V/m 5100 - 5800 MHz, 9 V/m	Degradation of the performance of this product could result if portable RF communications equipment is used closer than 30 cm to any part of this product.

Note
- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which this product is used exceeds the applicable RF compliance level above, this product should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating this product.
b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
c. Frequency bands of 6.765 MHz to 6.795 MHz, 13.553 MHz to 13.567 MHz, 26.957 MHz to 27.283 MHz, or 40.66 MHz to 40.70 MHz

Recommended Separation Distance Between Portable and Mobile RF Communications Equipment and this Product

Table 4

Recommended separation distance between portable and mobile RF communications equipment and this product.			
This product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of this product can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and this product as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter P (W)	Separation distance related to frequency of the transmitter (m)		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
Note • At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. • These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Electromagnetic Emission Compliance Information and Guidance

Table 5

Guidance and Manufacturer Declaration - Electromagnetic Emission -		
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.		
Emission standard	Compliance	Guidance
RF emissions EN 55011	Group 1	This product uses RF energy for internal functions only. Accordingly, the RF emission is very low and unlikely to cause any interference with nearby electronics.
RF emissions EN 55011	Class B (Combination with the 700 system scope, EB-580S or EB-580T and the VP-7000 processor) Class A (Combinations other than above)	[RF emissions] With the Class B combination, this product is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. With the Class A combination, this product is intended for use in medical facilities and commercial facilities. Therefore, if this product is used in domestic establishments, electromagnetic interference may occur in any devices. In addition, this product may not offer adequate protection to radio-frequency communication services. The user may need to take mitigation measures, such as relocating or reorienting the equipment. In these cases, it is recommended to take corrective measures according to “Chapter 1 Precautions.”
Harmonic emissions EN 61000-3-2	Class A	
Voltage fluctuation/ flicker emissions EN 61000-3-3	Applicable	

Electromagnetic Immunity Compliance Information and Guidance

Table 6

Guidance and Manufacturer Declaration - Electromagnetic Immunity -			
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.			
Immunity test	EN 60601 Test level	Compliance level	Guidance
Electrostatic discharge (ESD) EN 61000-4-2	±6kV contact ±8kV air	±2kV contact ±4kV contact ±6kV contact ±2kV air ±4kV air ±8kV air	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/ burst EN 61000-4-4	±2kV for power supply lines ±1kV for input/output lines	±2kV for power supply lines ±1kV for input/output lines	Main power quality should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	±1kV line to line ±2kV line to earth	±1kV line to line ±2kV line to earth	Main power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN 61000-4-11	< 5 % U_T (dip in > 95 % U_T) for 0.5 cycles 40 % U_T (dip in 60 % U_T) for 5 cycles 70 % U_T (dip in 30 % U_T) for 25 cycles < 5 % U_T (dip in > 95 % U_T) for 5 seconds	< 5 % U_T (dip in > 95 % U_T) for 0.5 cycles 40 % U_T (dip in 60 % U_T) for 5 cycles 70 % U_T (dip in 30 % U_T) for 25 cycles < 5 % U_T (dip in > 95 % U_T) for 5 seconds	Main power quality should be that of a typical commercial or hospital environment. If the user of this product requires continued operation during power mains interruptions, it is recommended that this product is powered from an uninterruptible power supply or battery
Power frequency (50/60 Hz) magnetic field EN 61000-4-8	3 A/m	3 A/m	The power frequency magnetic field should have the same level of characteristics as a common location in standard business and hospital environments.

Note U_T is the a.c. mains voltage prior to application of the test level.

Portable and Mobile RF Communications Equipment Compliance Information and Guidance

Table 7

Guidance and Manufacturer Declaration - Electromagnetic Immunity -			
This device is intended for use in the following prescribed electromagnetic environments. Customers and users of this product are advised to check that it is being used in such environments.			
Immunity test	EN 60601 Test level	Compliance level	Guidance
Conducted RF EN 61000-4-6	3Vrms 150kHz to 80MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of this product, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1.2 \sqrt{P}$
Radiated RF EN 61000-4-3	3V/m 80MHz to 2.5GHz	3 V/m	$d = 1.2 \sqrt{P}$ 80MHz to 800MHz $d = 2.3 \sqrt{P}$ 800MHz to 2.5GHz Where “P” is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and “d” is the recommended separation distance in meters (m). The electric field intensity from a fixed RF transmitter determined by an electromagnetic field study[a] should be lower than the compliance level in each frequency range[b]. Interference may occur near devices that display the following symbol. 

Note
- For 80 and 800 MHz, apply the higher frequency range.
- These guidelines do not apply to all circumstances. Electromagnetic propagation is affected by absorption and reflection by buildings, items, and people.

a. Electric field intensity from fixed transmitters such as wireless (mobile / cordless) telephone base stations, land mobile radio base stations, amateur radio, AM and FM radio broadcasts, and TV broadcasts cannot be predicted accurately in theory.
An electromagnetic field survey should be considered to estimate the electromagnetic environment due to fixed RF transmitters. When the measured electric field intensity in the location in which this product is used exceeds the RF compatibility level applied above, this product should be monitored to verify whether it is operating normally. When abnormal operation has been confirmed, it may be necessary to take additional measures, such as relocation or re-installation of this product.

b. The electric field intensity should be less than 3 V/m through the frequency range from 150 kHz through 80 MHz.

Recommended Separation Distance Between Portable and Mobile RF Communications Equipment and this Product

Table 8

Recommended separation distance for portable and mobile RF communications equipment and this equipment.			
This device is intended for use in electromagnetic environments in which emission RF interference is managed. To control electromagnetic interference, the customer and user of this product can maintain the minimum distance between the following recommended portable and mobile RF communications equipment (transmitters) and this product based on the maximum output of the transmitter.			
Rated maximum output power of transmitter P (W)	Separation distance related to frequency of the transmitter (m)		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters with a maximum output electric power rated value not listed above, the recommended separation distance (d) expressed in meters (m) can be determined using a formula that corresponds with the frequency of the transmitter. In these formulas, “P” is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
Note • For 80 and 800 MHz, apply the higher frequency range. • These guidelines do not apply to all circumstances. Electromagnetic propagation is affected by absorption and reflection by buildings, items, and people.			

9.3 After-Sales Service

1) If the equipment does not work properly, check it first by reading this manual again and follow all instructions.

2) If the equipment is still not working well, contact your local FUJIFILM dealer.

3) Repairs during the warranty period
We will repair your equipment free of charge according to the provisions of the warranty.
The warranty period is one year after date of purchase.
Note that the warranty is void in the following cases:

a. Damage caused by fire or natural disaster such as storms or floods.
b. Trouble caused by careless handling or misuse of the product on the part of the user.
c. Trouble caused by repair or modification by an unauthorized person.

4) Repairs after the warranty period
We will make a paid repair at your request if the equipment is found possible to restore the normal function by repair.
When contacting your local FUJIFILM dealer, provide the following information.
Model name: BL-7000
Serial number:
Description of failure: as detailed as possible
Date of purchase:

* The serial number is indicated on the rear side of the product.

<Product Malfunction>

In case of product malfunction, consult your local FUJIFILM dealer.
The product will be repaired at the factory or replaced with a comparable product.

9.4 Disposal of Electric and Electronic Equipment

Disposal of Used Electrical and Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product, or in the manual and/or on this packaging, indicates that this product shall not be treated as household waste.

Instead it should be taken to an applicable collection point for the recycling of electrical and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, contact your local FUJIFILM dealer.

In Countries outside the EU: If you wish to discard this product, contact your local authorities and ask for the correct way of disposal.

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Service Centers

Contact our regional representative below or the distributor from which you purchased the product.

<Europe>

FUJIFILM Europe GmbH
http://www.fujifilm.eu/eu/
See our website to locate our representative in your country.

<USA>

Fujifilm Medical Systems U.S.A., Inc
http://www.fujifilmendoscopy.com/
(800) 385-4666

<Australia>

FUJIFILM Australia Pty Ltd
http://www.fujifilm.com.au/
1800 060 209

<Asia>

FUJIFILM Asia Pacific Pte. Ltd.
http://www.fujifilm.com.sg/
6380-5540

If you are not a resident of the regions above, contact the distributor from which you purchased the product.

FUJIFILM Corporation
26-30, Nishiazabu 2-chome, Minato-ku, Tokyo 106-8620, Japan

FUJIFILM Europe GmbH
Heesenstrasse 31, 40549 Duesseldorf, Germany

EU Importer:
FUJIFILM Europe B.V.
Oudenstaart 1, 5047 TK Tilburg, The Netherlands

Imported to Australia by:
FUJIFILM Australia Pty Ltd
114 Old Pittwater Road, Brookvale, NSW. 2100, Australia

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