

Ultrasonic Processor

OPERATION MANUAL

SP-900

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

Important Safety Information

1. Intended use

This product is intended to be used in combination with a FUJIFILM endoscopic system, a monitor, and other peripheral devices for the visualization of the shapes, properties or dynamics inside a body using ultrasonic waves to provide image information for diagnosis in medical facilities under the management of physicians. Do not use this product for any other purpose.

2. Safety

Read and understand this manual carefully before use. Use the product by following the instructions provided. Items important for the safe use of this product are summarized in “Chapter 1 Safety”. Safety precautions associated with individual operations or procedures are provided separately, indicated by “**▲WARNING**” or “**▲CAUTION**”.

3. Warnings

Items that must be observed to prevent bodily harm when installing this product are identified by “**▲WARNING**” or “**▲CAUTION**”. Read and understand the precautions carefully to ensure that procedures are performed correctly.

WARNING

Read and understand this manual fully before operating this system.

Improper use or operation of the equipment may result in injuries to patients, physicians, or people in the vicinity.

4. Clinical Procedures

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

5. Inspection Before Use

Make sure to inspect this product before use according to Chapter 6 “Starting/Closing Exam” to avoid unexpected accidents and take full advantage of the product’s capabilities.

6. Combination of Equipment

This product may be used in combination with peripherals. To avoid an electric shock accident, do not use any peripheral other than ones in “3.1.4 Using Equipment in Combination”.

7. Installation

Only FUJIFILM authorized service personnel is allowed to install this system. No one except such personnel should install this system.

8. High Voltage

This product contains high-voltage portions. No one except FUJIFILM authorized service personnel should touch the inside.

Improper use or operation of this product may injure patients, physicians, or people in the vicinity.

Read this manual thoroughly and carefully before use.

9. Electric Shock

Do not touch the connector on the rear of the equipment and the patient simultaneously. There is a risk of electric shock.

10. Foreign Matter and Liquid

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 contact your local FUJIFILM dealer.

11. If Any Abnormality Occurs During Clinical Procedure

If any abnormality occurs with this product during the clinical procedure, refer to “Chapter 10 Troubleshooting”. Especially, if this product is continuously used with an abnormal ultrasonic image displayed, the distal end of the endoscopic ultrasonic probe may generate abnormal heat, causing burn or injury.

12. Loss of Function

During an examination, if the ultrasonic image disappears, or a live image is not displayed after freeze mode has been cancelled, reset the ultrasonic processor.

If an appropriate ultrasonic image does not appear even after resetting the ultrasonic processor, turn it off, and then withdraw the endoscopic ultrasonic probe slowly from the patient.

[Note] Reset: Turn off the ultrasonic processor, and wait for at least 5 seconds. Turn on the ultrasonic processor again.

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

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Preface

This manual describes how to use the ultrasonic processor SP-900 as well as how to record images using peripherals.




The SP-900 system is composed of the main unit, control pad, endoscopic ultrasonic probe and scanner, and is used in combination with an ultrasonic endoscope, medical endoscopic system, monitor, color printer, etc.

For how to connect and operate these devices, refer to their operation manuals.

Conventions Used in This Manual

This manual uses the following conventions for easier understanding.

■ General Conventions

Convention	Description
	Indicates a potential danger that may cause harm to people.
 WARNING	Explains dangerous situations that may cause death or serious injury if not avoided.
 CAUTION	Explains situations that may cause injury if not avoided.
CAUTION	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.

Terms used in this manual

SP-900 System

In narrow definition, includes the ultrasonic processor SP-900, control pad CP-900, scanner RS-900 and endoscopic ultrasonic probe in the P series or PB2020-M.

In the broad definition, includes a set of equipment (standard system and expanded system) including various connected peripheral devices in addition to the narrow definition.

Endoscopic ultrasonic probe

An endoscopic ultrasonic probe used with the SP-900 system.

Active

The screen on which the menus are selectable.

Live mode

The live image provided by ultrasound scanning is displayed on the screen.

Freeze mode

An image displayed on the screen remains still and the [FREEZE] key is pressed.

Press (Keyboard)

It allows various key operations.

Some keys, when pressed, enable the operation to be activated while others activate the mode allocated to the key.

Select

It means selecting a function by pressing the [SET] key.

B-mode

The B-mode screen is displayed.

→ “7.1 B-mode”

Measurement menu

It indicates the menus displayed when [MEASURE] key is pressed during the freeze mode.

→ “7.9 Measuring Distance”

→ “7.10 Measuring Circumference and Area”

Image

It indicates an image actually displayed on the screen.

Frame

It indicates an image obtained when scanned once.

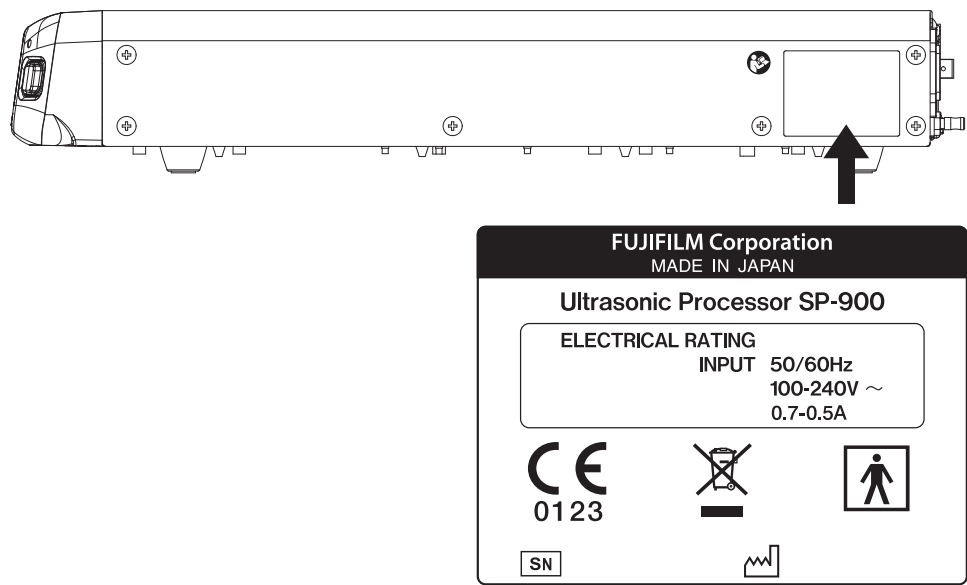
Frame rate

It indicates the number of frames obtained per second. The frame rate changes according to the scanning conditions.









Symbols and marks








The meanings of the symbols and marks used in this product are as follows.

Rating plate



Symbols

Symbol	Description
	Serial number
	Date of manufacture
	Manufacturer
	Authorised representative in the European Community
	Temperature limitation
	Keep dry
	CE marking
	Type BF applied part

Symbol	Description
	WEEE marking ^[Note]
	Humidity limitation
	Atmospheric pressure limitation
 (Blue)	Refer to instructions for use
	Alternating current
	Fuse
	Potential equalization terminal

[Note] This product shall not be treated as household waste.

Chapter 1 Safety

1. Precautions for use

(1) Application to heart

This product is in accordance with the degree of protection against electric shock for type BF equipment. Do not bring the endoscopic ultrasonic probe connected to this product into contact with the heart. Neglect of this may cause serious hazards such as ventricular fibrillation.

(2) Protection from cardioverter

This product does not provide protection from a cardioverter.
When using the cardioverter while using this product, remove the endoscopic ultrasonic probe out of a patient to make sure that this product is not in contact with the patient. Neglect of this may cause an electric shock.

(3) Preparation and inspection before use

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 inspect this product 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, defected images may lead to a misdiagnosis. As a result of the inspection, if any defect is found in any device, do not use the device.

(4) Combination of equipment

This product may be used in combination with peripherals. To avoid an electric shock accident, do not use any peripheral other than ones listed in "3.1.4 Using Equipment in Combination".

(5) Maintenance

Have this product checked by FUJIFILM authorized service personnel once every six months. This product will wear out and deteriorate after repeated use for a long period. Also have it checked if any defect is found in this product.
Do not disassemble or modify this product.

(6) Temperature at distal end

When ultrasound waves are emitted over an extended time, the temperature of the distal end of ultrasonic endoscope may reach 42.0°C at maximum.

Stop emitting the ultrasound waves and (freeze the ultrasonic image) when the endoscopic ultrasonic probe is not used.

(7) Electromagnetic interference

This product has been tested and confirmed to comply with the limits for medical devices to the EN 60601-1-2:2007. These limits are designed to provide reasonable protection against harmful interference in a typical installation at medical facilities. However, it is possible that this product may cause harmful interference to other devices in vicinity, even if it is installed and used in accordance with the instructions of this product. 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, that can be determined by tuning 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.

Noise may appear on the monitor of this product due to the interference of electromagnetic waves. In this case, turn off the device emitting the electromagnetic waves or move the device away from this product.

(8) Distortion of images due to load on endoscopic ultrasonic probe

If a load is applied to the endoscopic ultrasonic probe, distortion of images or an error in distance measurement result may occur. Fully understand the endoscopic ultrasonic probe's properties before use.

2. Disposal

This product is equipped with a lithium manganese dioxide battery. 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.

3. “ WARNING” and “ CAUTION” Messages Appearing in Each Chapter

Chapter 6 Starting/Closing Exam

Do not use the equipment in flammable gas atmosphere. Doing so may cause explosion.

Use the rated voltage only. Plug the power plug into a medical outlet with a ground terminal. Connect the power plug to the protective earth receptacle. Only FUJIFILM authorized service personnel are permitted to open the covers. Not adhering to these instructions may cause electric shock.

6.6 Acquiring Ultrasonic Image

Do not perform scanning when the endoscopic ultrasonic probe is not visible. Do not let the endoscopic ultrasonic probe press against the inner surface of the body cavity. Doing so may cause perforation or damage to mucous.

Chapter 9 Storage and Maintenance

9.1 Maintenance

Do not open covers of this product. Only FUJIFILM authorized service personnel are permitted to open the covers. Doing so may pose a risk of electric shock.

Keep liquids such as alcohol and water from entering this product. Not doing so may cause fire or equipment failure.

When either one of the following occurs, immediately stop using and unplug this product, and then contact your local FUJIFILM dealer.

- When this product receives a strong shock like falling off.
- When liquid such as water enters this product or spills out.
- When this product does not work properly.
- When the chassis of this product is cracked, split up or broken.
- When the performance of the power cord, guide cord and other cords is degraded.

9.5 Replacing Fuse

Do not replace the fuse. If the fuse needs to be replaced, contact your local FUJIFILM dealer.

9.8 Moving Cart

Move the cart by two people. Not doing so may cause the cart to tip over and result in personal injury.

Move the cart by three people in uneven places. Not doing so may cause the cart to tip over and result in personal injury.

Remove the water tank before moving the cart. Not doing so may cause the cart to tip over due to spilt water and result in personal injury.

Remove the endoscope before moving the cart. Not doing so may cause damage to the endoscope.

Remove the endoscopic ultrasonic probe before moving the cart. Not doing so may cause damage to the endoscopic ultrasonic probe.

Chapter 11 System Installation

11.1.1 Environment

Do not use this product in flammable gas atmosphere. Doing so may cause an explosion.

11.1.2 Power Supply

Use the rated voltage. Otherwise, fire, electric shock or equipment failure may result.

Connect the power plug to the protective earth receptacle directly. Use the peripherals that are compliant with medical safety standards. Not doing so may pose a risk of electric shock.

11.4.1 Moving and Fixing

Move the cart by two people. Not doing so may cause the cart to tip over and result in personal injury.

Move the cart by three people in uneven places. Not doing so may cause the cart to tip over and result in personal injury.

Remove the water tank before moving the cart. Not doing so may cause the cart to tip over due to spilt water and result in personal injury.

Remove the endoscope before moving the cart. Not doing so may cause damage to the endoscope.

Remove the endoscopic ultrasonic probe before moving the cart. Not doing so may cause damage to the endoscopic ultrasonic probe.

11.4.2 Connecting Power Supply and Potential Equalization Terminal

The power supply should be used at the rated voltage. Otherwise, fire, electric shock or equipment failure may result.

Connect the power plug to the protective earth receptacle directly. Use the peripherals that are compliant with medical safety standards. Doing so may pose a risk of electric shock.

Chapter 2 Ultrasonic Output Power

Prior to using SP-900, be sure to read the information on the ultrasonic output power mentioned below.

2.1 ALARA (As Low As Reasonably Achievable)

As far as you observe the instructions to use SP-900 correctly, you will not be harmed regardless of an ultrasonic frequency, irradiation time or strength, but it is recommended to conduct an inspection with the minimum degree of ultrasonic irradiation which allows you to obtain necessary diagnostic information. This concept of operation is called ALARA (As Low As Reasonably Achievable).

This concept is to minimize the ultrasonic output power and inspection time without lowering the ultrasonic diagnostic accuracy and the resolution.

Against the benefits obtained from an endosonography, an operator has to put an emphasis on reducing an inspection risk.

For this reason, it is recommend to follow the steps below:

- Use ultrasonic waves to diagnose only when you have a correct medical basis to use them.
- Every time you start an inspection, press [PATIENT ENTRY] key to reset the data.
- Use an endoscopic ultrasonic probe provided with the resolution and the depth of focus suitable for diagnosis.
- In order to reduce an ultrasonic irradiation time, a medical physician should collect necessary clinical data and use a technique which finishes an inspection as quickly as possible. As for fetuses, particularly embryos, do not irradiate them with ultrasonic waves because they are very susceptible to ultrasonic energy.

The concept of ALARA and the possible biological effects of ultrasonic waves are also obtainable from “Medical Ultrasound Safety” issued by the AIUM (American Institute of Ultrasound in Medicine).

2.2 Effects of Ultrasonic Waves on Living Body

The following 2 kinds of natures are currently reported on the effects of ultrasonic waves on the living body.

One is a thermal index (TI) on the living body by absorption of ultrasonic waves through the tissue, and the other is a mechanical index (MI) on the living body by cavitation (generation and destruction of bubbles). Note that they reflect the instantaneous state of the ultrasonic output power and an accumulated effect of inspection time length is not taken into account.

<Thermal Index (TI)>

This is an index indicating a relative temperature increase by a thermal action. This thermal action has an effect on the living body. The TI shows a relative ratio to the ultrasonic output power which causes a temperature increase of 1°C under certain conditions simulating the living tissue. As a temperature increase greatly differs depending on the internal structure of the living body, the TI is divided into 3 kinds; TIS (Soft-Tissue Thermal Index), TIB (Bone Thermal Index), and TIC (Cranial-Bone Thermal Index).

TIS: Thermal index for the general soft tissue such as the abdomen and circulatory organs.

TIB: Thermal index for the cases where the ultrasonic waves pass through the soft tissue, bringing a focus area close to a bone, such as the head through the fontanel of a fetus (for the 2nd and 3rd quarter) or a newborn baby.

TIC: Thermal index for the cases where a bone exists immediately below ultrasonic endoscope such as the case when inspecting from the skull of an infant and an adult.

The ultrasonic output power is automatically controlled depending on the application. For obstetrical uses, however, you have to avoid a high TI value, because the WFUMB (World Federation for Ultrasound in Medicine and Biology) presents the guideline stating that the tissue of the fetus may be adversely affected if the temperature increases by 4°C in 5 minutes.

<Mechanical Index (MI)>

When the sound pressure of negative cycle of the ultrasonic waves exceeds a certain limit, cavitation occurs. This mechanical action has an effect on the living body. The MI, an index indicating a possibility of cavitation by ultrasonic waves, is a value obtained by dividing the maximum negative sound pressure of ultrasonic pulses by the square root of the frequency. As the frequency increases and the negative sound pressure decreases, therefore, the MI is reduced, lowering a possibility of cavitation.

If the frequency is 1 MHz and the maximum negative sound pressure is 1 MPa, the MI will be "1"; making it one of the threshold values to cause cavitation. Particularly when gas and the soft tissue exist in mixture, such as the lungs radiated at the time of inspecting the heart and the gas in the bowels at the time of inspecting the abdomen, it is important to keep the MI low.

2.3 Controlling Ultrasonic Output Power

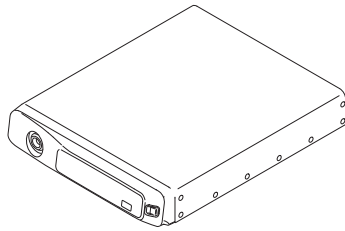
SP-900 ensures that TI does not exceed 1.0, and MI does not exceed 1.0, in all of the operation modes. Accordingly, the acoustic output is not described based on EN 60601-2-37.

Chapter 3 SP-900 System Configuration

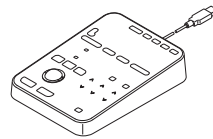
3.1 Components of SP-900 System

3.1.1 Components of SP-900 System

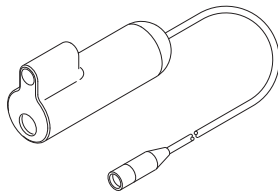
The SP-900 system consists of the following components.
Figures in parentheses indicate the number of articles.



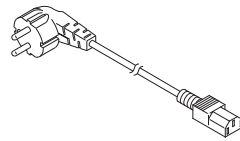
Ultrasonic Processor
SP-900 (1)



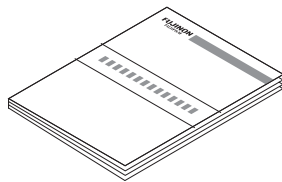
Control Pad
CP-900 (1)



Scanner
RS-900 (1)



Power Cord ^[Note] (1)

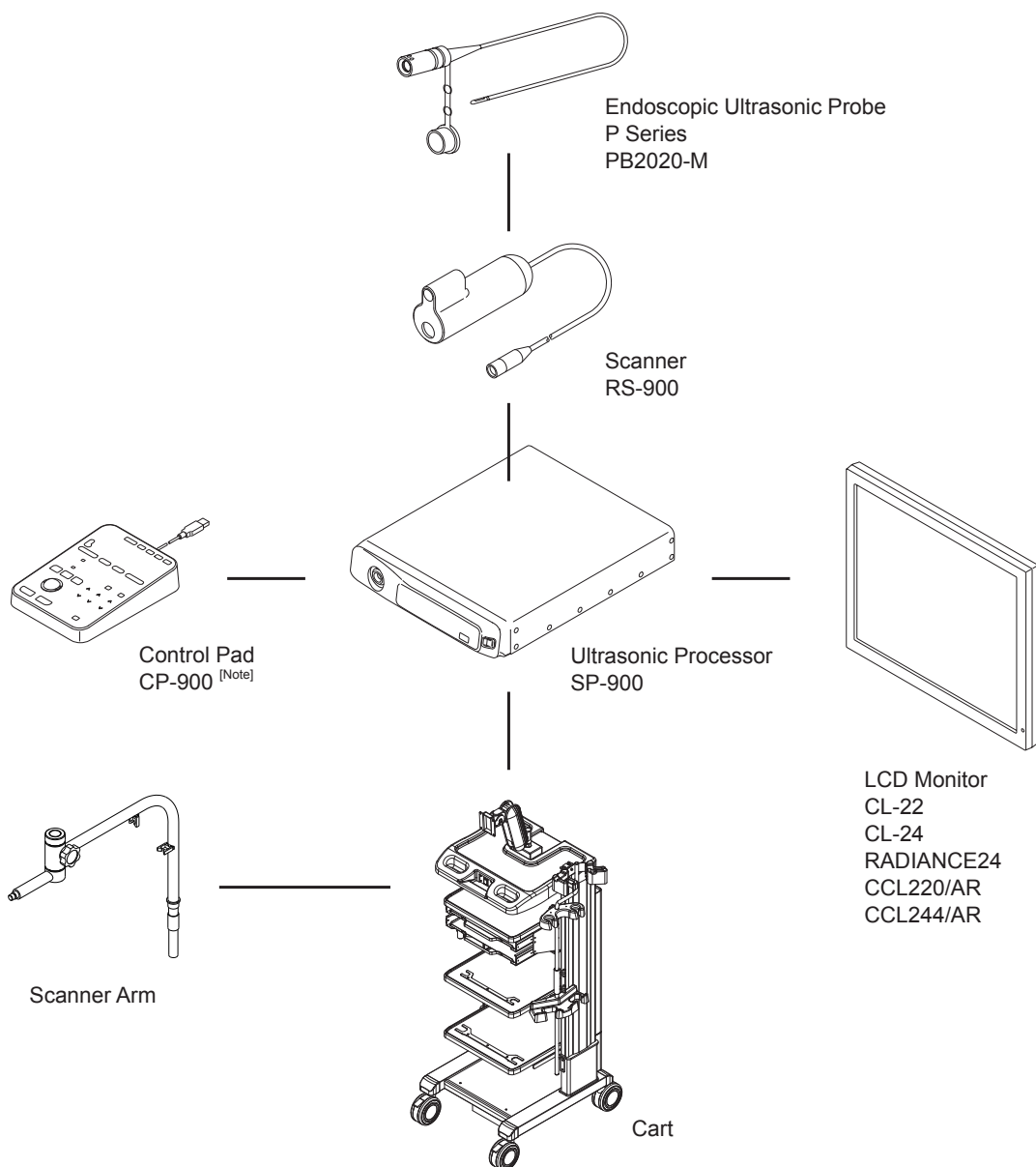


Operation Manual (1)

[Note] The power cord model CC9-003(BR)(S) is provided to the Brazilian market only.

3.1.2 Standard System Configuration (Example)

The standard system configuration consists of the minimum components required for an examination. Examinations (diagnoses) of ultrasonic images on the monitor can be conducted.



[Note] Connect the control pad CP-900 to the ultrasonic processor SP-900 only.

3.1.3 System Expansion (Example)

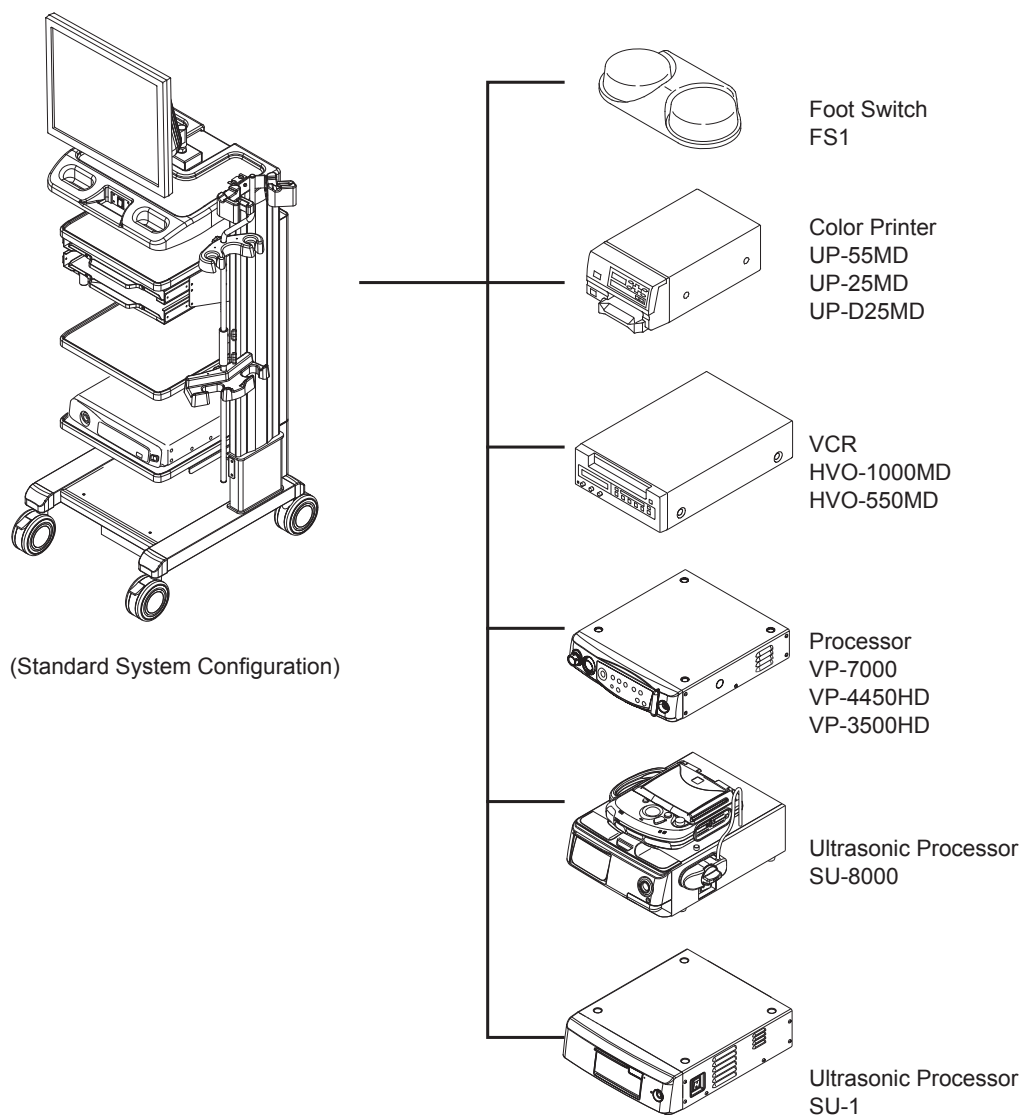
The SP-900 system can be expanded by connecting additional devices to its standard composition.

When the system is expanded, new functions as exemplified below can be used.

- * Recording to a still image recorder
- * Recording of dynamic images
- * Printing of images

This section explains an example of the expanded SP-900 system. For the system expansion of the VP-7000, VP-4450HD and VP-3500HD processors, see their operation manuals.

[Note] For connection details of peripheral devices other than those described in this manual, contact your local FUJIFILM dealer.



3.1.4 Using Equipment in Combination

The equipment used in combination with the SP-900 ultrasonic processor is shown in the table below.

Table 3.1 Equipment configuring the system

Type	Model name
Ultrasonic Processor	SP-900
Control Pad	CP-900
Scanner	RS-900
Endoscopic Ultrasonic Probe	P series, PB2020-M
LCD Monitor	CL-22 (FUJIFILM), CL-24 (FUJIFILM), RADIANCE24 (NDS), CCL220/AR (JVC KENWOOD), CCL244/AR (JVC KENWOOD)
Cart	-
Scanner Arm	-

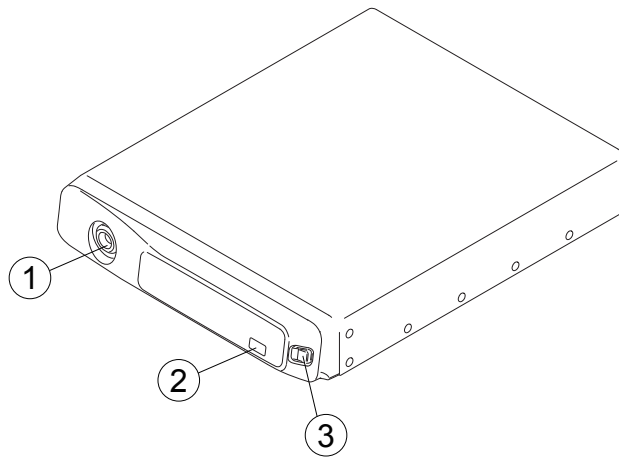
Table 3.2 Peripherals which can be used for expanding the system

Type	Model name (example)
Foot Switch	FS1
Processor	VP-7000, VP-4450HD, VP-3500HD
Ultrasonic Processor	SU-8000, SU-1
Printer	UP-55MD (SONY), UP-25MD (SONY), UP-D25MD (SONY)
VCR	HVO-1000MD (SONY), HVO-550MD (SONY)

3.2 Names and Functions of Parts

3.2.1 SP-900

<Front view>

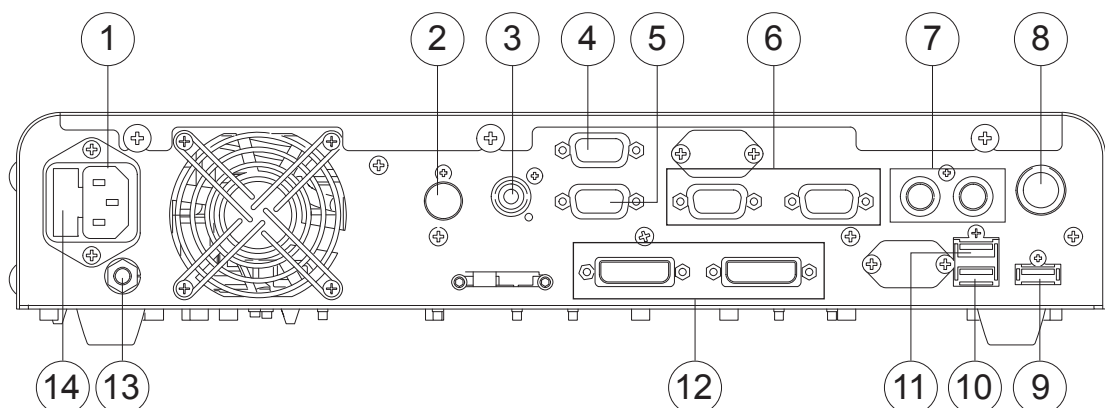


No.	Name	Function
1	Scanner connector	Connects RS-900 (scanner).
2	External storage device connector and access lamp	Connects an external storage device. The access lamp blinks while an external storage device is being accessed.
3	Power switch	Turns the power ON and OFF. The lamp lights up when the power is ON.

Indication mark on front panel of SP-900

Symbol	Meaning
	Type BF applied part
	Connects the scanner.

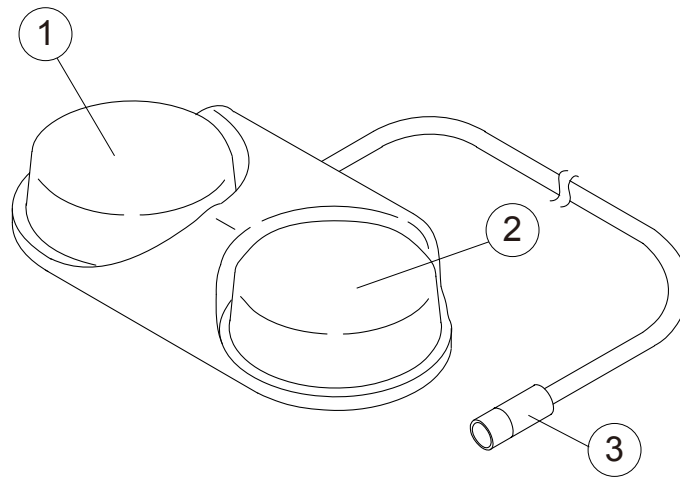
<Rear view>



[Note] Connect the printer, card reader and control pad to the connectors specified in the table below.

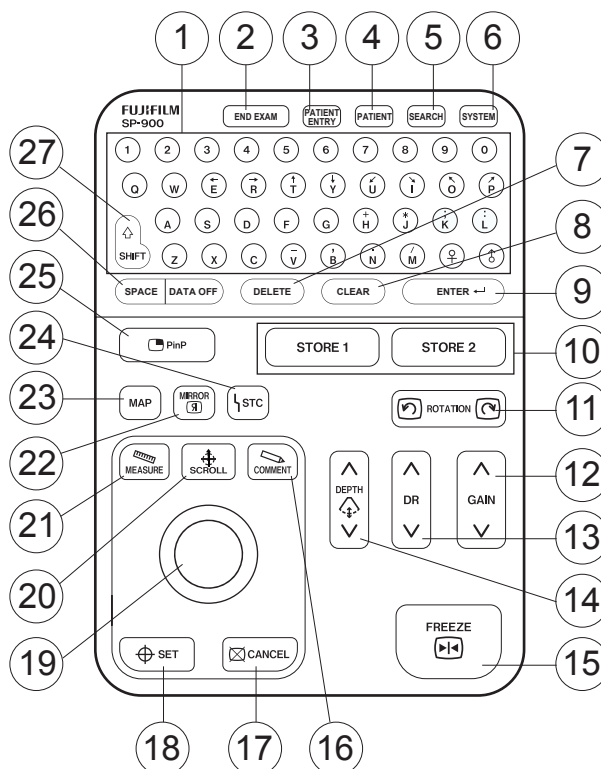
No.	Name	Function
1	Power supply connector	Connects the supplied power cord.
2	S video connector	Outputs the video signal after separating it into Y-signal (brightness) and C-signal (color).
3	Video connector	Outputs a composite video signal.
4	SU-8000 connector	Connects the ultrasonic processor SU-8000 or SU-1.
5	RGB TV connector	Outputs a NTSC image in the form of R, G, B and SYNC.
6	RS232C connector	Used for communication with a peripheral device connected with the RS232C interface.
7	Remote connectors 1 and 2	Outputs a trigger signal to control peripherals. When the trigger or recording function is activated with the [STORE 1] or [STORE 2] key or the foot switch, the corresponding signal is output.
8	Foot switch connector	Connects the foot switch (FS1).
9	USB port (printer)	Connects a digital printer.
10	USB port (card reader)	Connects a magnetic card reader.
11	USB port (control pad)	Connects the control pad CP-900.
12	DVI-D connector	Connects the LCD monitor via a monitor cable. Digital image signals are output from this connector.
13	Potential equalization terminal	Connects the potential equalization terminal.
14	Fuse holder	Contains two T3.15AH250V fuses.

3.2.2 Foot Switch FS1 (Optional)



No.	Name	Function
1	Gray switch	Operating this foot switch activates the function (Freeze, PinP, STORE 1 or STORE 2) assigned at the system setup.
2	Black switch	Operating this foot switch activates the function (Freeze, PinP, STORE 1 or STORE 2) assigned at the system setup.
3	Connector	Connects to the foot switch connector of SP-900.

3.3 Names and Functions of Keys on Control Pad CP-900

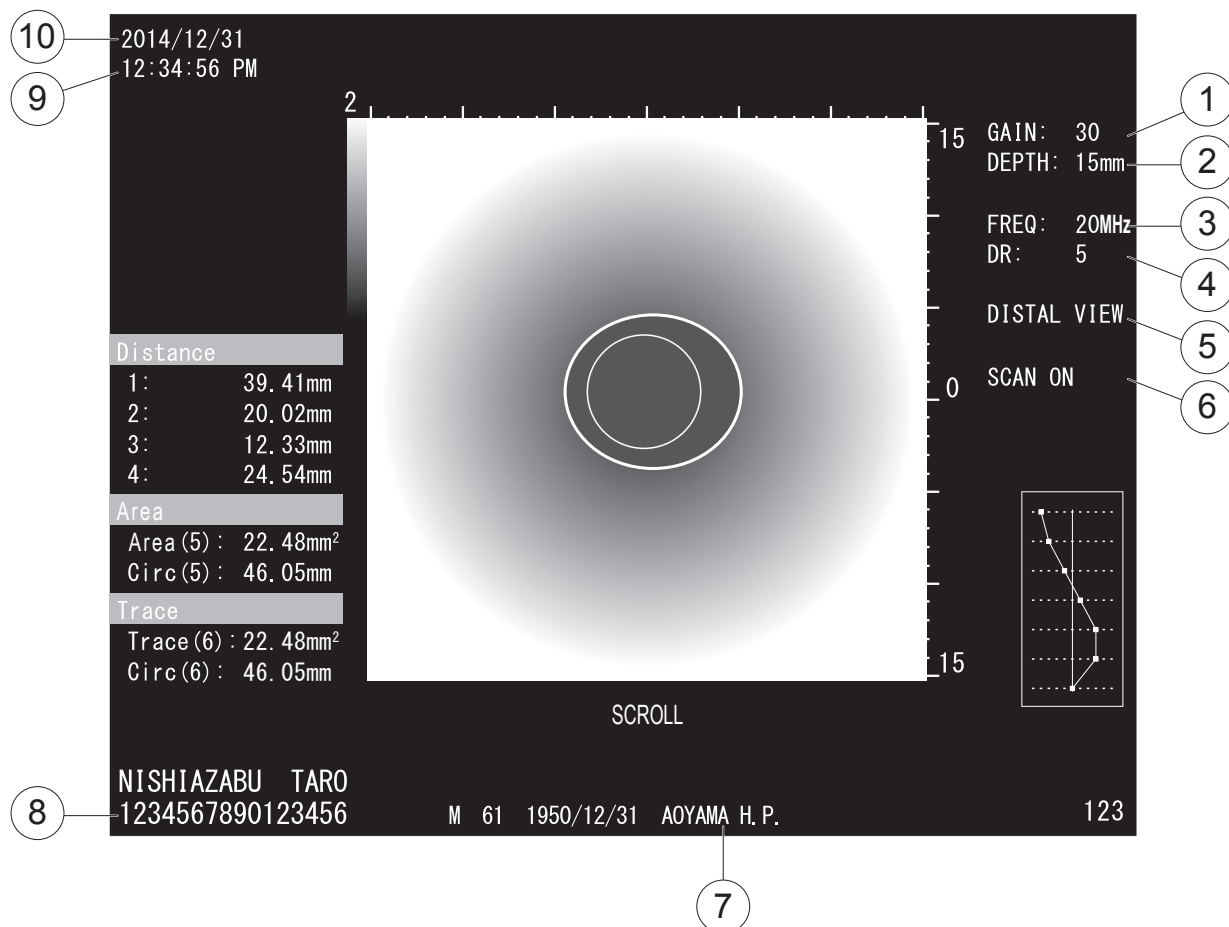


No.	Name	Function
1	Alphanumeric keys	Used for typing numbers, letters and symbols in ID or comment input mode.
2	Examination termination key (END EXAM)	Ends an examination and deletes the measurement result, ID and comment.
3	New patient key (PATIENT ENTRY)	Enters input mode for new patient information such as the patient name and medical record number.
4	Patient key (PATIENT)	Enters input mode for current patient information such as the patient name and medical record number.
5	Search key (SEARCH)	Performs image search.
6	System key (SYSTEM)	Enters system setup mode.
7	Delete key (DELETE)	Deletes the letter before the cursor.
8	Clear key (CLEAR)	Erases the entry such as an ID and comment in each input mode.
9	Enter key (ENTER)	Confirms the input in each mode.
10	Image save/print key (STORE 1, STORE 2)	Saves the still image currently displayed to the device (internal storage device) that has been specified with the system setup menu. Starts printing the image when a printer is specified.

No.	Name	Function
11	Image rotation key (ROTATION)	Rotates the image. When this key is held pressed, the image rotates continuously.
12	Gain key (GAIN)	Adjusts the sensitivity of the entire ultrasound image. When this key is held pressed, the gain changes continuously.
13	Dynamic range key (DR)	Adjusts the dynamic range of the entire ultrasound image.
14	Depth key (DEPTH)	Changes the visual field depth of an ultrasonic image.
15	Freeze key (FREEZE)	Switches scan ON and freeze (scan OFF). Stores multiple images immediately before freezing. The number of images varies with scanning time. When the [FREEZE] key is pressed again, the images stored will be deleted.
16	Comment key (COMMENT)	Enters comment input mode.
17	Cancel key (CANCEL)	Closes the current screen and returns to the previous screen.
18	Set key (SET)	Used for selecting a function. During measurement, this key is used for fixing the caliper mark, etc.
19	Trackball	Searches the images stored in freeze mode. Use this ball to move the center position, position of the selected comment, and caliper for measuring distance, and to select a system setup item, etc.
20	Scroll key (SCROLL)	Moves the center of an ultrasonic image.
21	Measure key (MEASURE)	Performs measurement.
22	Mirror image key (MIRROR)	Reverses the right side and left side of the radial image to change the observation direction.
23	Map key (MAP)	Selects a map to adjust the gradation of a B-mode image.
24	STC key (STC)	Adjusts the gain according to the visual field depth.
25	PinP key (PinP)	Controls the monitor to switch the screen display between ultrasonic images and endoscopic images.
26	Space key (SPACE) Data-off key (DATA OFF)	Adds a space before the cursor. Switches between the display and non-display of patient information.
27	Shift key (SHIFT)	Used to input the uppercase characters of the keys.

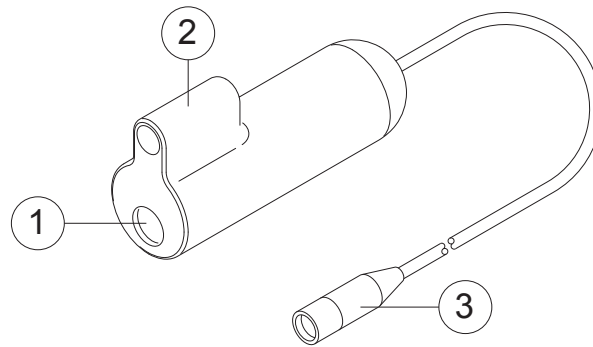
3.4 Screen Configuration

3.4.1 Screen Configuration of SP-900



No.	Name	Function
1	Gain	64 steps from 1 to 64
2	Depth	Select 10 mm, 15 mm, 20 mm, 30 mm, 45 mm, or 60 mm.
3	Frequency	3 types of 12, 15 and 20 MHz
4	DR	8 steps from 1 to 8
5	Direction of the view	PROX. VIEW: Image seen from the front. DISTAL VIEW: Image seen from the back.
6	Scan display	"SCAN ON" is displayed when scanning. "SCAN OFF" is displayed while the image is frozen.
7	Name of institution	Up to 20 alphanumeric characters
8	Patient ID	Up to 16 alphanumeric characters
9	Time	Hour: Minute: Second (displayed in 12-hour or 24-hour format)
10	Date	Year/Month/Day, Day/Month/Year or Month/Day/Year

3.5 RS-900 (Scanner)

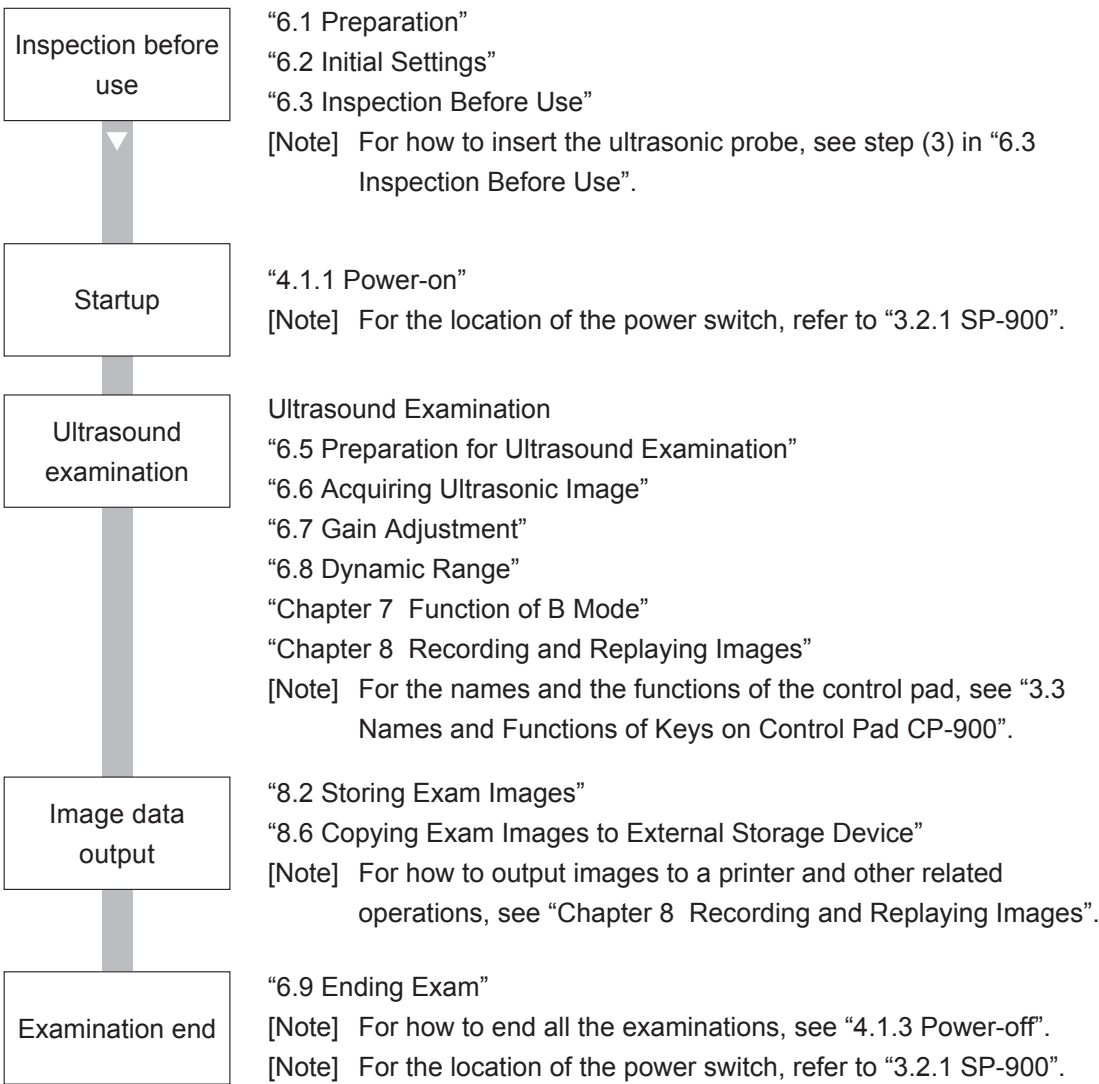


No.	Name	Function
1	Probe connector	Connects an endoscopic ultrasonic probe in the P series or PB2020-M.
2	Scanner holder	Secures RS-900 (scanner) to the scanner arm.
3	Main unit connector	Connects to SP-900 (ultrasonic processor).

Chapter 4 Basic Operations

Introduction

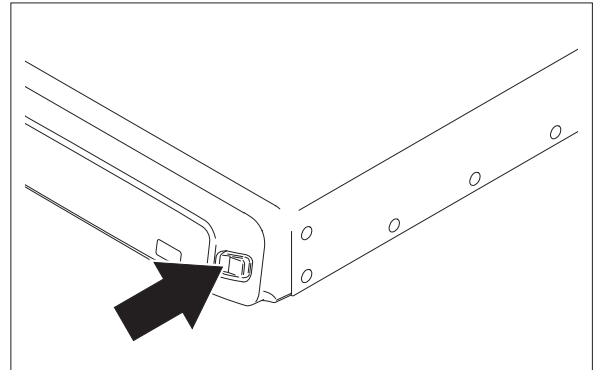
The operation flowchart of this product is shown below. Refer to each section for operation details.



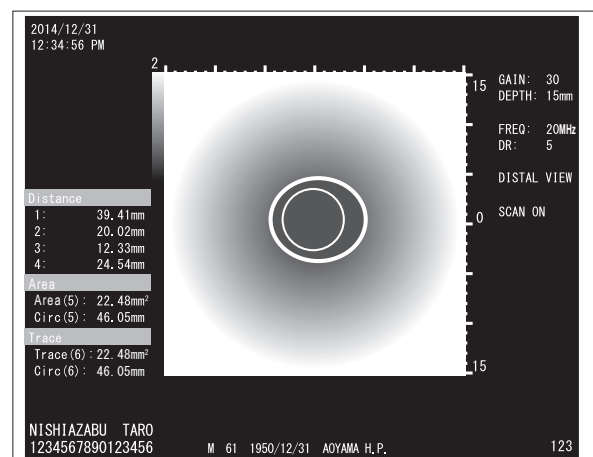
4.1 Power-on and Power-off

4.1.1 Power-on

- (1) Press the power switch to turn on the ultrasonic processor.



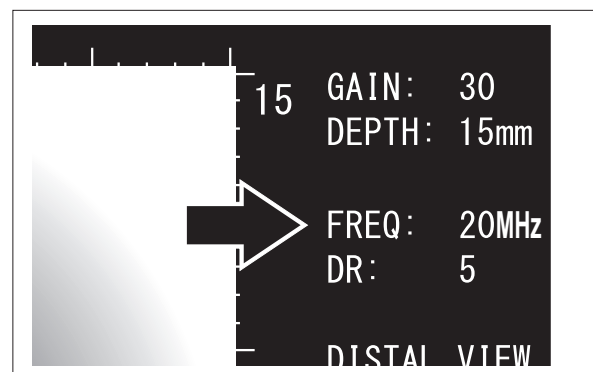
- (2) Connect an endoscopic ultrasonic probe and press the [FREEZE] key.
The B-mode screen appears in the image area.



- (3) Make sure that the ultrasonic frequency of the connected endoscopic ultrasonic probe is displayed in the "FREQ" area on the right side of screen.

[Note]

If foreign matter adheres to the probe code, the frequency may not be accurately displayed. Remove foreign matter.

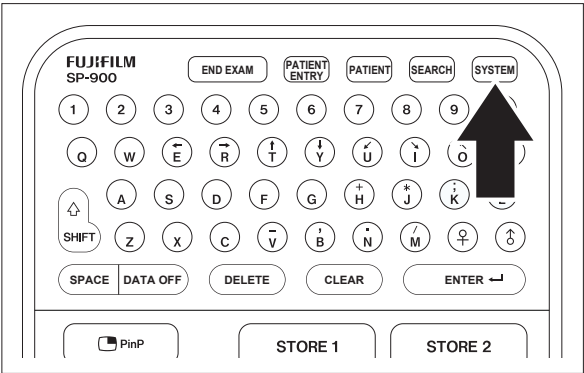


4.1.2 Logoff

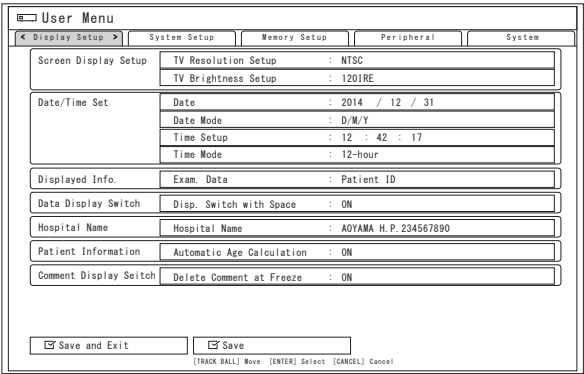
[Note] This function is available only when the user is logged in to the SP-900 and no examination is being performed.

→ “5.3 Security Function”

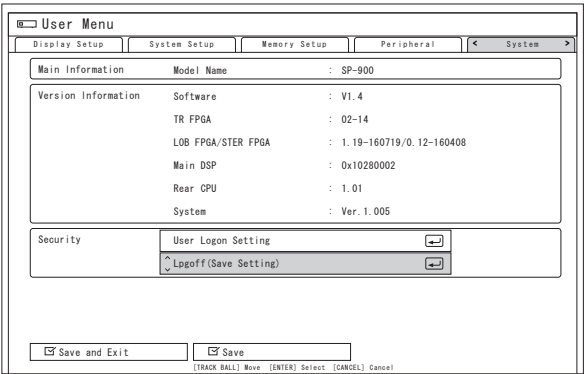
(1) Press the [SYSTEM] key.



[Note]
The “User Menu” screen appears.

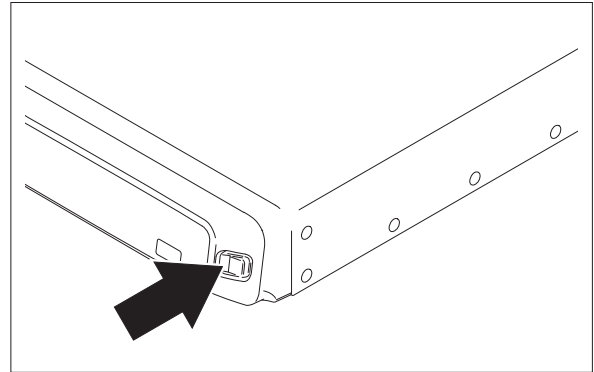


- (2) Use the trackball to move the cursor to the “System” tab.
- (3) Use the trackball to move the cursor to “Logoff (Save Setting)” in the “Security” column and press the [ENTER] key.
The logoff sequence is executed.



4.1.3 Power-off

- (1) Press the power switch to turn off the ultrasonic processor.



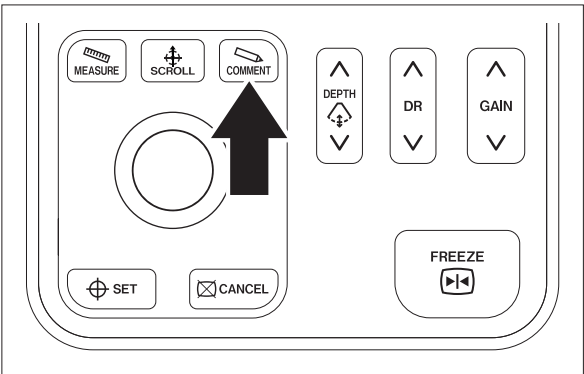
4.2 Entering Comments

4.2.1 Entering Text

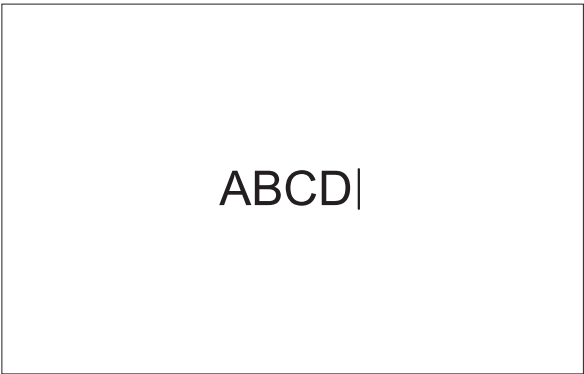
- (1) Press the [COMMENT] key.

[Note]

The text cursor blinks in green at the center of the screen.



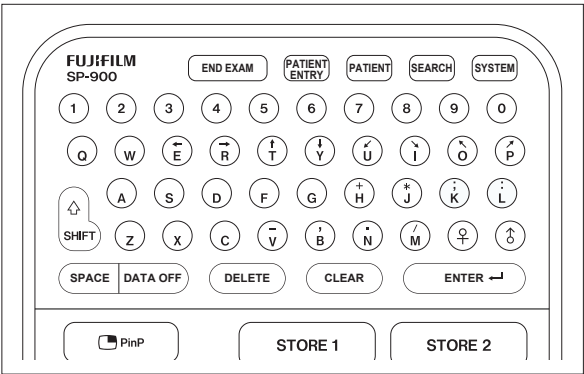
- (2) Move the text cursor to the desired position.



- (3) Enter a text with the keyboard on the control pad.

[Note]

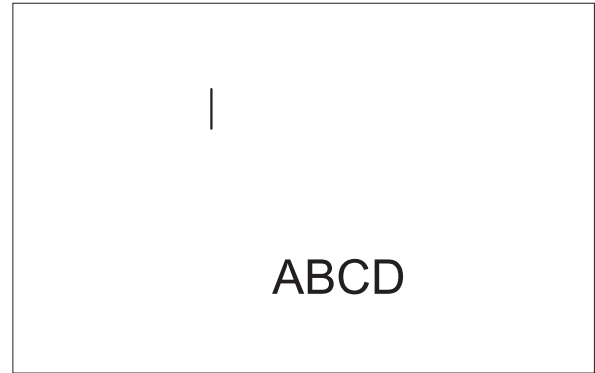
Input characters are displayed in green.



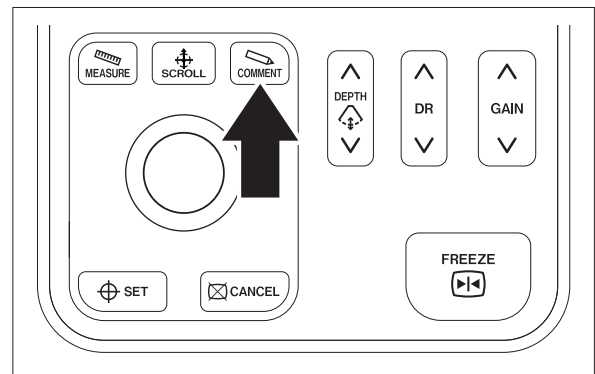
- (4) Move the cursor away from the input text to confirm the input.

[Note]

The confirmed characters are displayed in white and are treated as one text block.



- (5) Repeat steps (2) to (4) as necessary.
- (6) Press the [COMMENT] key to finish comment input mode.

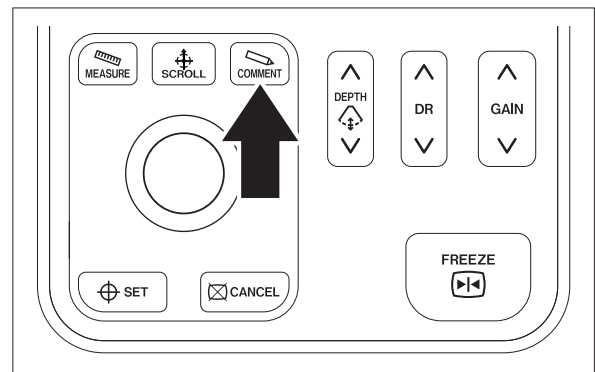


4.2.2 Correcting Text

- (1) Press the [COMMENT] key.

[Note]

The text cursor blinks in green at the center of the screen.



- (2) Press the [SET] key.
The color of the text changes to green, indicating that the text is selected.

[Note]

When there are multiple text blocks, each text block is selected in the order of entry each time the [SET] key is pressed.



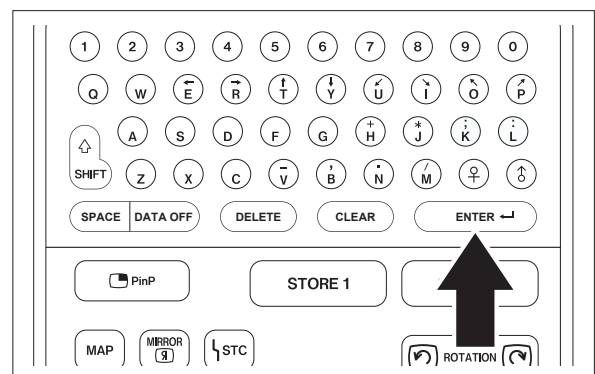
- (3) Correct the text with the keyboard on the control pad.

[Note]

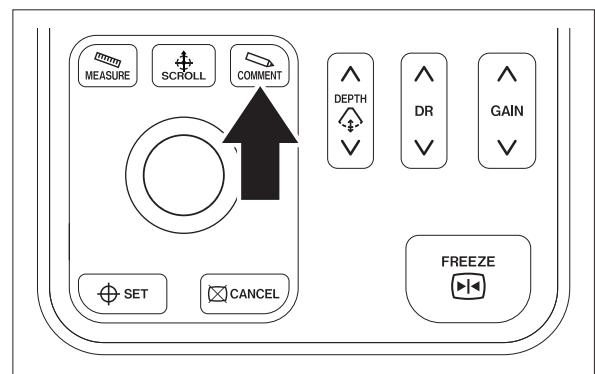
To correct the entry of another text block, repeat steps (2) and (3).



- (4) Press the [ENTER] key.
The color of the text changes to white and the entry is confirmed.



- (5) Press the [COMMENT] key to finish comment input mode.

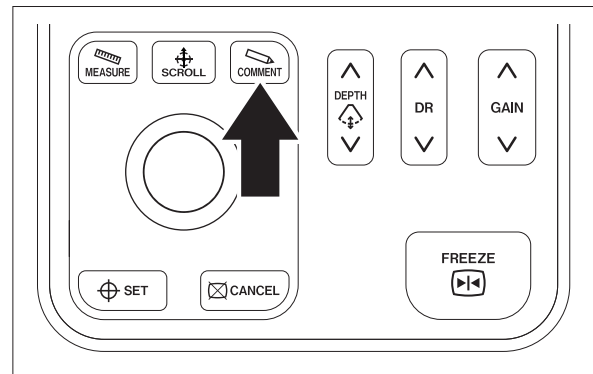


4.2.3 Moving in Text Block

- (1) Press the [COMMENT] key.

[Note]

The text cursor blinks in green at the center of the screen.

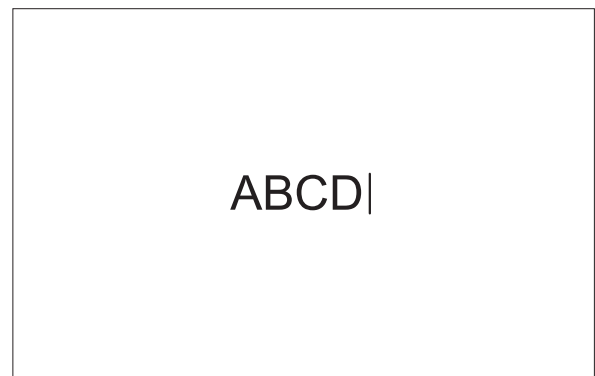


- (2) Press the [SET] key.

The color of the text changes to green, indicating that the text is selected.

[Note]

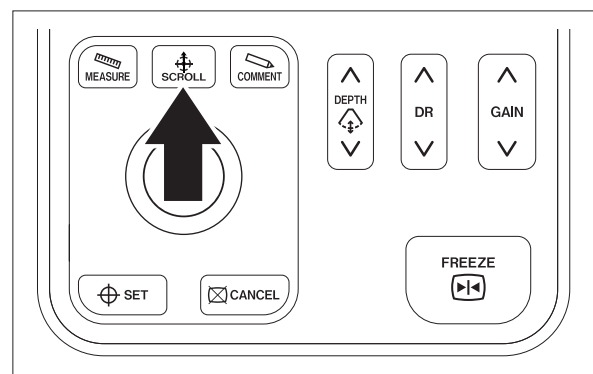
When there are multiple text blocks, each text block is selected in the order of entry each time the [SET] key is pressed.



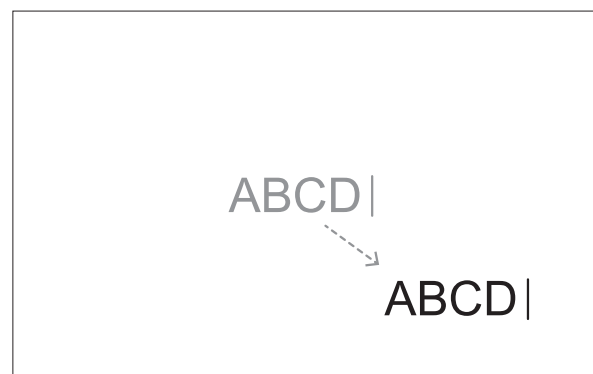
- (3) Press the [SCROLL] key.

[Note]

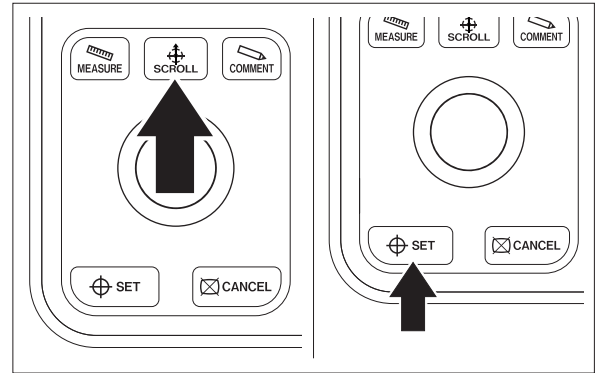
"MOVE" is displayed at the lower center of the screen.



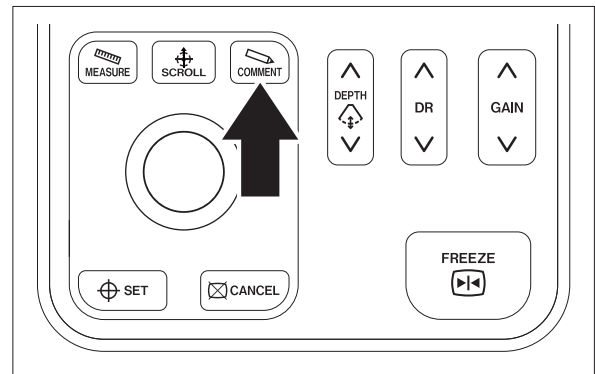
- (4) Use the trackball to move the text block to the desired position.



- (5) Press the [SCROLL] or [SET] key.
The text is displayed in white and the position is finalized.



- (6) Press the [COMMENT] key to finish comment input mode.

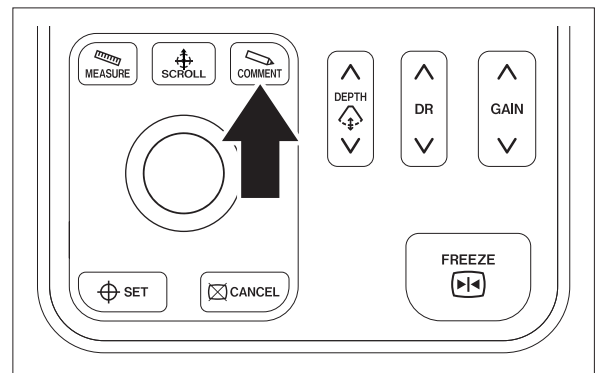


4.2.4 Deleting Text

- (1) Press the [COMMENT] key.

[Note]

The text cursor blinks in green at the center of the screen.



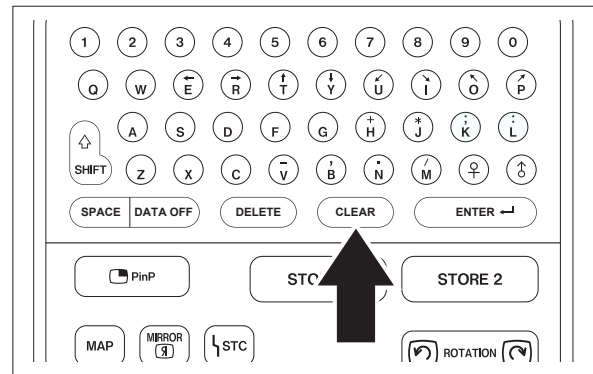
- (2) Press the [SET] key.
The color of the text changes to green, indicating that the text is selected.

[Note]

When there are multiple text blocks, each text block is selected in the order of entry each time the [SET] key is pressed.



- (3) Press the [CLEAR] key.
The characters at the text cursor position will be deleted.

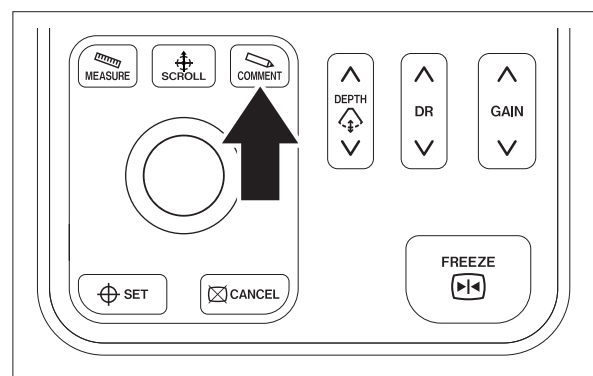


4.2.5 Deleting All Texts

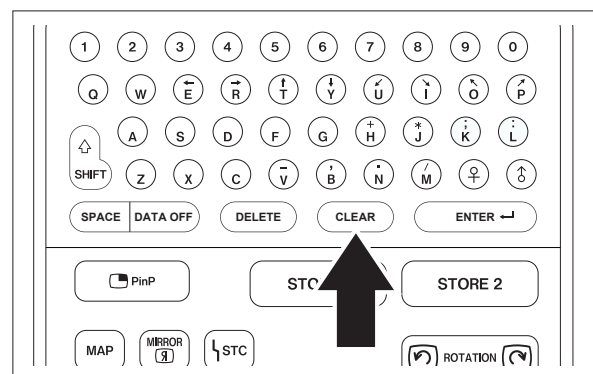
- (1) Press the [COMMENT] key.

[Note]

The text cursor blinks in green at the center of the screen.



- (2) Press the [CLEAR] key.
All the texts will be deleted.



Chapter 5 Initial Settings

5.1 User Setting Mode

The setup of this product is performed on the menu displayed by pressing the [SYSTEM] key.

5.1.1 Setup Items in “User Menu” Screen

Details on the “User Menu” screen displayed when the [SYSTEM] key is pressed are shown in the table below.

Table 5.1

Settings			Setting content	Description
Large item	Middle item	Small item		
Display Setup	Screen Display Setup	TV Resolution Setup	NTSC, PAL	Select the type of video signals.
		TV Brightness Setup	100IRE, 120IRE	Select the brightness level.
	Date/Time Set	Date	-	Set the date by numerical input.
		Date Mode	Y/M/D, D/M/Y, M.D.Y	Select the date display format.
		Time Setup	-	Set the time by numerical input.
		Time Mode	24-hour, 12-hour	Select the time display format.
	Displayed Info.	Exam. Data	Patient ID, Examination No.	Select the type of examination information.
	Data Display Switch	Disp. Switch with Space	ON, OFF	Select to enable/disable the setting with the space key.
	Hospital Name	Hospital Name	(Character input)	Enter the name of a hospital facility.
	Patient Information	Automatic Age Calculation	ON, OFF	Select to enable/disable the automatic age calculation.
	Comment Display Switch	Delete Comment at Freeze	ON, OFF	Select whether or not to automatically delete a comment when an image is frozen.

Settings			Setting content	Description
Large item	Middle item	Small item		
System Setup	Volume Setup	Volume	OFF, Low, Mid, Hi	Select the volume of the buzzer.
	STORE 1	Data Hold Time (Sec.)	0, 0.3, 0.4, 0.5, 0.6, 0.8, 1.0, 1.5, 2.0, 2.8	Select the time to pause the monitor display when capturing an image.
		Printer	Not Used, Color Printer	Select whether or not to output to a digital printer.
		Remote 1	ON, OFF	Select whether or not to output trigger signals to the remote connector 1.
		Remote 2	ON, OFF	Select whether or not to output trigger signals to the remote connector 2.
	STORE 2	Same as STORE 1		
	STORE (Common)	USB Export	ON, OFF	Select whether or not to automatically export to the external storage device.
	Preset Setup	End Exam Saving	ON, OFF	Select whether or not to save the preset settings when an examination is completed.
		Preset Initialize	-	Select whether or not to reset the preset settings.
	Rotation Setup	Angle Step (degree)	5°, 15°	Select the image rotation angle for one step.
Memory Setup	Internal Memory	Compression Rate	1/1 (TIFF), 1/5 (JPEG), 1/10 (JPEG)	Select the compression rate of images to be stored.
		Free Space Warning Message	ON, OFF	Select whether or not to display a warning message when the free space falls below 15%, 10% or 5%.
		Automatic deletion	ON, OFF	Select whether or not to delete images that have been transferred to an external storage device when the storage capacity falls below the threshold value.

Settings			Setting content	Description
Large item	Middle item	Small item		
Memory Setup	Internal Memory	Personal Information Protect	ON, OFF	Select whether or not to hide patient information at the time of storing images to an external storage device.
		Initialize Internal Memory	-	Select when deleting all the image-related data in the internal storage device.
	External Memory	Initialize External Memory	-	Select when deleting all the data in an external storage device.
Peripheral	Printer Setup	Connected Printer	Not used, CP-900D, UP-D25MD, UP-55MD	Select the connected printer.
		Connecting Port	RS232C-1, RS232C-2	Select the communication port.
		Print Patient Data	Yes, No	Select whether or not to display patient information outside the image area.
		Number of Prints	1, 2, 3, 4	Select the number of prints.
		Digital Printer Setup	-	Settings for the digital printer
		- Red (C-R)	(Numerical value selection)	Red
		- Green (M-G)	(Numerical value selection)	Green
		- Blue (Y-B)	(Numerical value selection)	Blue
		- Contrast	(Numerical value selection)	Contrast
		- Brightness	(Numerical value selection)	Brightness
		- Sharpness	(Numerical value selection)	Sharpness

Settings			Setting content	Description
Large item	Middle item	Small item		
Peripheral	Device Setting	Usage	Not used, processor	Select the model of the connected peripheral.
		Connecting Port	RS232C-1, RS232C-2	Select the communication port.
	Monitor	Usage	Not used, FUJIFILM/JVC (3MODE), Panasonic (3MODE), NDS (3MODE), FUJIFILM/JVC (2MODE), Panasonic (2MODE), NDS (2MODE)	Select the model of the connected monitor.
		Connecting Port	RS232C-1, RS232C-2	Select the communication port.
	Still Recorder	Usage	Not used, MV-3CH ^[Note] [Note] Available only in Japan	Select the model of the connected still image recorder.
		Connecting Port	RS232C-1, RS232C-2	Select the communication port.
	Foot Switch Setup	Black	Not Assigned, Freeze, STORE1, STORE2, PinP	Assign a function to the foot switch (black).
		Gray	Not Assigned, Freeze, STORE1, STORE2, PinP	Assign a function to the foot switch (gray).
	Card Information Setup	Card Information Setup	-	Settings for the magnetic card information
		- Layout Preview	-	Layout preview for magnetic cards
		- NO_Start	(Numerical value selection)	Specify the starting position of a card number.
		- NO_Length	(Numerical value selection)	Specify the length of a card number.
		Preview	-	Preview
		- ID_Start	(Numerical value selection)	Specify the starting position of an ID number.

Settings			Setting content	Description
Large item	Middle item	Small item		
Peripheral	Card Information Setup	ID_Length	(Numerical value selection)	Specify the length of an ID number.
		Preview	-	Preview
		Name_Start	(Numerical value selection)	Specify the starting position of a patient name.
		Name_Length	(Numerical value selection)	Specify the length of a patient name.
		Preview	-	Preview
		Sex_Start	(Numerical value selection)	Specify the starting position of patient gender.
		Sex_Length	(Numerical value selection)	Specify the length of patient gender.
		Preview	-	Preview
		DOB_Start	(Numerical value selection)	Specify the starting position of date of birth.
		DOB_Length	(Numerical value selection)	Specify the length of date of birth.
		Preview	-	Preview
System	Main Information	Model Name	-	The model name and serial number are displayed.
	Version Information	Software	-	The version information of the system is displayed.
		TR FPGA	-	
		LOB FPGA/STER FPGA	-	
		Main DSP	-	
		Rear CPU	-	
		System	-	
	Security	Change Password	(Character input)	Select this to change the password.
		Logoff	-	Select this to log off the system.

5.2 Initialization of External Storage Device

To delete all the recorded data in an external storage device, initialize the external storage device.

CAUTION

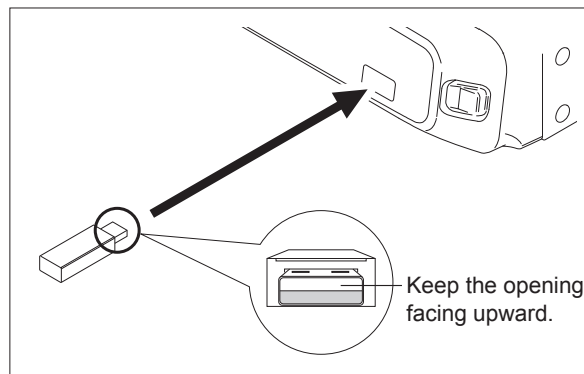
Do not remove the external storage device while it is being initialized. Otherwise, the external storage device may be damaged.

[Note] The external storage device is optional. Use the recommended storage device (manufactured by Swissbit), which is compatible with this product. For external storage devices, contact your local FUJIFILM dealer.

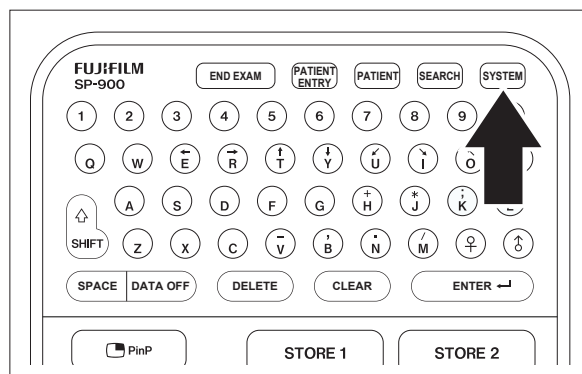
- (1) Connect an external storage device to the external storage device slot.

[Note]

When the external storage device is set, insert it with the opening of the connector facing upward.



- (2) Press the [SYSTEM] key.



[Note]

The “User Menu” screen appears.

The screenshot shows the 'User Menu' screen with the 'Display Setup' tab selected. The screen is divided into several sections with settings and their values:

User Menu				
Display Setup	System Setup	Memory Setup	Peripheral	System
Screen Display Setup	TV Resolution Setup	: NTSC		
	TV Brightness Setup	: 120IRE		
Date/Time Set	Date	: 2014 / 12 / 31		
	Date Mode	: D/M/Y		
	Time Setup	: 12 : 42 : 17		
	Time Mode	: 12-hour		
Displayed Info.	Exam. Data	: Patient ID		
Data Display Switch	Disp. Switch with Space	: ON		
Hospital Name	Hospital Name	: AOTAMA H.P.234567890		
Patient Information	Automatic Age Calculation	: ON		
Comment Display Switch	Delete Comment at Freeze	: ON		

At the bottom, there are two buttons: 'Save and Exit' and 'Save'. Below the buttons is a small text line: (TRACK BALL) Move (ENTER) Select (CANCEL) Cancel.

- (3) Use the trackball to move the cursor to the “Memory Setup” tab.

- (4) Use the trackball to move the cursor to “Initialize External Memory” in the “External Memory” column and press the [Enter] or [SET] key.

[Note]

The message “External Memory will be initialized. All data in External Memory will be deleted. OK?” appears.

The screenshot shows the 'User Menu' screen with the 'Memory Setup' tab selected. The screen is divided into two main sections: 'Internal Memory' and 'External Memory'.

User Menu				
Display Setup	System Setup	Memory Setup	Peripheral	System
Internal Memory	Compression Rate	: 1/1 (TIFF)		
	Free Space Warning Message	: ON		
	Automatic deletion	: OFF		
	Personal Information Protect	: OFF		
	Initialize Internal Memory	[]		
External Memory	Initialize External Memory	[]		

At the bottom, there are two buttons: 'Save and Exit' and 'Save'. Below the buttons is a small text line: (TRACK BALL) Move (ENTER) Select (CANCEL) Cancel.

- (5) Use the trackball to move the cursor to “Yes” and press the [Enter] or [SET] key. Initialization of the external storage device starts.

The screenshot shows a confirmation dialog box for external memory initialization. It contains an information icon (i) and the text: 'External Memory will be initialized. All data in External Memory will be deleted. OK?'. Below the text are two buttons: 'No' and 'Yes'.

5.3 Security Function

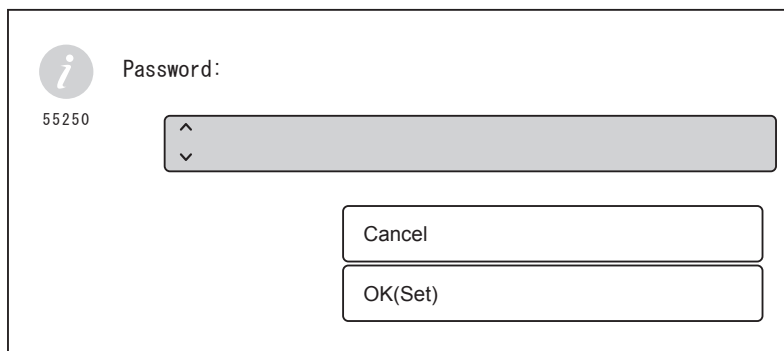
To prevent information leakage to third parties, the login authentication screen requesting the login password can be displayed when accessing personal information of the patient or information on system settings.

The default login password is “user”. Change the login password when logging in to the SP-900 for the first time.

→ “5.3.1 Changing Login Password”

Take care not to forget the changed password. To protect personal information of the patient, change the password regularly.

[Note] If you forgot the login password and cannot log in to the SU-1, restoration work needs to be performed by service personnel. If this happens, consult your local dealer.



The screenshot shows a login authentication screen. On the left, there is a circular icon with an 'i' and the number '55250' below it. To the right of this icon is the label 'Password:'. Below the label is a rectangular input field with a small upward arrow on the left and a small downward arrow on the right. Below the input field are two buttons: 'Cancel' and 'OK(Set)'.

[Note] Once the user logs in to the SP-900, all the information can be accessed until the user logs off or turns off the SP-900. When stepping away from the SP-900, be sure to log off or turn off the SP-900.

→ “4.1.2 Logoff”

→ “4.1.3 Power-off”

The following two types of security functions can be turned on or off. Security function settings are performed by service personnel.

Security function	Display timing of login authentication screen ^[Note]
Patient information protection	When the [SEARCH] key is pressed
User information protection	When the [SYSTEM] key is pressed

[Note] When the user has already logged in to the SP-900, the login authentication screen is not displayed.

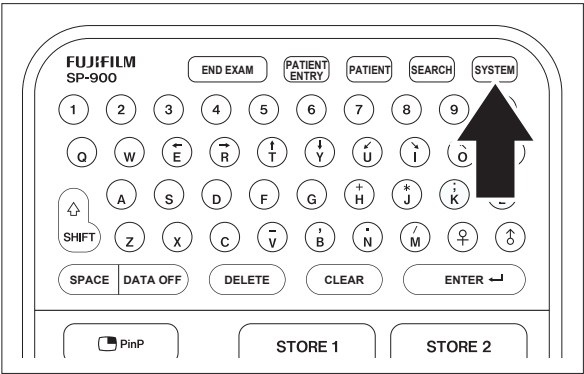
5.3.1 Changing Login Password

The password to be entered on the login authentication screen, which is displayed when the security function is effective, can be changed.
A maximum of 15 alphanumeric characters can be used for the login password.

[Note] Only one login password can be set.

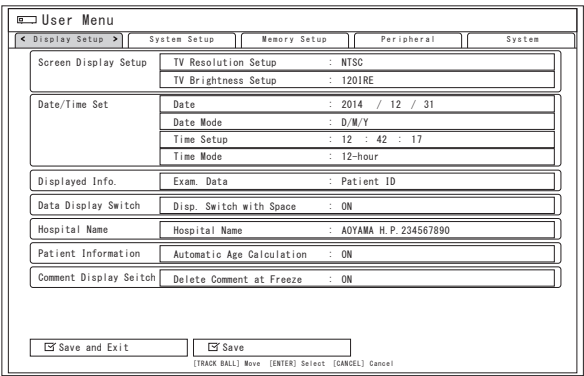
(1) Press the [SYSTEM] key.

[Note]
When the user information protection of the security function is effective, if the user is not logged in to the SP-900, the login authentication screen is displayed.
Enter the password and touch [OK] button to log in to the SP-900.

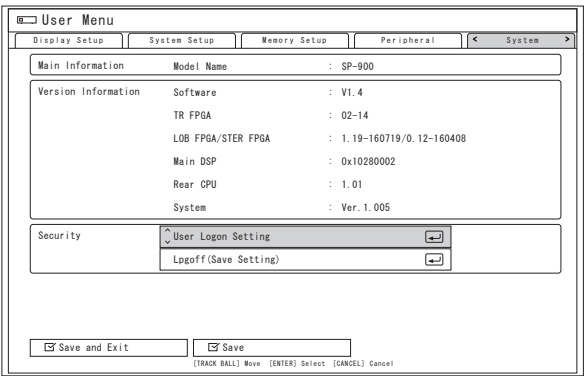


→ “5.3 Security Function”

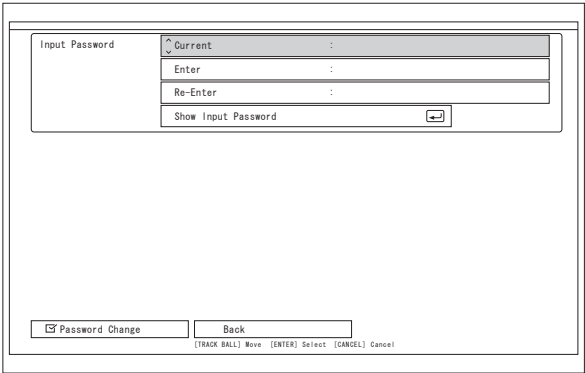
[Note]
The “User Menu” screen appears.



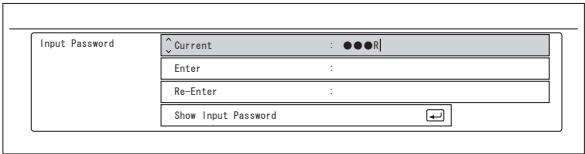
- (2) Use the trackball to move the cursor to the “System” tab.
- (3) Use the trackball to move the “User Login Setting” in the “Security” column and press the [ENTER] or [SET] key.



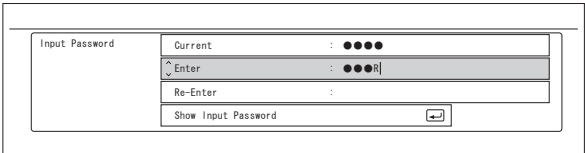
[Note]
The “Input Password” screen appears.



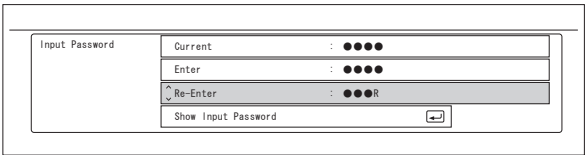
(4) Enter the current password in the “Current” column.



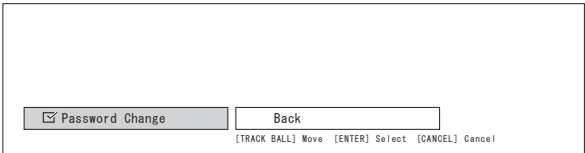
(5) Use the trackball to move the cursor to the “Enter” column and enter the new password.



(6) Use the trackball to move the cursor to the “Re-Enter” column and enter the new password again for confirmation.



(7) Use the trackball to move the cursor to the “Password Change” and press the [ENTER] or [SET] key to save the setting.



[Note]
If an input error is detected, the error message is displayed. Select “OK” and enter the login password again.

[Note]
When “Back” is selected, operation returns to the “System” tab without changing the password.

[Note]
When “Show Input Password” is selected and then the [ENTER] or [SET] key is pressed, the input characters are displayed.

Chapter 6 Starting/Closing Exam

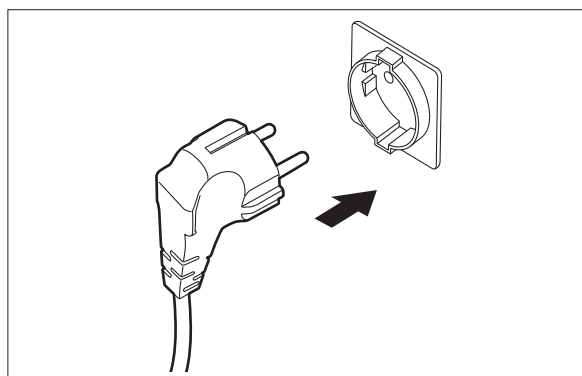
!WARNING

Do not use the equipment in flammable gas atmosphere. Doing so may cause explosion.

Use the rated voltage only. Plug the power plug into a medical outlet with a ground terminal. Connect the power plug to the protective earth receptacle. Only FUJIFILM authorized service personnel are permitted to open the covers. Not adhering to these instructions may cause electric shock.

6.1 Preparation

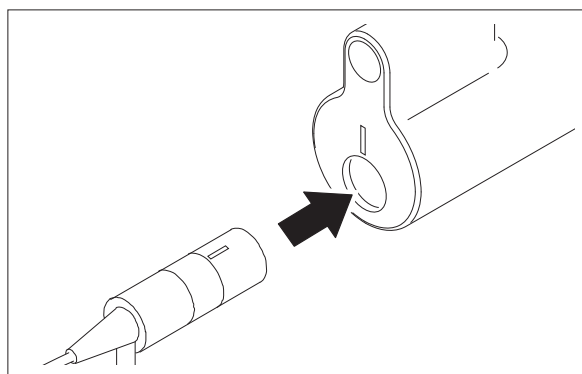
- (1) Turn off the main switch of the cart and connect the power plug to the protective earth receptacle.



- (2) Align the marks on the probe connector and the scanner, and insert the probe connector into the scanner until it clicks.

[Note]

To remove the probe connector, pull it straight out.



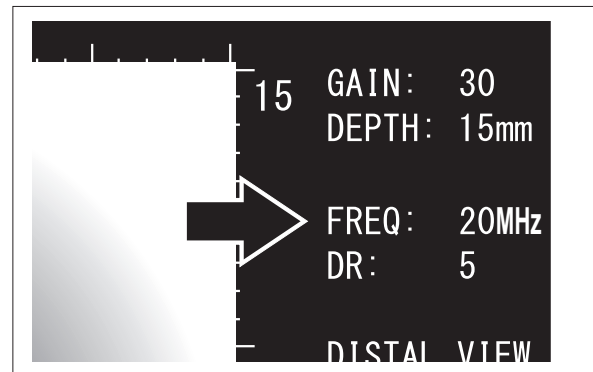
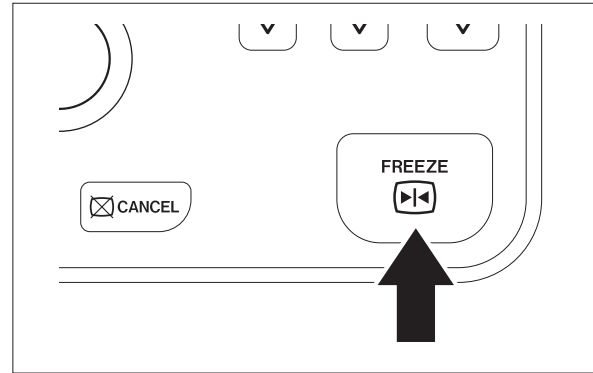
- (3) Press the power switch to turn on the ultrasonic processor.

- (4) Press the [FREEZE] key.

Make sure that the ultrasonic frequency of the connected endoscopic ultrasonic probe is displayed in the "FREQ" area on the right side of screen.

[Note]

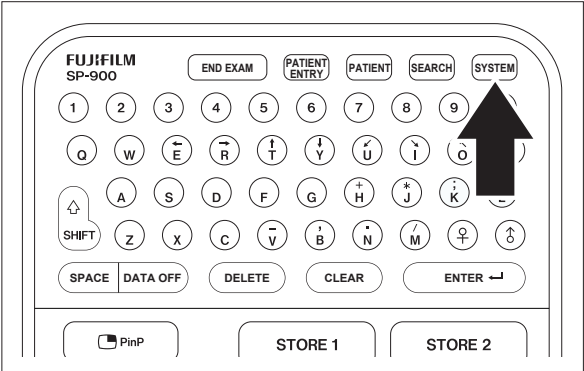
If foreign matter adheres to the probe code, the frequency may not be accurately displayed. Remove foreign matter.



6.2 Initial Settings

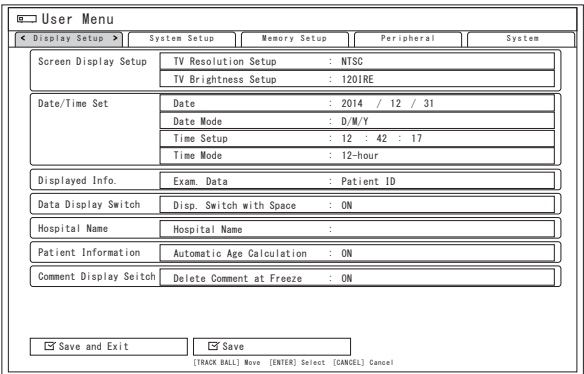
Set the date, time and hospital name.

(1) Press the [SYSTEM] key.

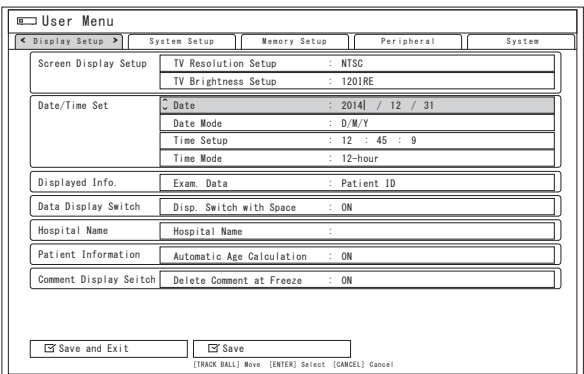


[Note]

The “User Menu” screen appears.



(2) Use the trackball to move the cursor to “Date” of the “Display Setup” tab.



- (3) Use the character entry keys to enter the date and press the [ENTER] or [SET] key.

[Note]

To change the date mode, move the cursor to “Date Mode”, and press the [Enter] or [SET] key.

When a pop-up menu is displayed, select the date mode from “Y/M/D (year/month/ day)”, “D/M/Y (day/month/year)” or “M.D.Y (the month abbr.day.year)”.

User Menu	
Display Setup	System Setup
Screen Display Setup	TV Resolution Setup : NTSC
	TV Brightness Setup : 120IRE
Date/Time Set	Date : 2014 / 12 / 31
	Date Mode : Y/M/D
	Time Setup : D/M/Y
	Time Mode : M.D.Y
Displayed Info.	Exam. Data : Patient ID
Data Display Switch	Disp. Switch with Space : ON
Hospital Name	Hospital Name :
Patient Information	Automatic Age Calculation : ON
Comment Display Switch	Delete Comment at Freeze : ON
<input type="checkbox"/> Save and Exit <input checked="" type="checkbox"/> Save	

(TRACK BALL) Move (ENTER) Select (CANCEL) Cancel

- (4) Use the trackball to move the cursor to “Time Setup” of the “Display Setup” tab.

User Menu	
Display Setup	System Setup
Screen Display Setup	TV Resolution Setup : NTSC
	TV Brightness Setup : 120IRE
Date/Time Set	Date : 2014 / 12 / 31
	Date Mode : D/M/Y
	Time Setup : 12 : 45 : 9
	Time Mode : 12-hour
Displayed Info.	Exam. Data : Patient ID
Data Display Switch	Disp. Switch with Space : ON
Hospital Name	Hospital Name :
Patient Information	Automatic Age Calculation : ON
Comment Display Switch	Delete Comment at Freeze : ON
<input type="checkbox"/> Save and Exit <input checked="" type="checkbox"/> Save	

(TRACK BALL) Move (ENTER) Select (CANCEL) Cancel

- (5) Use the character entry keys to enter the time and press the [ENTER] or [SET] key.

[Note]

To change the time mode, move the cursor to “Time Mode”, and press the [Enter] or [SET] key.

When a pop-up menu is displayed, select the time mode from either “24-hour” or “12-hour”.

User Menu	
Display Setup	System Setup
Screen Display Setup	TV Resolution Setup : NTSC
	TV Brightness Setup : 120IRE
Date/Time Set	Date : 2014 / 12 / 31
	Date Mode : D/M/Y
	Time Setup : 12 : 45 : 9
	Time Mode : 24-hour
Displayed Info.	Exam. Data : Patient ID
Data Display Switch	Disp. Switch with Space : ON
Hospital Name	Hospital Name :
Patient Information	Automatic Age Calculation : ON
Comment Display Switch	Delete Comment at Freeze : ON
<input type="checkbox"/> Save and Exit <input checked="" type="checkbox"/> Save	

(TRACK BALL) Move (ENTER) Select (CANCEL) Cancel

- (6) Use the trackball to move the cursor to “Hospital Name”.

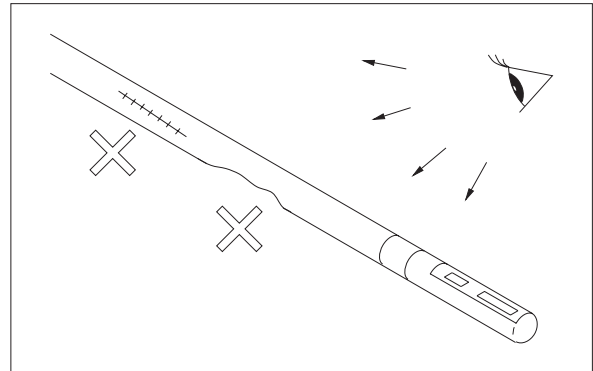
User Menu	
Display Setup	System Setup
Screen Display Setup	TV Resolution Setup : NTSC
	TV Brightness Setup : 120IRE
Date/Time Set	Date : 2014 / 12 / 31
	Date Mode : D/M/Y
	Time Setup : 12 : 45 : 9
	Time Mode : 12-hour
Displayed Info.	Exam. Data : Patient ID
Data Display Switch	Disp. Switch with Space : ON
Hospital Name	Hospital Name : AOTAMA H.P.
Patient Information	Automatic Age Calculation : ON
Comment Display Switch	Delete Comment at Freeze : ON
<input type="checkbox"/> Save and Exit <input checked="" type="checkbox"/> Save	

(TRACK BALL) Move (ENTER) Select (CANCEL) Cancel

- (7) Use the character entry keys to enter the hospital name (up to 20 characters) and press the [ENTER] or [SET] key.
- (8) Move the cursor to "Save and Exit" and press the [ENTER] or [SET] key. The settings are saved and operation returns to the examination screen.

6.3 Inspection Before Use

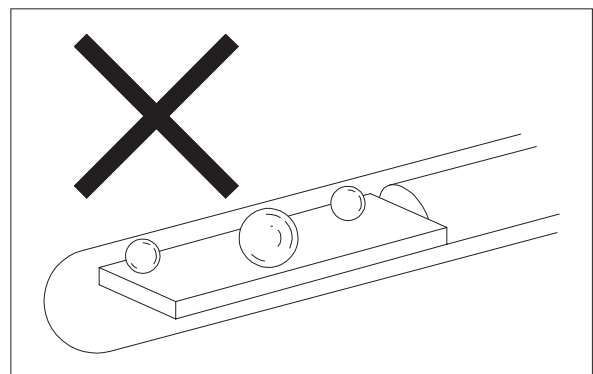
- (1) Check that the exterior of the endoscopic ultrasonic probe is free from cracks, scratches, dents or sharp edges or protrusions that may injure a patient.



- (2) Check that there are no bubbles in the ultrasound head.

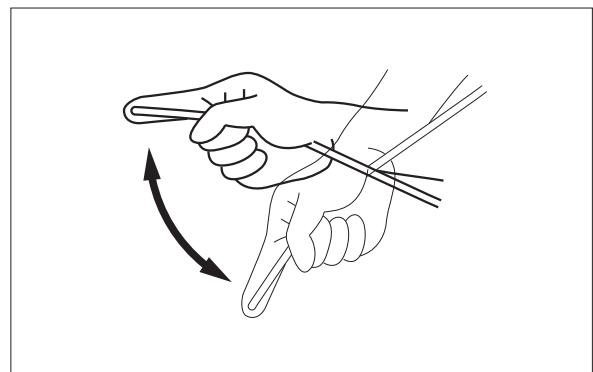
[Note]

Remove air bubbles if they are present in the ultrasound head or if the liquid ultrasound transmission medium is not in the head.



[Note]

Hold the endoscopic ultrasonic probe approximately 5 cm away from its distal end, and then shake it vigorously with the distal end pointed downward until air bubbles disappear.



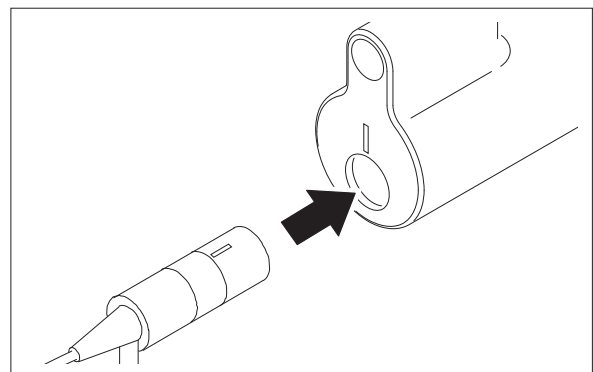
- (3) Align the marks on the probe connector and the scanner, and insert the probe connector into the scanner until it clicks.

[Note]

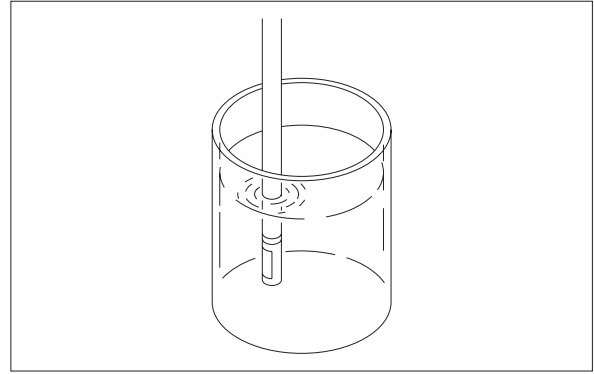
To remove the probe connector, pull it straight out.

[Note]

Make sure that the probe connector is not wet. The wet probe connector may cause equipment failure.

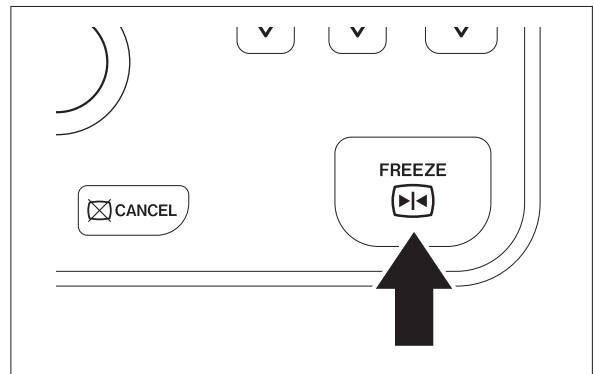


- (4) Immerse the tip of the probe in a glass of sterile water.



- (5) Press the [FREEZE] key to cancel freeze mode.

Make sure that the transducer is rotating and a radial image is displayed. Press the [FREEZE] key again to make sure that the rotation of the transducer stops.



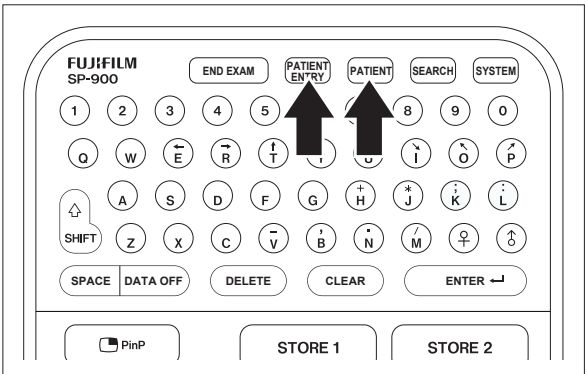
6.4 Registration of Patient Data

Patient data such as ID and patient name can be displayed on the monitor.
Alphanumeric data can be displayed.

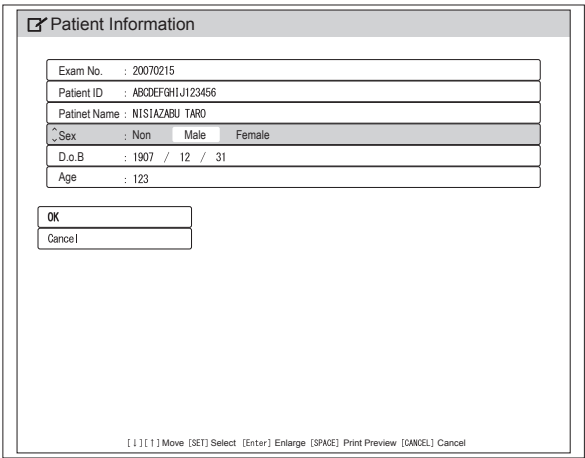
[Note] Check the input patient information for mistakes.

[Note] Turn off this product for personal information protection when you leave it unattended.

- (1) Press the [NEW PATIENT] or [PATIENT] key to display the “Patient Information Entry” screen.

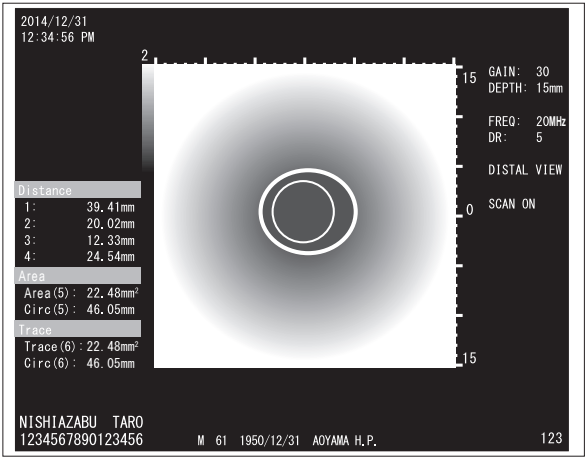


- (2) Use the trackball to select the desired input item.
- (3) Enter patient data such as ID and patient name by using the keyboard on the control pad.
- (4) Press the [ENTER] or [SET] key to confirm the input.



- (5) Use the trackball to select “OK”.
- (6) Press the [SET] key to return to the examination screen.

[Note]
If the [CANCEL] key is pressed, the examination screen reappears.



6.4.1 Details of the “Patient Information Entry” Screen

Press the [PATIENT ENTRY] or [PATIENT] key to display the “Patient Information Entry” screen on the main monitor.

✓ Patient Information

Exam No. : 20070215

Patient ID : ABCDEFGHIJ123456

Patinet Name : NISIAZABU TARO

Sex : Non Male Female

D.o.B : 1907 / 12 / 31

Age : 123

OK

Cancel

[↑][↓] Move [SET] Select [Enter] Enlarge [SPACE] Print Preview [CANCEL] Cancel

No.	Name	Function
1	Exam No. (up to 16 characters)	Input an examination number.
2	Patient ID (up to 16 characters)	Input a patient ID.
3	Patinet Name (up to 20 characters)	Input the patient name.
4	Sex	Input the patient's gender (Male: Male, Female: Female, Non: Other). [Note] If you do not want to register the patient's gender, select “Non”.
5	D.o.B	Input the patient's date of birth.
6	Age	When the patient's date of birth is input, the current age of the patient is automatically calculated by this product and is displayed in this field. If the patient is younger than 1 year old, his/her age is displayed as “0”.
7	[OK] button	Press this button to store the input and start an examination.
8	[CANCEL] button	Press this button to cancel the input and start an examination.

6.5 Preparation for Ultrasound Examination

CAUTION

When inserting the endoscopic ultrasonic probe through an endoscope, do not pass its distal end while the endoscope is bent. Do not perform bending operation while the distal end of the endoscopic ultrasonic probe is in the bending portion. Doing so may cause damage to the endoscopic ultrasonic probe.

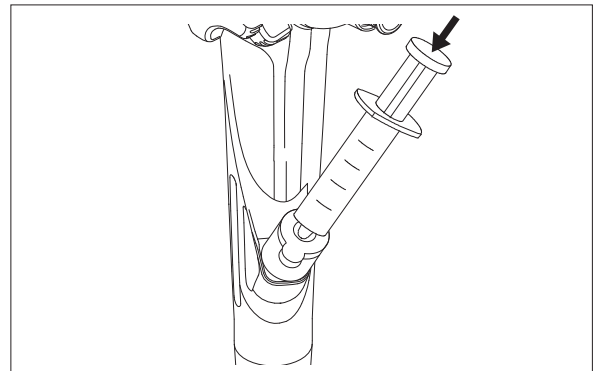
Do not exert shock to the distal end of the endoscopic ultrasonic probe. Doing so may cause damage to the transducer.

When performing an ultrasound examination, it is necessary to have the ultrasound head directly contact the region of interest or have an ultrasound transmission medium such as sterile water between the ultrasound head and the region of interest.

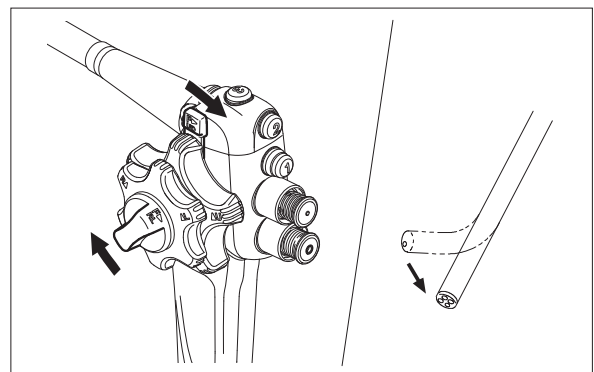
- (1) When necessary, inject an ultrasound transmission medium such as sterile water to the region of interest, for which an ultrasound examination is performed.

[Note]

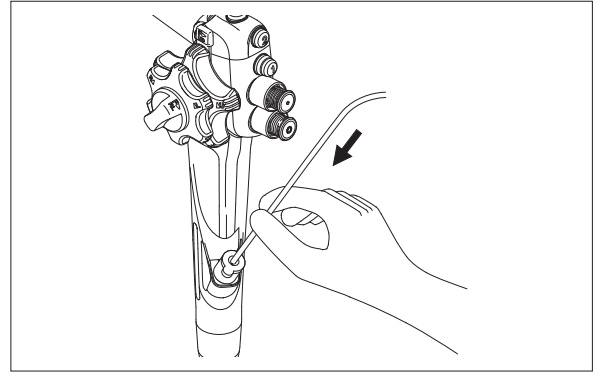
Injecting an excessive amount of an ultrasound transmission medium such as sterile water may cause accidental swallowing or vomiting.



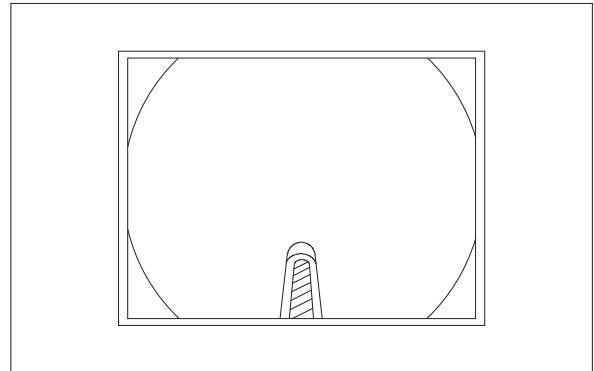
- (2) Unlock the bending section by turning the up-down and left-right angulation locks.
- (3) Operate the up/down and left/right angulation knobs to straighten the bending section to its neutral position.



- (4) Insert the probe into the forceps inlet of an endoscope with the forceps valve on.



- (5) Insert the probe up to a position where the ultrasound head is visible in the endoscopic image.



6.6 Acquiring Ultrasonic Image

! WARNING

Do not perform scanning when the endoscopic ultrasonic probe is not visible. Do not let the endoscopic ultrasonic probe press against the inner surface of the body cavity. Doing so may cause perforation or damage to mucous.

CAUTION

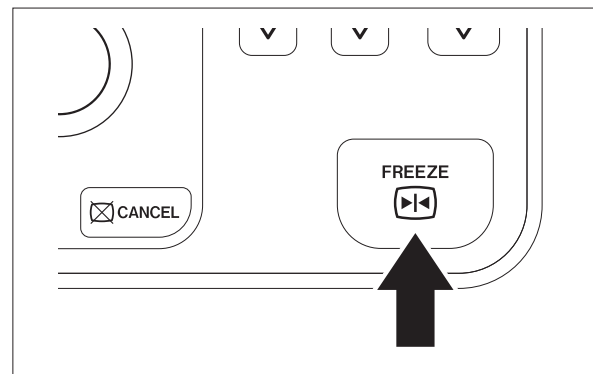
When inserting the endoscopic ultrasonic probe through an endoscope, do not pass its distal end while the endoscope is bent. Do not perform bending operation while the distal end of the endoscopic ultrasonic probe is in the bending portion. Doing so may cause damage to the endoscopic ultrasonic probe.

Do not exert shock to the distal end of the endoscopic ultrasonic probe. Doing so may cause damage to the transducer.

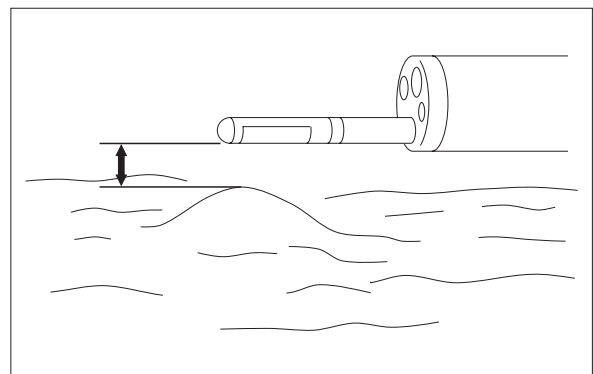
- (1) Release the freeze mode by pressing the [FREEZE] key.
The transducer will rotate, and the radial image is displayed on the monitor.

[Note]

The scan may be turned ON and OFF with the foot switch (FS1), depending on the setting on the "User Menu" screen.

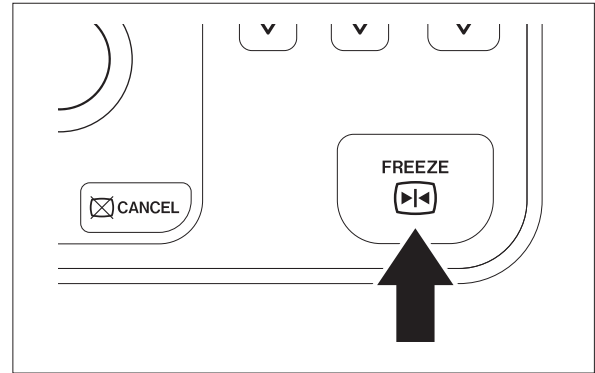


- (2) In radial scanning, ultrasonic beam is being radiated with endoscopic ultrasonic probe as its center. In order to expose the region of interest perpendicular to ultrasonic beam, observe the endoscopic image on the monitor and move the endoscopic ultrasonic probe tip in a bending motion to position it parallel to the region of interest.



A radial image is displayed on the monitor in real time.

- (3) Press the [FREEZE] key for FREEZE mode (scan OFF) to freeze the image.
Press the [FREEZE] key again to return to a live image (scan ON).



6.7 Gain Adjustment

The sensitivity of the entire ultrasound image can be adjusted.

Pressing the upper side of the [GAIN] key increases the gain, while pressing the lower side decreases the gain.

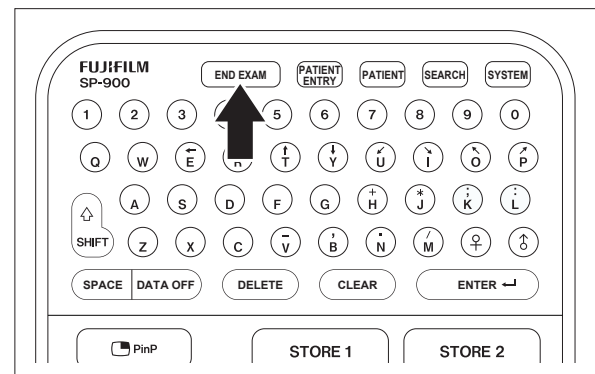
Numerical value in 64 degrees, ranging from 1 to 64, will be displayed at the upper right of the screen.

6.8 Dynamic Range

Images can be softened/hardened by adjusting the dynamic range of the contrast. The dynamic range is 1 to 8 and can be adjusted with the upper and lower sides of the [DR] key.

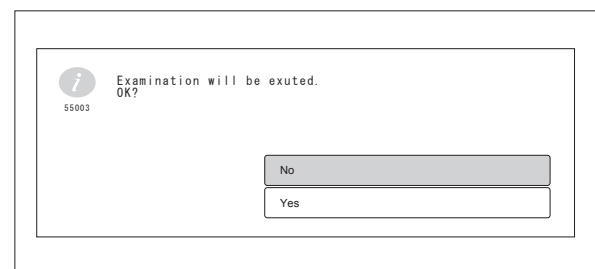
6.9 Ending Exam

- (1) Press the [END EXAM] key.



[Note]

[Yes] and [No] are displayed.



- (2) Move the cursor to [Yes], and press the [ENTER] or [SET] key to clear registered patient information and end the examination.

Move the cursor to [No], and press the [ENTER] or [SET] key to return to the examination screen.

Chapter 7 Function of B Mode

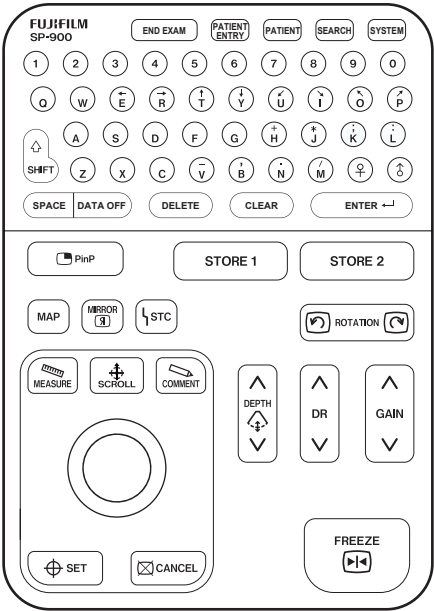
7.1 B-mode

This section describes the functions of the B-mode and how to operate them.

B-mode is a mode that displays the strength of reflected ultrasonic signals on the screen by converting it into the degree of brightness.

7.2 B-mode Functions

Each function can be used with the control pad.



[Note] When a frozen image is displayed, the following functions are not available.
DEPTH/STC

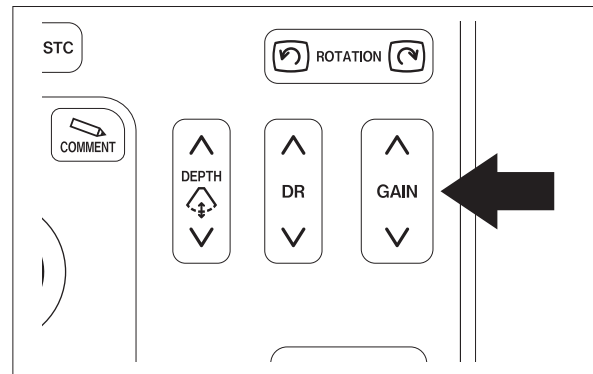
7.2.1 Gain Adjustment

Press the upper side of the [GAIN] key to increase the gain.

Press the lower side of the [GAIN] key to decrease the gain.

[Note]

When the upper or lower side of the [GAIN] key is held pressed, the gain changes continuously.

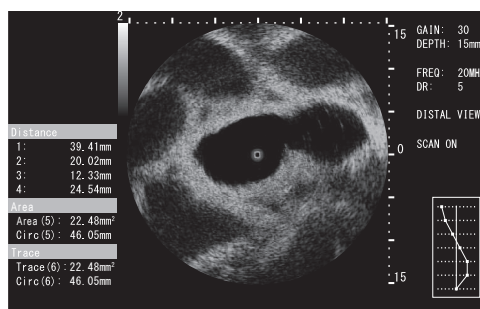
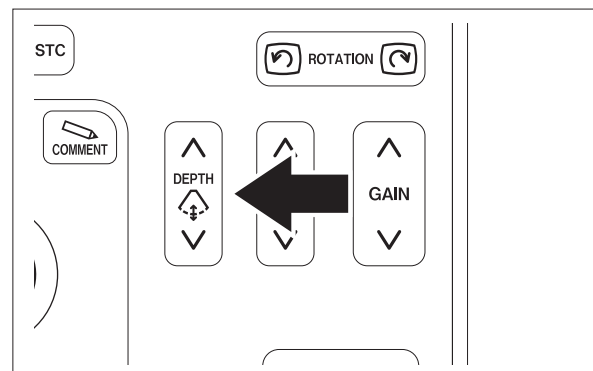


7.2.2 Switching Display Range

There are 6 ranges of displayed area in radial scan as below. Pressing the [DEPTH] key allows switching the ranges of displayed area, 10 mm, 15 mm, 20 mm, 30 mm, 45 mm and 60 mm in radius. The smaller the display area is, the larger the degree of magnification.

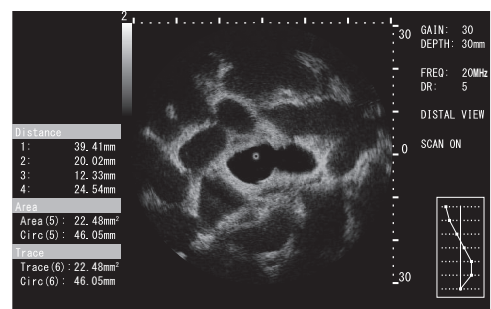
When the lower side of the [DEPTH] key is pressed, the display area will be enlarged while the image reduced.

When the upper side of the [DEPTH] key is pressed, the display area will be reduced while the image enlarged.



Enlargement of
displayed area
(reduction of image)

Reduction of
displayed area
(enlargement of image)



7.3 Image Rotation

Pressing the right or left side of the [ROTATION] key allows the clockwise or counterclockwise rotation of an image in radial scan.

[Note]

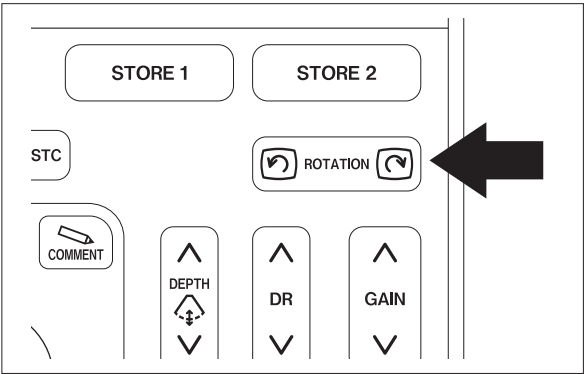
The rotation angle of an image can be set on the “User Menu” screen.

[Note]

Every time the right or left side of the [ROTATION] key is pressed, the image rotates by 5° or 15°.

[Note]

When the left or right side of the [ROTATION] key is held pressed, the image rotates continuously.

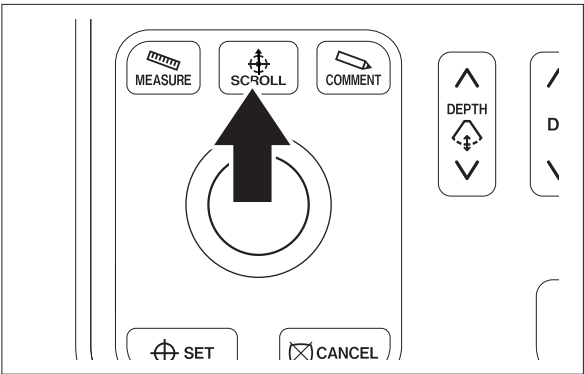


7.4 Center Moving Modes

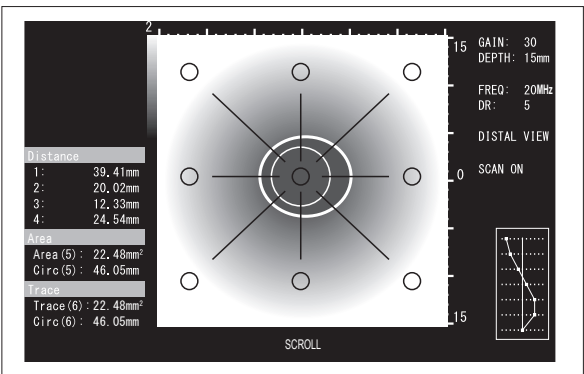
- (1) Press the [SCROLL] key to enter center moving mode.

[Note]

“SCROLL” is displayed at the lower center of the screen.



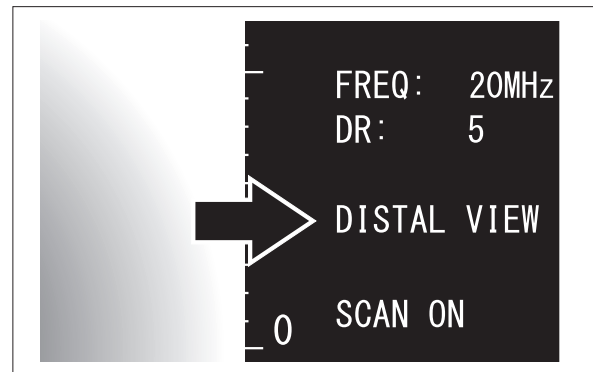
- (2) Select the image center from 9 points with the trackball to move it.



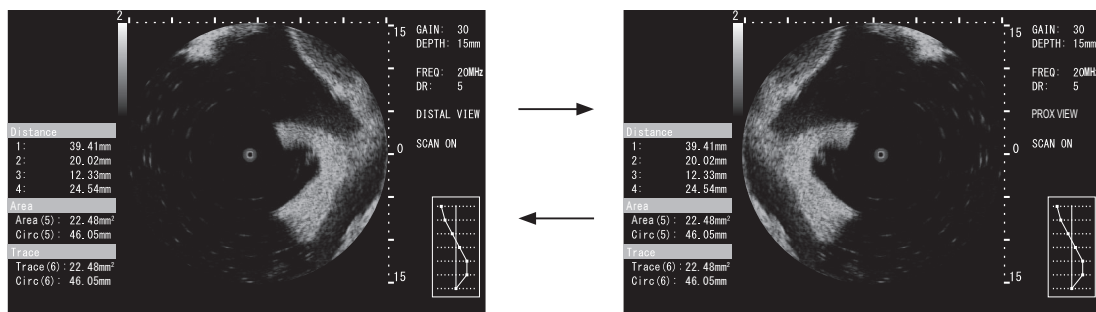
- (3) Press the [SCROLL] key to exit center moving mode.

7.5 Mirror Image

- (1) Press the [MIRROR] key to reverse the image to observe the image in different directions. View from the endoscopic ultrasonic probe's distal end will be displayed as "DISTAL VIEW" and view from the endoscope's control portion will be displayed as "PROX. VIEW" at the lower right on the monitor.



- (2) Press this key again to reverse and return to the original image.

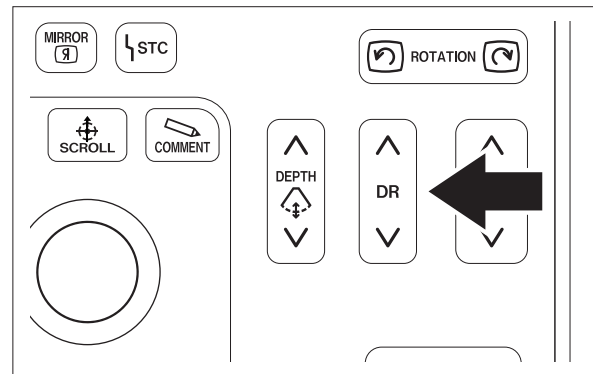


7.6 Dynamic Range Adjustment

The dynamic range of the entire ultrasonic image can be adjusted in 8 steps.

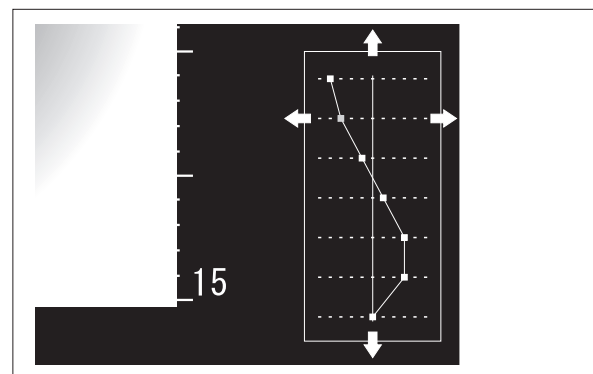
Press the upper side of the [DR] key to soften the image.

Press the lower side of the [DR] key to harden the image.



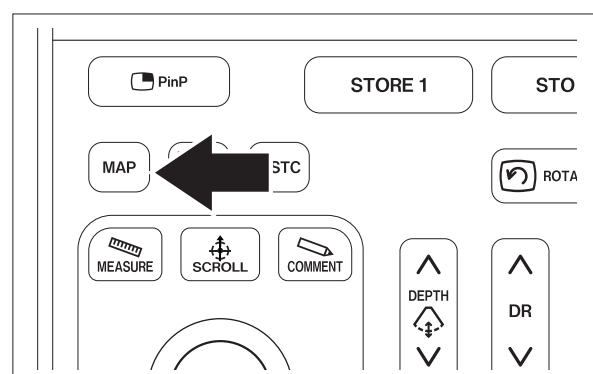
7.7 STC Adjustment

- (1) Press the [STC] key to display the STC curve.
- (2) Make a vertical movement with the trackball.
- (3) Press the [SET] key to select the desired depth, and use the trackball to select the setting.
- (4) Press the [SET] key to confirm the settings.
- (5) Repeat steps (2) to (4) as necessary.
- (6) Press the [SET] key to hide the STC curve.



7.8 MAP Adjustment

Press the [MAP] key to select a map (1 to 5) to adjust the gradation of a B-mode image.



7.9 Measuring Distance

Two calipers can be displayed on screen to measure the distance between two points. Measurement can be performed both in scanning and FREEZE mode.

- (1) Press the [MEASURE] key to enter measurement mode.
The starting point caliper appears at the center of the screen.

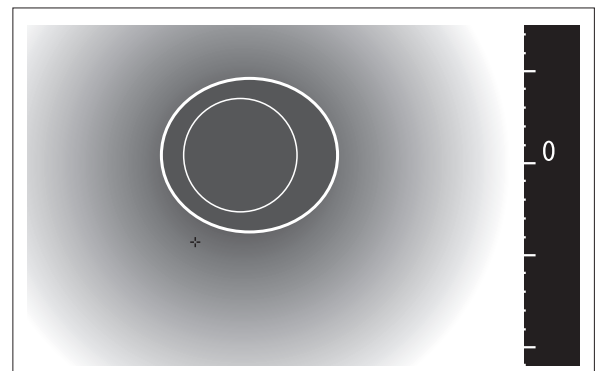
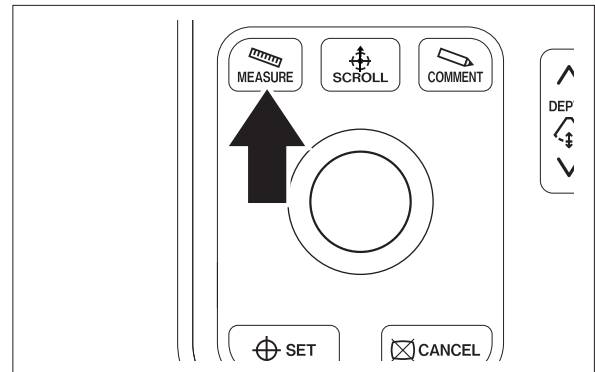
[Note]

Each time the [MEASURE] key is pressed, measurement mode switches in order of "Distance" → "Area" → "Trace" → "OFF".

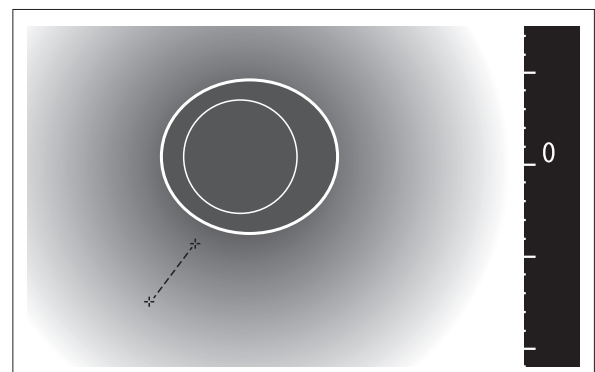
[Note]

Once a measurement is started, measurement mode cannot be changed to "Area" or "Trace".

- (2) With the trackball, move the starting point caliper (green) to where the measurement is started, and set the starting point with the [SET] key.



- (3) After setting the starting point, use the trackball again to display the end point caliper (green).



- (4) Move the end point caliper to the measurement point.
Press the [SET] key to determine the end point.
- (5) When the two points are determined, the color of the starting point caliper, the end point caliper and the dotted line connecting the two calipers changes to light blue.

[Note]

The number of the measurement result is displayed.

- (6) The distance between the starting point caliper and the end point caliper is displayed in the "Distance" field at the left side of the screen.

[Note]

The distance of a maximum of four locations can be measured by repeating steps (2) to (5).

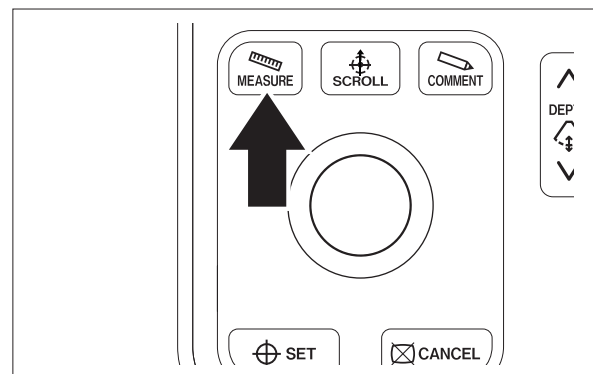
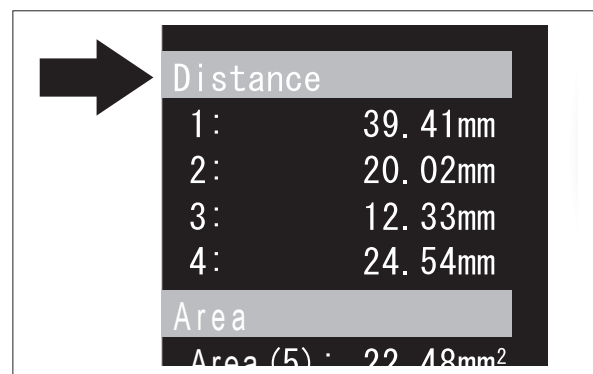
[Note]

To delete the measurement result, select its number with the alphanumeric keys on the control pad and then press the [DELETE] key.

- (7) Press the [MEASURE] key to end measurement mode.

[Note]

The measured value remains until freeze mode is cancelled.



7.10 Measuring Circumference and Area

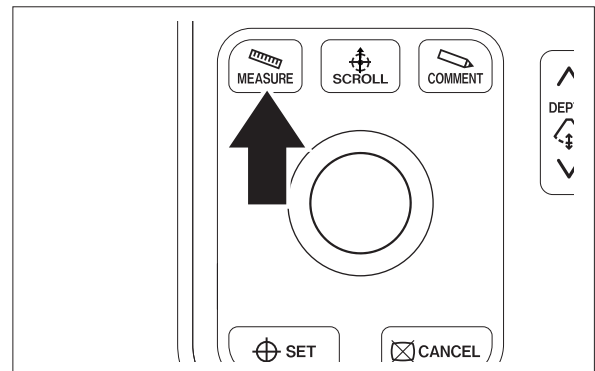
Calipers can be displayed on screen to measure the circumference and area. Measurement can be performed both in scanning and FREEZE mode. “Area” or “Trace” can be selected for circumference and area measurements.

[Note] The “Area” measurement is of an elliptic approximation, while the “Trace” measurement is of tracer lines.

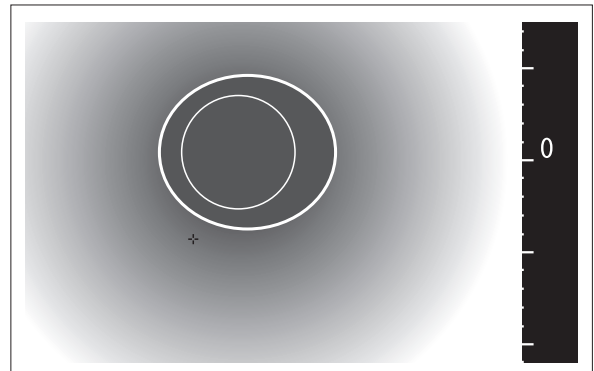
- (1) Press the [MEASURE] key to change measurement mode to “Area” or “Trace”.

[Note]

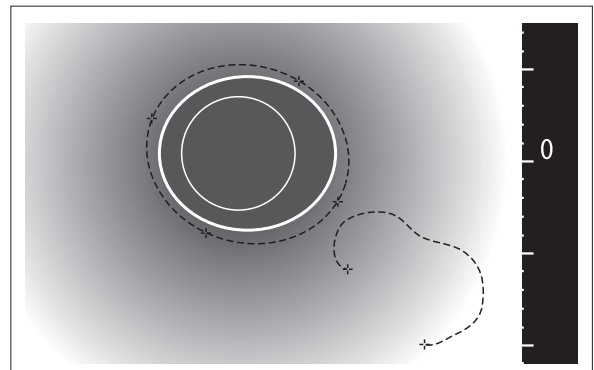
Each time the [MEASURE] key is pressed, measurement mode switches in order of “Distance” → “Area” → “Trace” → “OFF”.



- (2) With the trackball, move the starting point caliper (green) to where the measurement is started, and set the starting point with the [SET] key.



- (3) After setting the starting point, use the trackball again to display the end point caliper (green).



- (4) Move the end point caliper to the measurement point.
Press the [SET] key to determine the end point.

[Note]

In the “Area” measurement, the size of an ellipse can be changed with the trackball.

- (5) When the two points are determined by pressing the [SET] key again, the color of the starting point caliper, the end point caliper and the dotted circle connecting the two calipers changes to light blue.

[Note]

The number of the measurement result is displayed.

- (6) The area of the dotted circle is displayed In the “Area” or “Trace” field at the left side of the screen.

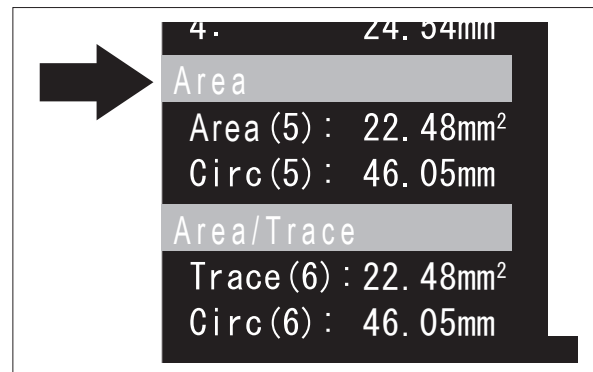
[Note]

The area of a maximum of four locations can be measured by repeating steps (2) to (5).

[Note]

To delete the measurement result, select its number with the alphanumeric keys on the control pad and then press the [DELETE] key.

- (7) Press the [MEASURE] key to end measurement mode.



7.11 P in P

The PinP function of the monitor is used.

[Note] Settings may be required for the monitor and the processor, depending on their combination. For details on the necessary settings, contact your local FUJIFILM dealer.

		Ultrasonic Processor	Processor	
		SP-900	VP-4450HD	VP-3500HD VP-7000
CL-22, CL-24, CCL220/AR, CCL244/AR ^[Note 1]	DVI-D	○	-	-
	HD-SDI ^[Note 2]	-	○	-
RADIANCE24	DVI-1	○	-	-
	DVI-2	-	○	○

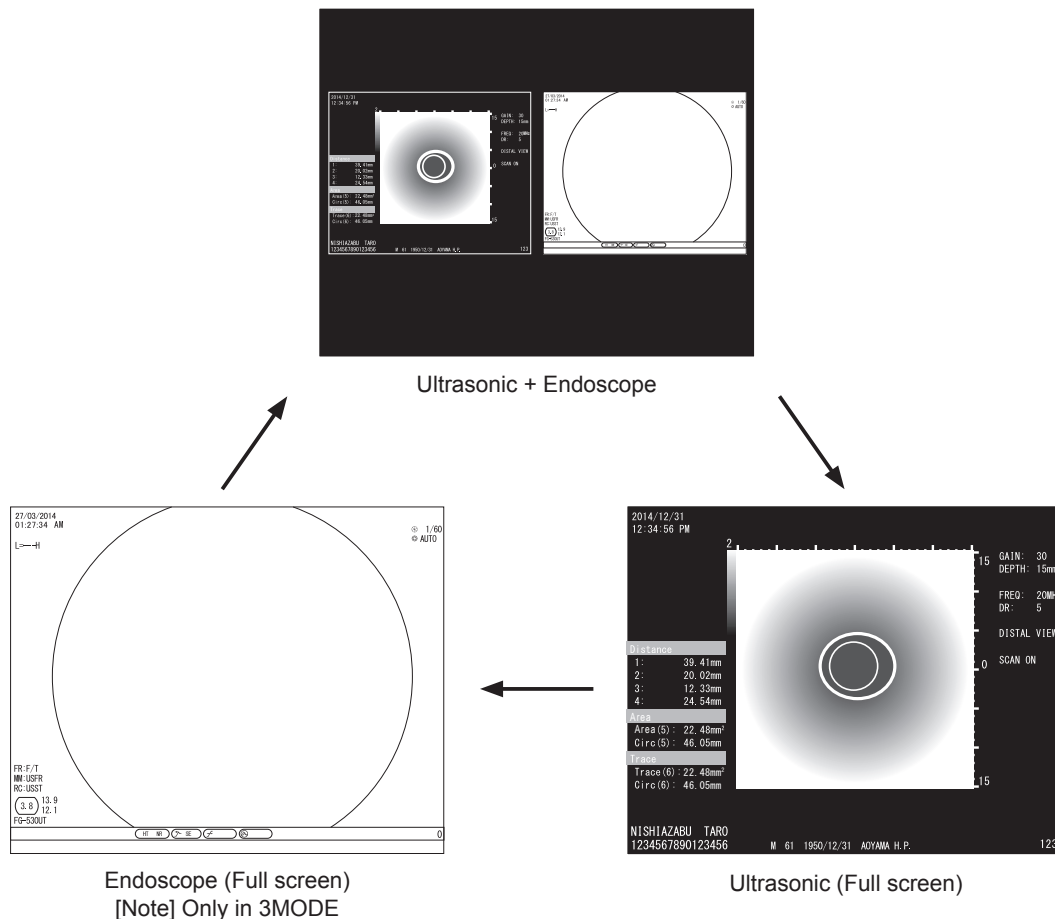
[Note 1] When CL-22, CL-24, CCL220/AR or CCL244/AR is used, the PinP function is not available in combination with VP-3500HD.

[Note 2] When CL-22, CL-24, CCL220/AR or CCL244/AR is used, use a commercially available BNC cable as the HD-SDI cable.

7.11.1 Operation of PinP

- (1) Each time the [PinP] key is pressed, the screen changes in the following order.

3MODE : Ultrasonic + Endoscope → “Ultrasonic (Full screen)” → “Endoscope (Full screen)”
 2MODE : Ultrasonic + Endoscope → “Ultrasonic (Full screen)”



[Note]

At the time of switching the image, intermittent flickering or interruption may occur on the screen.

[Note]

The PinP is a function that controls the monitor settings externally.
 Depending on the monitor, connections and settings may be required prior to use. For details on the connections and settings, contact your local FUJIFILM dealer.

Chapter 8 Recording and Replaying Images

8.1 Cine Memory

With this product, image data saved in the cine memory can be obtained and played back.

The images to be played back can be switched by operating the trackball horizontally, while the image is frozen.

8.2 Storing Exam Images

8.2.1 Overview

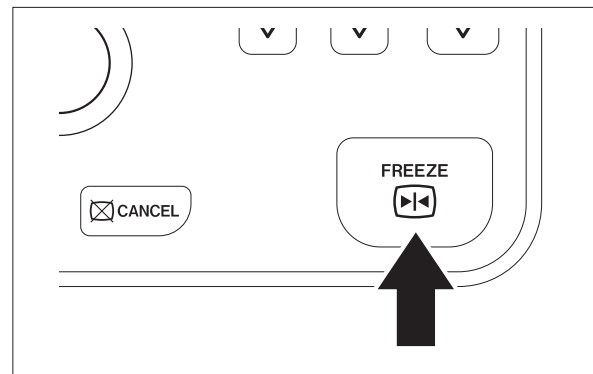
Ultrasonic images and exam data can be stored electronically in the internal storage device of SP-900. In addition, those data can be stored in the external storage device.

→ “8.6 Copying Exam Images to External Storage Device”

Data that have been printed or stored in an external storage device should be deleted from the internal storage device on a regular basis. Regular deletion will ensure adequate space is available for storing new images as well as optimize the performance (speed) for storing images and calling up previous exam data.

8.2.2 Storing Images in Internal Storage Device

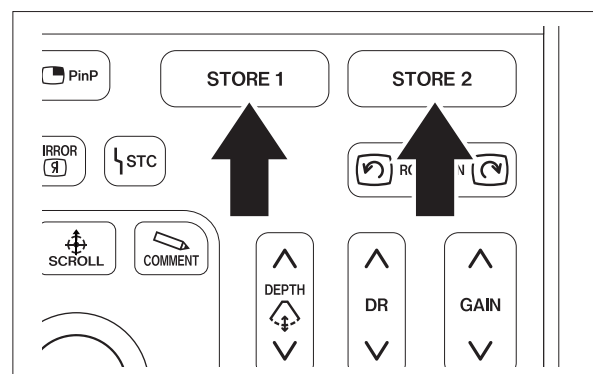
- (1) Display an ultrasonic image.
- (2) Focus the object to be recorded on the screen, and press the [FREEZE] key to freeze the image.



- (3) Press the [STORE 1] or [STORE 2] key.
The image is stored in the internal storage device.

[Note]

For details on the setting for the [STORE 1] and [STORE 2] keys, see “System Setup” - “STORE 1” column in Table 5.1 of “5.1.1 Setup Items in “User Menu” Screen”.



8.3 Printing Images with Color Printer (Remote System)

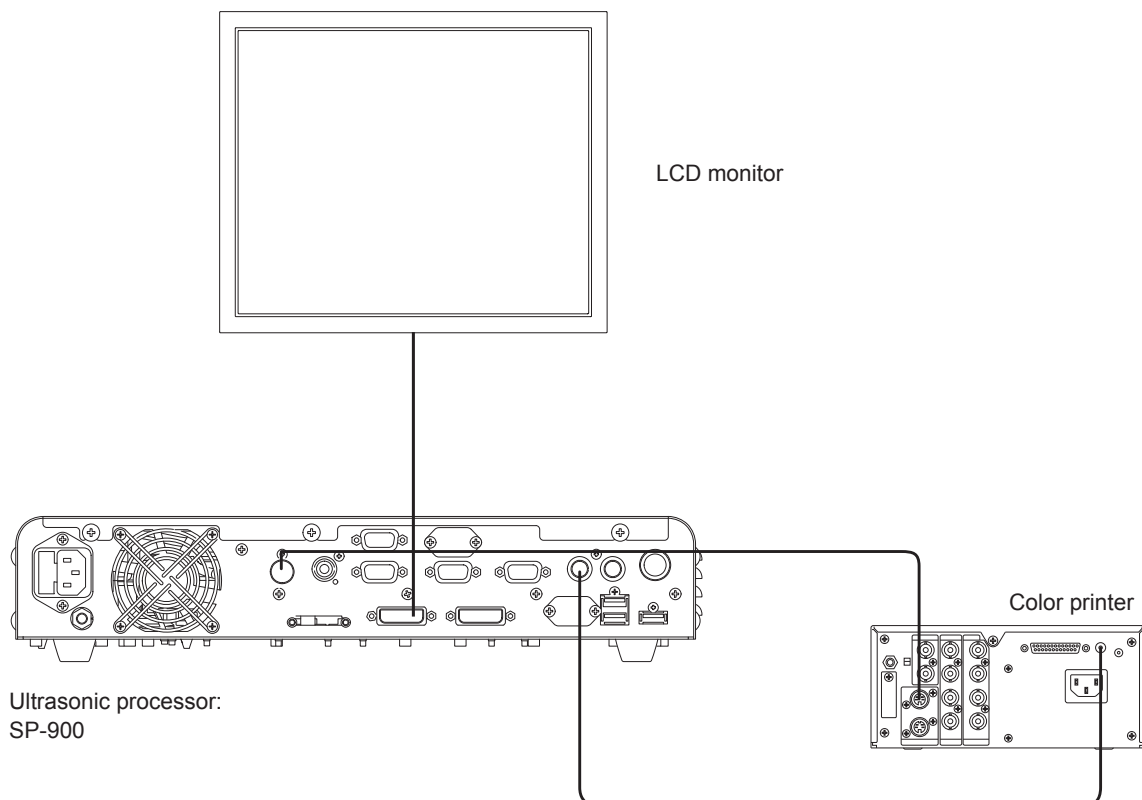
The image observed on the monitor can be printed out on paper by connecting the color printer to SP-900.

[Note] SP-900 has two REMOTE terminals (REMOTE 1 and REMOTE 2).

[Note] Since the color printer and the monitor differ in their display properties, images output from the color printer and those displayed on the monitor may differ in color.

8.3.1 Printer Connection

<Example of connections>



8.3.2 Setting Printing Function

This section explains how to assign the print function to [STORE 1] or [STORE 2] key.

- (1) Press [SYSTEM] key.
- (2) Use the trackball to move the cursor to the "System Setup" tab.
- (3) When the printer is connected to the REMOTE OUT 1 connector, select "ON" for the "Remote 1" column of "STORE 1" or "STORE 2". When the printer is connected to the REMOTE OUT 2 connector, select "ON" for the "Remote 2" column of "STORE 1" or "STORE 2".
- (4) Move the cursor to "Save and Exit" and press the [ENTER] or [SET] key.
The settings are saved and operation returns to the examination screen.

8.3.3 Exporting Image

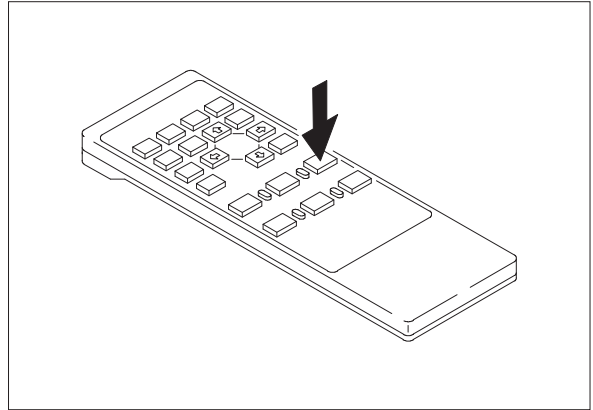
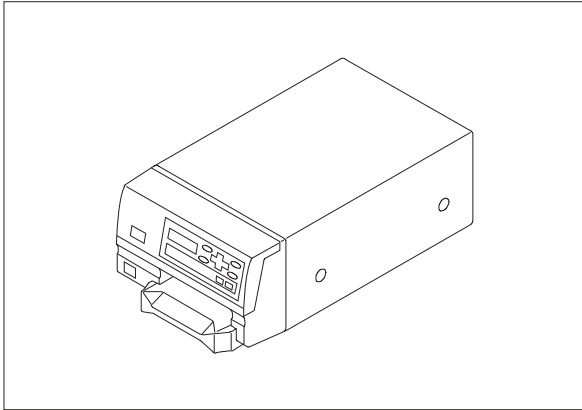
This section explains how to export the image to the printer.

- (1) Focus the object to be recorded on the screen, and then freeze the image by pressing [FREEZE] key.
- (2) When the key specified in accordance with "8.3.2 Setting Printing Function" is pressed, the image is exported to the printer connected with the remote terminal.

8.3.4 Printing Image

The exported image can be printed.

When the print button on the printer or on the remote controller is pressed, the image is printed out.



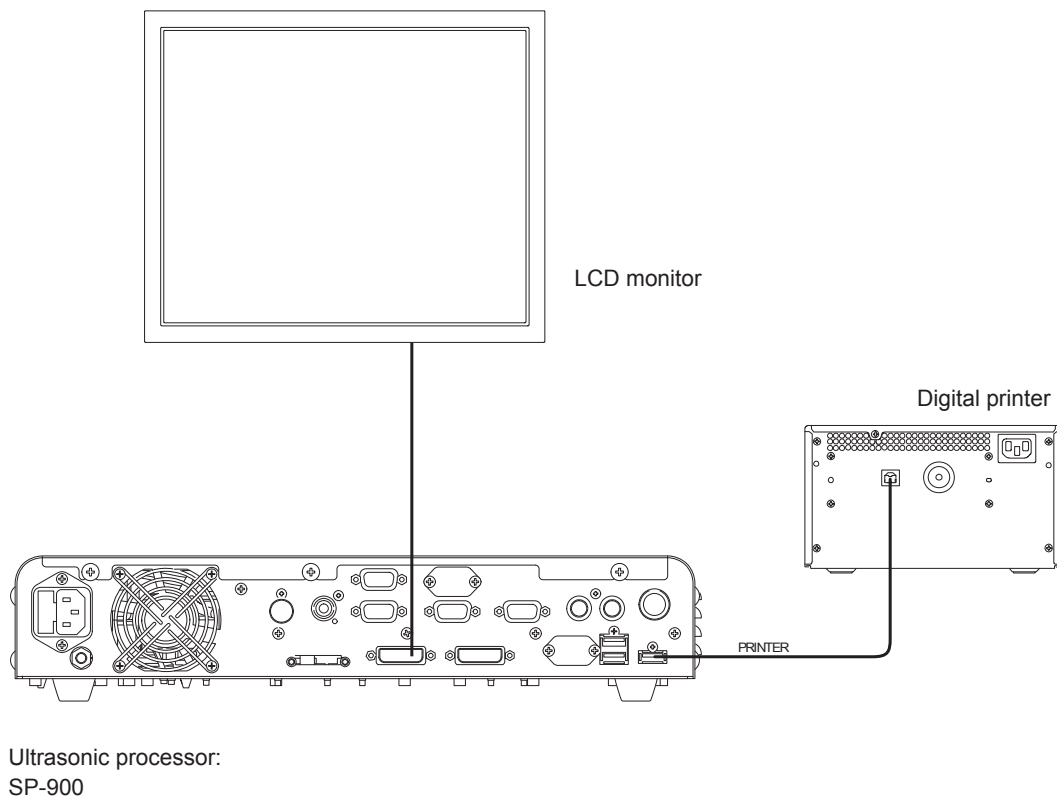
8.4 Printing Images with Digital Printer

An image observed on the monitor can be printed on paper by connecting a digital printer to SP-900.

[Note] SP-900 has one USB terminal (printer).

[Note] Since the digital printer and the monitor differ in their display properties, images output from the digital printer and those displayed on the monitor may differ in color.

8.4.1 Digital Printer Connection



8.4.2 Setting Printing Function

This section explains how to assign the function for printing with the digital printer to [STORE 1] or [STORE 2] key.

- (1) Press [SYSTEM] key.
- (2) Use the trackball to move the cursor to the "System Setup" tab.
- (3) Select "ON" for the "Printer" column of "STORE 1" or "STORE 2".
- (4) Move the cursor to "Save and Exit" and press the [ENTER] or [SET] key.
The settings are saved and operation returns to the examination screen.

8.4.3 Digital Printer Settings

This section explains how to perform the setting of the digital printer connected to SP-900.

- (1) Press the [SYSTEM] key.
- (2) Use the trackball to move the cursor to the "Peripheral" tab.
- (3) Move the cursor to the "Digital Printer Setup" column of "Printer Setup", and press the [ENTER] or [SET] key.

- (4) Perform the setting of the following items.

Adjustment item	Adjustment range	
	UP-D25MD	UP-55MD
Red (C-R)	These items can be adjusted by 2 within the range of -32 to +32.	These items cannot be set.
Green (M-G)		
Blue (Y-B)		
Contrast	This item can be adjusted by 1 within the range of -16 to +16.	
Brightness	This item can be adjusted by 1 within the range of -16 to +16.	
Sharpness	This item can be adjusted by 1 within the range of 0 to 14.	

- (5) Move the cursor to “Back” and press the [ENTER] or [SET] key.
- (6) Set up the following items in the “Printer Setup” column on the “Peripheral” tab.

Number of Prints	The number of sheets to be printed (1 to 4 sheets)
Print Patient Data	<p>Function for printing the patient name, patient ID, date and time on the margin of the paper (Yes or No)</p> <p>[Note] When registering patient information or switching to new patient information, patient information is sent to the printer. While patient information is sent to the printer (for about 30 seconds), images cannot be captured. In addition, when patient information is sent, the image already loaded in the printer is printed forcibly.</p>

- (7) Move the cursor to “Save and Exit” and press the [ENTER] or [SET] key.
- The settings are saved and operation returns to the examination screen.

8.4.4 Exporting Image

This section explains how to export the image to the digital printer.

- (1) Focus the object to be printed on the screen, and then freeze the image by pressing the [FREEZE] key.
- (2) When the key specified in accordance with “8.4.2 Setting Printing Function” is pressed, the image is exported to the digital printer.

8.4.5 Printing Image

Printing starts automatically.

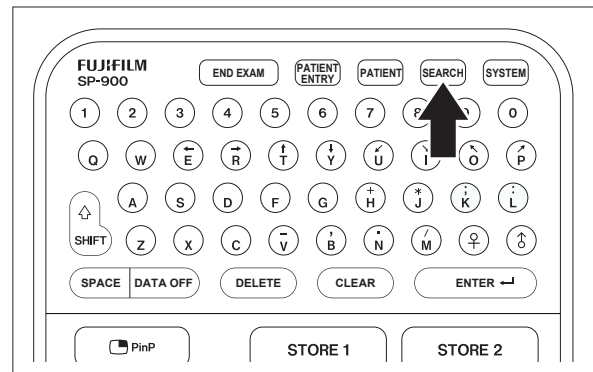
8.5 Reviewing Exam Images

Stored images can be reviewed.

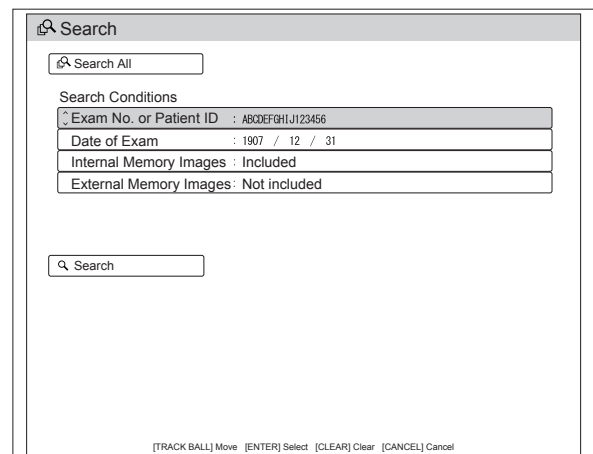
Press the [SEARCH] key to activate the review function.

8.5.1 Searching Exam Images (Setting Search Conditions)

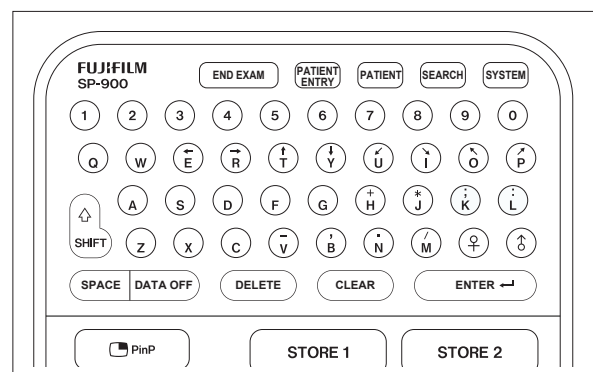
- (1) Press the [SEARCH] key to display the "Search" screen.



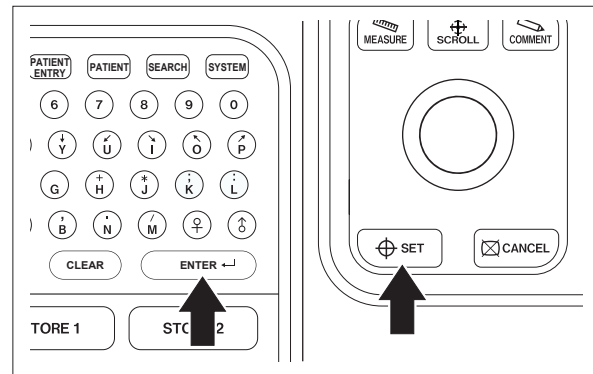
- (2) Select an item to input with the trackball.



- (3) Enter search conditions with the keyboard on the control pad.



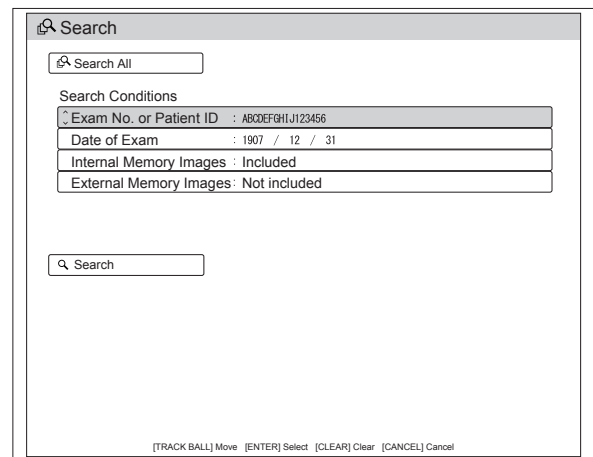
- (4) Press the [ENTER] or [SET] key confirm the input.



- (5) Use the trackball to move the cursor to “Search All” or “Search”.

Search All: All examination data in the internal and external storage devices are listed.

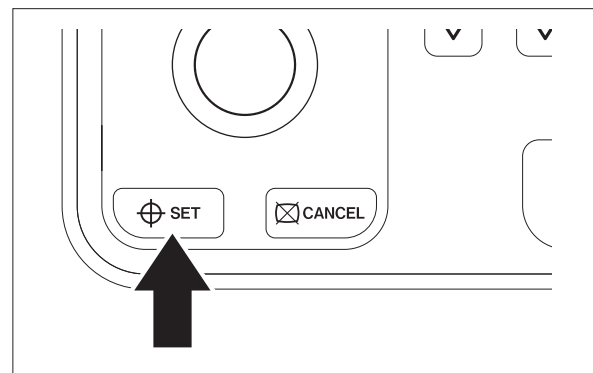
Search: Examination data meeting the specified search conditions are listed.



- (6) Press the [SET] key to search images.

[Note]

If the [CANCEL] key is pressed, the examination screen reappears.



8.5.2 Searching Exam Images (Search Results)


A list of search results can be displayed.

- (1) Select an item with the trackball.

[Note]

When there are multiple search result pages, move the cursor to “Search Result” and operate the trackball horizontally to switch the pages.

[Note]

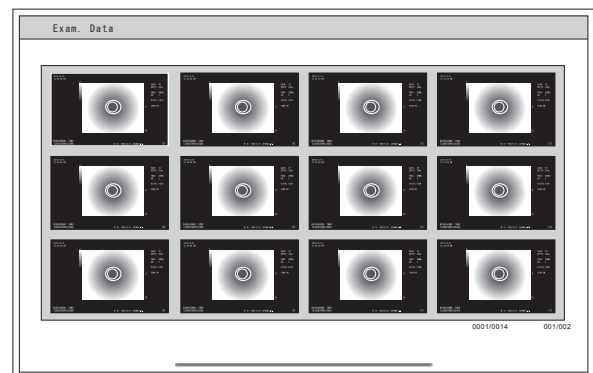
For the image data stored in the external storage device,  is displayed.

Search				
Search Conditions : 0123456789012345 NA				
◀ Search Result 1/4 ▶				
No.	Date of Exam	Patient ID	Patient Name	Examination No.
01	2007/12/31	0123456789012345	0123456789012345	0123456789012345
02	2007/12/31	0123456789012345	0123456789012345	0123456789012345
03	2007/12/31	0123456789012345	0123456789012345	0123456789012345
04	2007/12/31	0123456789012345	0123456789012345	0123456789012345
05	2007/12/31	0123456789012345	0123456789012345	0123456789012345
06	2007/12/31	0123456789012345	0123456789012345	0123456789012345
07	2007/12/31	0123456789012345	0123456789012345	0123456789012345
08	2007/12/31	0123456789012345	0123456789012345	0123456789012345
09	2007/12/31	0123456789012345	0123456789012345	0123456789012345
10	2007/12/31	0123456789012345	0123456789012345	0123456789012345
11	2007/12/31	0123456789012345	0123456789012345	0123456789012345
12	2007/12/31	0123456789012345	0123456789012345	0123456789012345
13	2007/12/31	0123456789012345	0123456789012345	0123456789012345
14	2007/12/31	0123456789012345	0123456789012345	0123456789012345
15	2007/12/31	0123456789012345	0123456789012345	0123456789012345
◀ Search Result 1/4 ▶				
[TRACK BALL] Move [SET] Select [C] Copy [D] Delete [N] Next Page [P] Previous Page [CANCEL] Cancel				

- (2) Press the [SET] key to move to the exam image list screen.

[Note]

If the [CANCEL] key is pressed, the search result screen reappears.



8.5.3 Enlarging Exam Images

Stored images can be enlarged.

- (1) Search exam images and display the list of the images.

- “8.5.1 Searching Exam Images (Setting Search Conditions)”
- “8.5.2 Searching Exam Images (Search Results)”

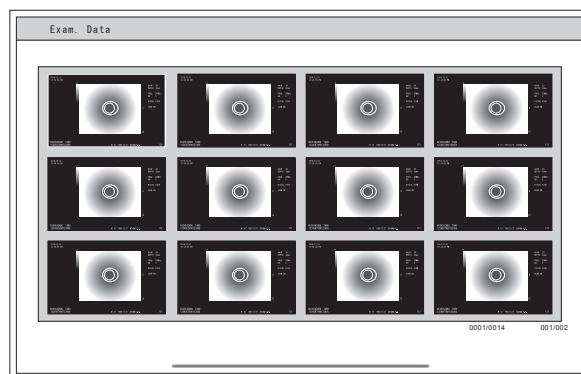
- (2) Select an exam image with the trackball.

[Note]

The selected image is indicated by a green frame.

[Note]

When there are multiple exam image pages, operate the trackball vertically to switch the pages.



- (3) Press the [SET] key to move to the enlarged display screen.

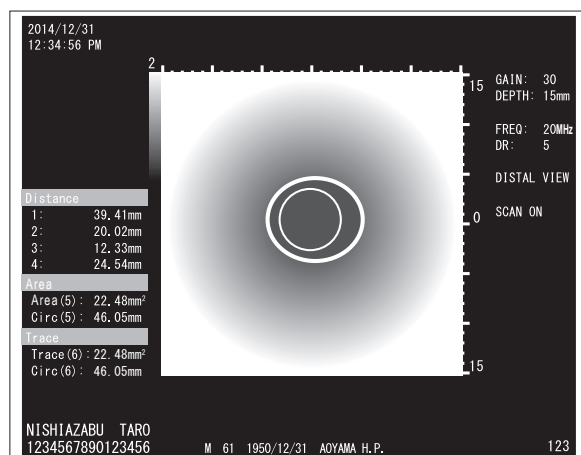
[Note]

If the [CANCEL] key is pressed, the search result screen reappears.

8.5.4 Printing Images

Desired images can be printed.

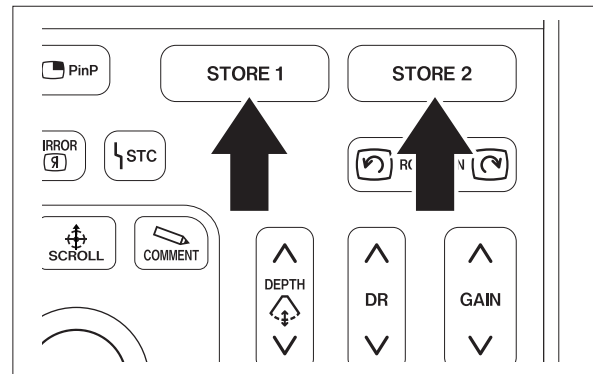
- (1) Connect a digital printer to this product.
- (2) Search exam images and display the list of the images.
 - “8.5.1 Searching Exam Images (Setting Search Conditions)”
 - “8.5.2 Searching Exam Images (Search Results)”
- (3) Enlarge the image to be printed.
 - “8.5.3 Enlarging Exam Images”



- (4) Press the [STORE 1] or [STORE 2] key with the printing function assigned. Printing starts.

[Note]

For details on how to assign the printing function to the [STORE 1] or [STORE 2] key, see “8.4.2 Setting Printing Function”.



8.6 Copying Exam Images to External Storage Device

Exam image data can be copied from the internal storage device of this product to an external storage device.

The access lamp blinks while the external storage device is being accessed.

[Note] When copying exam image data, take care of the amount of exam image data. If a large amount of examination data is copied, it may take an extremely long time.

[Note] The following data can be copied to an external media: Image data (still images).

[Note] The external storage device is optional. Use the recommended storage device (manufactured by Swissbit), which is compatible with this product. For external storage devices, contact your local FUJIFILM dealer.

[Note] Back up the data in the external storage device and initialize it with this product or a personal computer to secure a sufficient space for image recording.

[Note] Although a certain free space is secured by deleting unnecessary data, if the free space is insufficient, images cannot be copied. Secure an enough space for image recording.

[Note] If images cannot be saved in an external storage device that still has free space, format (initialize) the external storage device or use a new external storage device.

→ “5.2 Initialization of External Storage Device”

[Note] Use the external storage device only for SP-900 in use. Do not share it with another SP-900.

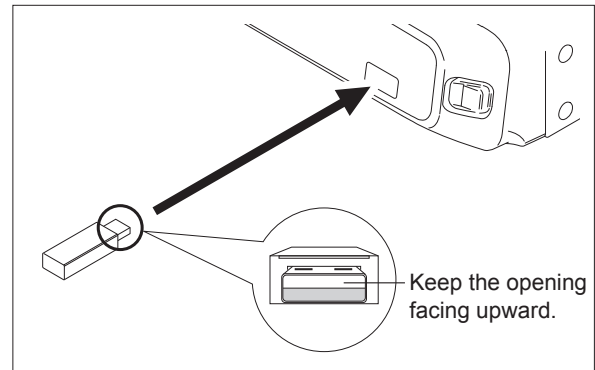
[Note] Do not remove the external storage device while data writing to an external storage device is in progress. If removed, SP-900 may not operate properly. If this happens, turn off SP-900 and then turn it on again.

The procedure for copying examination data is described below.

- (1) To copy examination (image) data to an external storage device, insert an external storage device into the external storage device slot.

[Note]

When the external storage device is set, insert it with the opening of the connector facing upward.



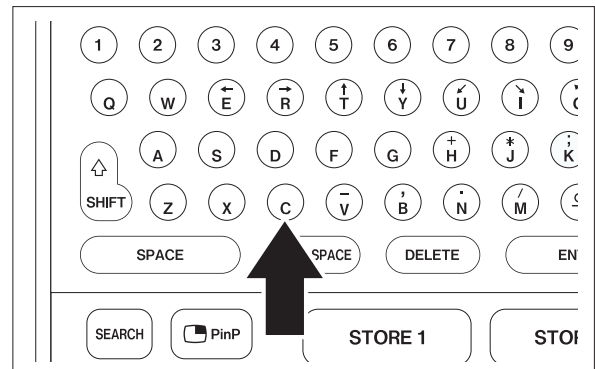
- (2) Search exam images and display the list of the images.

- “8.5.1 Searching Exam Images (Setting Search Conditions)”
- “8.5.2 Searching Exam Images (Search Results)”

- (3) Select the image to be copied from the list of the images, and then press the [C] key.

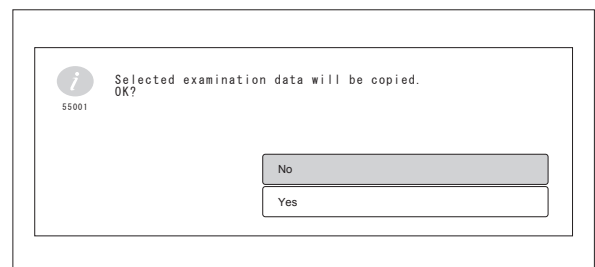
[Note]

If the external storage device is not connected to this product or if no examination is selected, examination data cannot be exported.



[Note]

The confirmation message is displayed.



- (4) Select “Yes” and press the [SET] key to copy the examination data.
Copying of the selected examination starts.

[Note]

When “No” is selected, the examination is not exported.

[Note]

If the free space on the external storage device is insufficient, a warning message is displayed. Press the [SET] key to return to the previous screen. Delete data in the external storage media to secure the free space.

[Note]

The examination selected on the “Exam Image List” screen already exists in the copy destination, the overwrite confirmation message is displayed. When “Yes” is selected and the [SET] key is pressed, the examination is overwritten with the copied data. When the [Cancel] button is selected, the same examination is not copied.

[Note]

If the external storage device is removed from this product while the copy process is in progress, a message is displayed and the copy process is canceled.

8.7 Deleting Exam Image Data

Exam image data stored in the internal storage device of SP-900 or an external storage device can be deleted.

[Note] Deleted images cannot be restored.

Delete exam image data by following the procedure below.

- (1) Search exam images and display the list of the images.
 - “8.5.1 Searching Exam Images (Setting Search Conditions)”
 - “8.5.2 Searching Exam Images (Search Results)”

Search

Search Conditions : 0123456789012345 NA

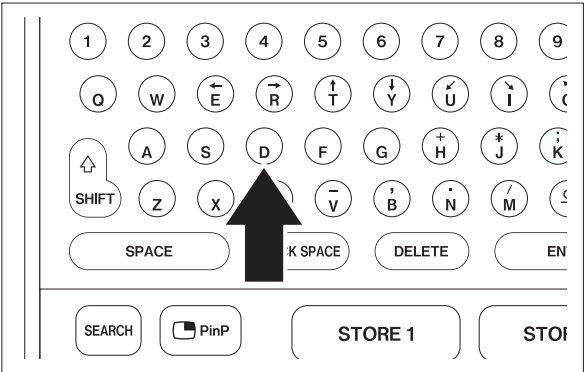
Search Result 1/4

No.	Date of Exam	Patient ID	Patient Name	Examination No.
01	2007/12/31	0123456789012345	0123456789012345	0123456789012345
02	2007/12/31	0123456789012345	0123456789012345	0123456789012345
03	2007/12/31	0123456789012345	0123456789012345	0123456789012345
04	2007/12/31	0123456789012345	0123456789012345	0123456789012345
05	2007/12/31	0123456789012345	0123456789012345	0123456789012345
06	2007/12/31	0123456789012345	0123456789012345	0123456789012345
07	2007/12/31	0123456789012345	0123456789012345	0123456789012345
08	2007/12/31	0123456789012345	0123456789012345	0123456789012345
09	2007/12/31	0123456789012345	0123456789012345	0123456789012345
10	2007/12/31	0123456789012345	0123456789012345	0123456789012345
11	2007/12/31	0123456789012345	0123456789012345	0123456789012345
12	2007/12/31	0123456789012345	0123456789012345	0123456789012345
13	2007/12/31	0123456789012345	0123456789012345	0123456789012345
14	2007/12/31	0123456789012345	0123456789012345	0123456789012345
15	2007/12/31	0123456789012345	0123456789012345	0123456789012345

Search Result 1/4

[TRACK BALL] Move [SET] Select [C] Copy [D] Delete [N] Next Page [P] Previous Page [CANCEL] Cancel

- (2) Select the exam image data to be deleted.
- (3) Press the [D] key.



[Note]
The confirmation message is displayed.

55002

Selected examination data will be deleted.
OK?

No

Yes

- (4) To delete the exam image data, press the [SET] key.

The selected exam image data is deleted.

[Note]

When “No” is selected, the exam image data is not deleted.

Chapter 9 Storage and Maintenance

9.1 Maintenance

WARNING

Do not open covers of this product. Only FUJIFILM authorized service personnel are permitted to open the covers. Doing so may pose a risk of electric shock.

CAUTION

Keep liquids such as alcohol and water from entering this product. Not doing so may cause fire or equipment failure.

When either one of the following occurs, immediately stop using and unplug this product, and then contact your local FUJIFILM dealer.

- When this product receives a strong shock like falling off.
- When liquid such as water enters this product or spills out.
- When this product does not work properly.
- When the chassis of this product is cracked, split up or broken.
- When the performance of the power cord, guide cord and other cords is degraded.

CAUTION

Clean ventilation holes periodically to secure ventilation of this product in order to avoid equipment failure.

This section describes the inspection and maintenance work which the user must implement.

In addition to the work stated herein, please have the product inspected by FUJIFILM authorized service personnel once every 6 months.

9.2 Maintenance of SP-900, RS-900 and CP-900

CAUTION

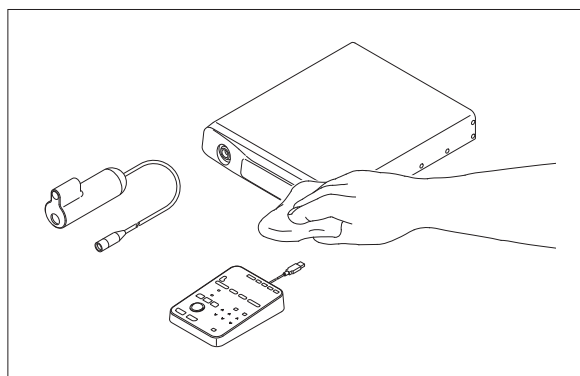
Perform cleaning with specified way. Do not perform disinfection and sterilization by immersing the equipment in chemical liquid or by gas. Do not spill water or disinfectants on the equipment body. Not adhering to these instructions may cause equipment failure.

Do not wipe contact points with any other liquid than alcohol. Doing so may cause corrosion.

When this product is dusty or dirty, wipe it gently with a soft cloth such as gauze.

To remove heavy or persistent dirt, wipe this product gently with a piece of gauze moistened with a small quantity of neutral detergent solution diluted 10 or more times with water. Wipe this product with gauze moistened with ethanol for disinfection, and then dry it thoroughly.

If body fluid or blood adheres to the front panel of this product or the control pad (CP-900), wipe it with alcohol gauze.



9.3 Method of Storage

CAUTION

Do not store the equipment in a place which does not meet the storage conditions. Doing so may cause equipment failure.

Store SP-900 in a place that meets the following conditions.

Storage Conditions

Temperature : -20 to +60°C
Humidity : 10 to 90%RH (no dew condensation)
Pressure : 70 to 106 kPa (within range of atmospheric pressure)
State of cables : Keeping cables and cords free from any load

9.4 Before Bringing This Product for Service

Before submitting the equipment to repair, perform checking once again. If the equipment still does not operate correctly, contact your local FUJIFILM dealer.

Symptom	Possible Causes	Solutions
Power indicator does not light.	The power cord is not connected.	Plug the power cord in.
	The fuse is broken.	Replace the fuse. → “9.5 Replacing Fuse”
An image does not appear on display, although the endoscopic ultrasonic probe rotates.	There are air bubbles on the head part of the endoscopic ultrasonic probe.	Remove bubbles from the endoscopic ultrasonic probe. → “6.3 Inspection Before Use”
	The endoscopic ultrasonic probe is broken.	Replace the endoscopic ultrasonic probe.
	The endoscopic ultrasonic probe connector is disconnected.	Remove the endoscopic ultrasonic probe and reconnect it.

9.5 Replacing Fuse

CAUTION

Do not replace the fuse. If the fuse needs to be replaced, contact your local FUJIFILM dealer.

9.6 Monthly Inspection

The table below lists the “monthly inspection items” to be performed once a month by users.

If there is one or more “Fail” inspection results, the inspection is assessed “Fail” as a whole. Deal with the “Fail” items. This product may not be used while there is an item assessed as “Fail”.

If you have any questions, contact your local FUJIFILM dealer.

Item		Inspection Item	Inspection Method	Acceptance Criterion
Visual Inspection	Appearance	1. Exterior scratch, crack, deformation, rust	Visually check if there is any scratch, crack, deformation or rust on the main unit.	There is no exterior scratch, crack, deformation or rust.
		2. Peel-offs and stains on the rating/caution plates and panels	Visually check if there is any peel-offs or stains on the rating/caution plates and panels.	No peel-offs or stains on the panel.
		3. Keys, cable, connector	Visually check if there is any damages on the keys, cable or connector.	No damage.
	Accessories	1. Power cord	Visually check if there is any scratch or damage.	No scratch or damage.
		2. Operation Manual	Check if it is stored in the specified storage.	Stored in the specified storage.
	Endoscopic ultrasonic probe	Endoscopic ultrasonic probe	Visually check if there is any scratch, crack, rift, peel-off, deformation or stain on the main unit.	No scratch, crack, rift, peel-off, deformation or stain on the main unit.
			Visually check if there is any scratch, crack, rift, deformation, turn-up or liquid intrusion on the cables and the connectors.	No scratch, crack, rift, deformation, turn-up or liquid intrusion.

Item		Inspection Item	Inspection Method	Acceptance Criterion
Mechanical Inspection	Main unit	1. Keys	Check if the keys can be operated smoothly without backlash or looseness.	Operation should be smooth.
		2. Positioning of the monitor (vertical/horizontal) and the keyboard (drawer) Rotation of the scanner	Check if they can be operated smoothly without abnormal sound.	Operate smoothly without abnormal sound.
	Peripheral devices	1. Cart (Caster)	Check if the casters can be locked and unlocked. Check if they can be operated smoothly without abnormal sound.	The casters can be locked/unlocked. Operate smoothly without abnormal sound.
		2. Foot switch	Check if the function assigned in the system setting (Freeze, PinP, Store 1 or Store 2) is activated by the foot switch.	The function assigned in the system setting can be activated.
	Endoscopic ultrasonic probe	Endoscopic ultrasonic probe	Check if there is any problem in the connection to the main unit.	No problem in the connection.
Electrical Inspection	Performance	1. Power Supply	Check if the power can be turned on and off, and the fan can be operated when the power is turned on by pressing the power switch.	The power can be turned on and off, and the fan can be operated when the power is on.
		2. Display	Check if the B-mode image is displayed after the start-up screen appears.	B-mode image is displayed after the device name and the version number are displayed.
		3. Record	Check if the displayed image can be saved in the printer or an external storage device.	The displayed images can be saved.

9.7 Storage

CAUTION

Store this product where all the storage conditions are satisfied. Do not apply a force to cables and cords during storage. Doing so may cause equipment failure.

Store SP-900 by following prescribed storage conditions.

→ “Main Specifications”

When the equipment has been out of use for a long period, check the initial settings.

→ “Chapter 5 Initial Settings”

SP-900 uses the secondary battery to store the clock and data.

When SP-900 has remained off for a long period of time, the clock function may not be retained. (The date and time may be displayed incorrectly.) In such cases, make the initial settings again.

→ “Chapter 5 Initial Settings”

9.8 Moving Cart

!CAUTION

Move the cart by two people. Not doing so may cause the cart to tip over and result in personal injury.

Move the cart by three people in uneven places. Not doing so may cause the cart to tip over and result in personal injury.

Remove the water tank before moving the cart. Not doing so may cause the cart to tip over due to spilt water and result in personal injury.

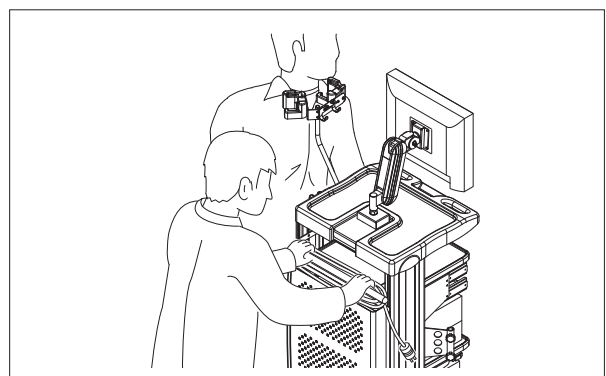
Remove the endoscope before moving the cart. Not doing so may cause damage to the endoscope.

Remove the endoscopic ultrasonic probe before moving the cart. Not doing so may cause damage to the endoscopic ultrasonic probe.

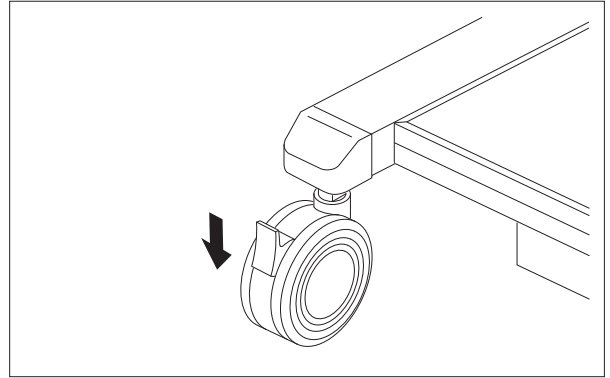
- (1) Unlock the casters of the cart, if locked.
Wind the power cable around the handle.



- (2) Move the cart by holding the handle. The cart should be moved by two people.
Move the cart by three people in uneven places.



- (3) After the cart is in position at the destination, lock the casters.



Chapter 10 Troubleshooting

10.1 Troubleshooting

If the endoscope should fail during use, follow these instructions to troubleshoot it.

Symptom	Possible Causes	Solutions
The AC switch is "ON", but the systems does not work (the pilot lamp (standby) does not turn on).	1) The main switch of the cart is "OFF". 2) The power cord is connected incompletely. 3) Defective power cord 4) The outlet is not good. 5) Fuse blown 6) The AC switch was turned on within 5 seconds after being turned off.	1) Turn "ON" the main switch of the cart. 2) Connect the power cord properly. 3) Inspect the power cord. 4) Check if the rated voltage is being supplied. 5) Contact your local FUJIFILM dealer. 6) Turn off the AC switch and wait for more than 5 seconds, and then turn on the switch again.
Keyboard is not operable.	The connector of keyboard is disconnected.	Connect the connector of keyboard.
After setting the date and time, when turning the power off, they return to original state.	The secondary battery has run out.	The secondary battery must be changed or replaced with a new one. Contact your local FUJIFILM dealer.
Scan cannot be stopped.	1) The keyboard cable is unplugged from this product. 2) The video signal cable has burnt out.	1) Plug the control pad cable into this product. 2) Discontinue use immediately, straighten the bending portion of the endoscope and pull out the endoscopic ultrasonic probe from the endoscope. Submit the SP-900 system to expert repairs.

Symptom	Possible Causes	Solutions
No images come out.	1) The power cord of this product is unplugged from the outlet. 2) This product is turned off. 3) The input select switch of monitor is wrong. 4) The video signal cable is unplugged. 5) The video signal cable has burnt out.	1) Plug the power cord of this product into the outlet. 2) Turn on this product. 3) Select the correct switch. 4) Plug the video signal cable into this product. 5) Discontinue use immediately, straighten the bending portion of the endoscope and pull out the endoscopic ultrasonic probe from the endoscope. Submit the SP-900 system to expert repairs.
Image output is suppressed during diagnosis.	1) The endoscopic ultrasonic probe connection is incomplete. 2) The video signal cable has burnt out.	1) Straighten the bending portion of the endoscope and pull out the endoscopic ultrasonic probe from the endoscope. Redo the probe connection. 2) Discontinue use immediately, straighten the bending portion of the endoscope and pull out the endoscopic ultrasonic probe from the endoscope. Submit the SP-900 system to expert repairs.
Images appear garbled.	Connection is not correct.	Connect properly.
"Motor Error" is indicated.	Abnormal force is applied to the endoscopic ultrasonic probe.	Clear the abnormal force applied to the endoscopic ultrasonic probe.
The SP-900 cannot be operated with the ultrasonic processor SU-8000/SU-1.	1) The cable is not connected between the SU-8000/SU-1 and the SP-900. 2) The operation mode has not been switched on the SU-8000/SU-1. 3) The control pad CP-900 is connected to the SP-900.	1) Connect the cable. 2) Switch the operation mode. 3) Disconnect the control pad CP-900 from the SP-900.

10.2 Error Messages

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

[Note] When contacting your local FUJIFILM dealer, inform the dealer of the error message and error code that appear on the monitor screen.

Error Message	Possible Causes	Solutions
An error was detected. Turn on and off the SP-900. If the error recurs, contact the sales agent or our service representatives with the error code.	Hardware abnormality or other irregularity has occurred.	An operational error has been detected. Restart SP-900. If the message appears even after restarting SP-900, contact your local FUJIFILM dealer and provide them with the error code.
An error was detected. Remove the RS-900, and then turn on and off the SP-900. If the error recurs, contact the sales agent or our service representatives with the error code.	Hardware abnormality or other irregularity has occurred.	An operational error has been detected. Remove RS-900 and restart SP-900. If the message appears even after restarting SP-900, contact your local FUJIFILM dealer.
Probe is not connected. Check probe connection.	The probe is not connected.	Make sure that the probe is properly connected.
Scanner is not connected. Check scanner connection.	The scanner is not connected.	Make sure that the scanner is properly connected.
Probe cannot be recognized. Check probe connection	The probe is not recognized correctly.	Make sure that the probe is properly connected.
Printer paper has run out. Set printer paper.	The printer is out of paper.	Load the paper into the printer.
Ink sheet is not set in printer. Set ink sheet.	The ink sheet is not set in the printer.	Set the ink sheet in the printer.
Printer ink sheet has run out. Replace ink sheet.	The ink sheet in the printer is out of ink.	Replace the ink sheet in the printer with a new one.
Paper jamming occurred in printer. Remove paper.	Paper is jammed inside the printer.	Remove the jammed paper from the printer.
Printer paper and ink sheet sizes do not match. Match printer paper and ink sheet sizes.	The size of the paper inside the printer does not match that of the ink sheet.	Use the paper and ink sheet in the same size.
No input signal to the printer. Check the input cable or device settings.	No input signal is sent to the printer.	Check the connector cable for the printer or the setting values of the system for any abnormality.
No images are loaded to the printer.	No image is loaded to the printer.	Check if imgs are properly loaded to the printer.

Error Message	Possible Causes	Solutions
Printer paper tray is full. Remove paper.	The paper tray of the printer is full.	Remove the paper from the paper tray of the printer.
Communication error with printer. Restart printer.	A communication error with the printer has occurred.	Restart the printer.
Printer is in abnormal state. Check printer.	Printer is in an abnormal state.	Check the printer for any abnormality.
Printer cannot be recognized. Check the printer power and cable connection.	The digital printer is not recognized.	Check if the digital printer is turned on or is properly connected to the cable.
Paper jamming occurred in printer. Remove paper.	Paper is jammed inside the digital printer.	Remove the jammed paper from the digital printer.
Ink sheet is not set in printer. Set ink sheet.	The ink sheet is not set in the digital printer.	Set the ink sheet in the digital printer.
Printer ink sheet has run out. Replace ink sheet.	The ink sheet in the digital printer is out of ink.	Replace the ink sheet in the digital printer with a new one.
Printer ink sheet is incorrect. Replace it with a correct ink sheet.	The ink sheet in the digital printer is not correct.	Replace the ink sheet with a correct one.
Printer paper and ink sheet sizes do not match. Match printer paper and ink sheet sizes.	The size of the paper inside the printer does not match that of the ink sheet.	Use the paper and ink sheet in the same size.
Printer paper has run out. Set printer paper.	The printer is out of paper.	Load the paper into the printer.
Printer door is open. Check printer.	The door of the digital printer is open.	Close the door of the digital printer.
Turn printing device off and back on. If the problem persists, contact our service representatives.	Printer is in an abnormal state.	Turn on the printer again. If the error message appears again, contact your local FUJIFILM dealer.
Image-file loading failed.	Loading of an image file has failed.	Try to print the file again. If the error message appears repeatedly, contact your local FUJIFILM dealer.
An error was detected. Press the [STORE 1] or [STORE 2] key again. If the error recurs, contact the sales agent or our service representatives.	The image has not been stored successfully.	Press the [STORE 1] or [STORE 2] key again. If the error message appears repeatedly, contact your local FUJIFILM dealer and provide them with the error code.
Connection to the still recorder cannot be confirmed. Check the still recorder.	Connection with the still image recorder is not confirmed.	Check if the still image recorder is properly connected.

Error Message	Possible Causes	Solutions
No disk is inserted in the still recorder. Insert a disk.	No disk is inserted into the still image recorder.	Insert a disk into the still image recorder.
The disk in the still recorder is not supported. Insert a DVD-RAM disk.	The disk in the still image recorder is not supported.	Insert a DVD-RAM into the still image recorder.
The disk in the still recorder is write-protected. Insert a recordable disk.	The disk in the still image recorder is write-protected.	Insert a writable disk into the still image recorder.
The disk in the still recorder is not formatted. Insert a formatted disk.	The disk in the still image recorder is not formatted.	Insert a formatted disk into the still image recorder.
Data cannot be written on the disk in the still recorder. Replace the disk.	Data cannot be written to the disk in the still image recorder.	Replace the disk.
Still images cannot be recorded in the still recorder.	Still images cannot be recorded to the still image recorder.	Check the still image recorder for any abnormality.
No input signal to the still recorder. Check the input cable or device settings.	No input signal is sent to the still image recorder.	Check the connector cable for the still image recorder or the setting values of the system for any abnormality.
Recording failed	Recording has failed.	Check the still image recorder for any abnormality.
Communication error with still recorder. Restart the device.	A communication error with the still image recorder has occurred.	Restart the still image recorder.
Communication error with Monitor. Check the connection or Monitor Setting.	A communication error with the monitor has occurred.	Check if the setting for the monitor is appropriate or if the monitor is properly connected.
There is not enough memory for the examination. After exiting, delete data from Internal Memory.	The memory is not enough for examinations.	Delete the data in the internal storage device after examinations are completed.
Memory is full. Delete unnecessary data.	The memory is full.	Delete unnecessary examination data.
Saving configuration file has failed. Check External Memory.	Saving of a configuration file has failed.	Check the external storage device for any abnormality.
Loading configuration file has failed. Check External Memory.	Loading of a configuration file has failed.	Check the external storage device for any abnormality.
Saving log file has failed. Check External Memory.	Saving of a log file has failed.	Check the external storage device for any abnormality.

Error Message	Possible Causes	Solutions
Initialization of External Memory failed. Check the connection of the memory device and initialize the memory device again. If the error recurs, use another one.	Initialization of the external storage device has failed.	Check the connection of the external storage device, and initialize it again. If the error message appears repeatedly, use a different external storage device.
Saving examination data has failed. Check External Memory.	Saving of the examination data has failed.	Check the external storage device for any abnormality.

Chapter 11 System Installation

Only FUJIFILM authorized service personnel is allowed to install this system.

11.1 Operating Conditions

The following conditions are required for using SP-900 including the environment and power supply.

11.1.1 Environment

WARNING

Do not use this product in flammable gas atmosphere. Doing so may cause an explosion.

CAUTION

Do not block ventilation of this product. Doing so may cause overheating of the product.

Secure the monitor to the cart. Otherwise, the monitor may fall off.

Install this product on the location free from vibrations or shocks. Otherwise, the product may tip over and cause damage to it.

Make sure to keep this product away from water, alcohol or other liquid. Not doing so may cause shorting or equipment failure. This product is not waterproof or splash-proof.

[Note] Noise may appear on the monitor of this product due to the interference of electromagnetic waves. Do not use any devices such a mobile phone or radio causing such interference of electromagnetic waves in an examination room.

[Note] If the temperature in the examination room is higher than the storage room, using this product in the examination room immediately after being moved from storage may cause dew condensation. In such case, leave this product for two hours or more in the examination room before use.

Environment where SP-900 operates properly → “Main Specifications”

11.1.2 Power Supply

WARNING

Use the rated voltage. Otherwise, fire, electric shock or equipment failure may result.

Connect the power plug to the protective earth receptacle directly. Use the peripherals that are compliant with medical safety standards. Not doing so may pose a risk of electric shock.

[Note] Connect the power plug of the SP-900 ultrasonic processor directly to the receptacle on the cart via an insulating transformer.

[Note] If SP-900 is installed together with the VP-7000, VP-4450HD and VP-3500HD processors and is used at 200V or higher, connect the power plug of SP-900 directly to a receptacle via an insulating transformer.

CAUTION

Do not use outlets with different voltages or inadequate current capacities. Doing so may cause equipment failure or malfunction.

This product is a medical device to be used in the patient environment. The power supply and earth connections are designed on the assumption that this product is connected to the power supply and grounding system properly engineered for medical facilities. If not, the product may be broken or malfunction. For details, contact your local FUJIFILM dealer.

The power requirements for SP-900 are described below.

Voltage, Frequency and Consumption Current: → “Main Specifications”

Power plug: Hospital grade

11.2 Installation of SP-900 System (Initial Installation)

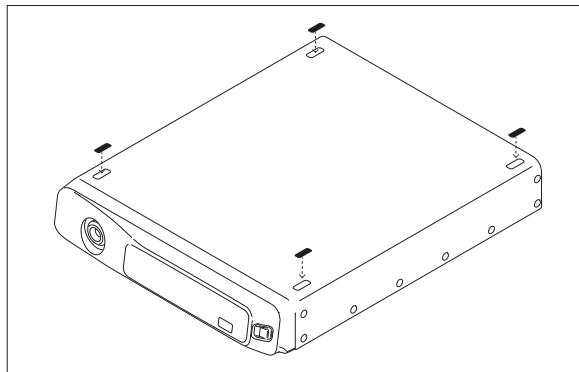
To avoid electric shock and equipment falling off, follow the precautions below.

<To avoid electric shock>

- Connect the power plug of the VP-7000, VP-4450HD or VP-3500HD processor directly to the receptacle for the processor/light source on the cart.
- Do not take power for electrosurgical instruments from the cart.
- Do not take power of the second cart from the first cart.
- Do not connect any device other than devices composing this system to the power outlet of cart.

<To avoid equipment falling off>

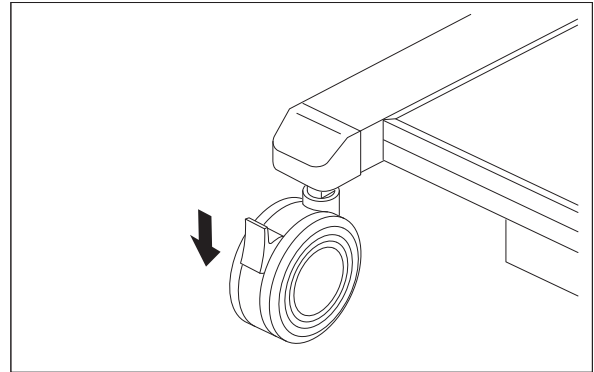
- Do not stack the peripherals.
- Make sure that the feet of each unit are placed inside of the stoppers.
- Place the provided non-slip strips over the four recesses on the upper cover of this product.



[Note] For the DVI cable connecting LCD monitor to processor, use either the cable that comes with the monitor or that of 5m or less based on the DVI standards. A correct image may not be displayed.

11.2.1 Installation of the Standard System with an Endoscopic System Added to It

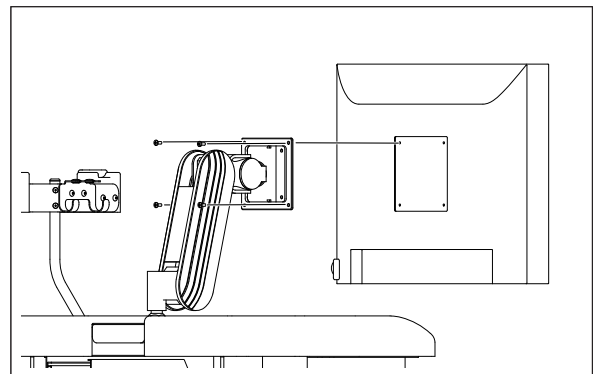
- (1) Lock the casters of the cart.



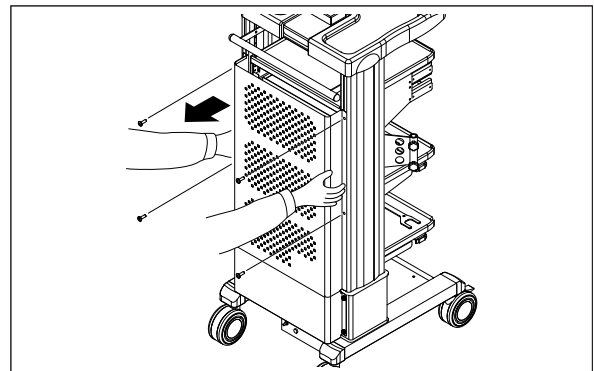
- (2) Fix the rear of LCD monitor to the monitor mount arm of cart with the accessory 4 screws.

[Note]

For the procedure to adjust the vertical balance of the arm unit, refer to the operation manual of the cart.



- (3) Unscrew 4 screws of the rear panel of the cart to remove it.



- (4) Insert the accessory power cord into the power supply connector on rear panel of SP-900 and connect it securely.

[Note]

Do not use the power cord other than the attached one. Make sure that the power cord is correct by checking the model number on the power cord.

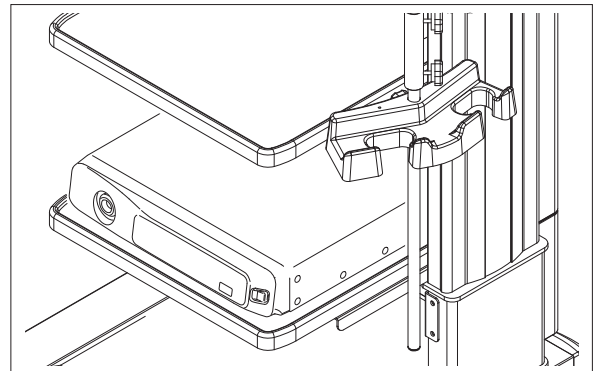
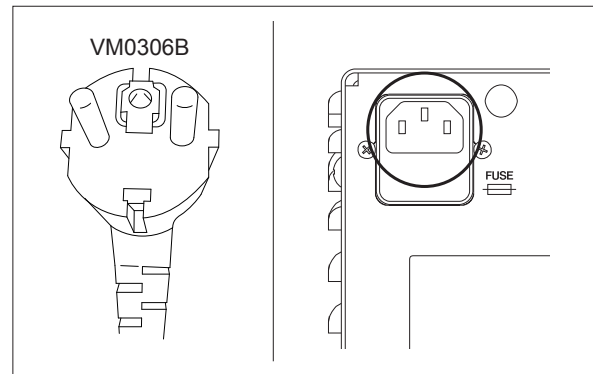
[Note]

The power cord model CC9-003(BR)(S) is provided to the Brazilian market only.

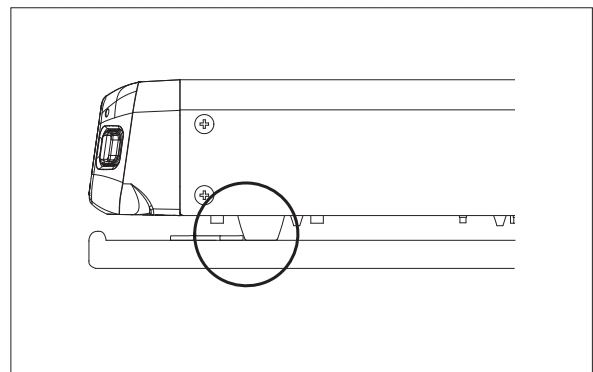
[Note]

Even when the power cord is already connected, make sure that the power cord is connected securely.

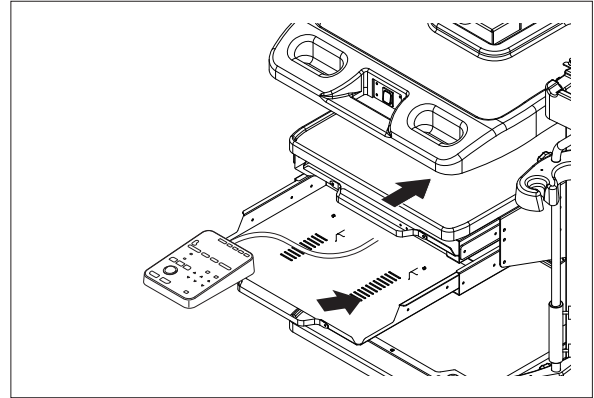
- (5) Place SP-900 on the movable shelf (the lower shelf) of cart.



To avoid SP-900 from falling off, place the feet of SP-900 along the inner edges of the stoppers.



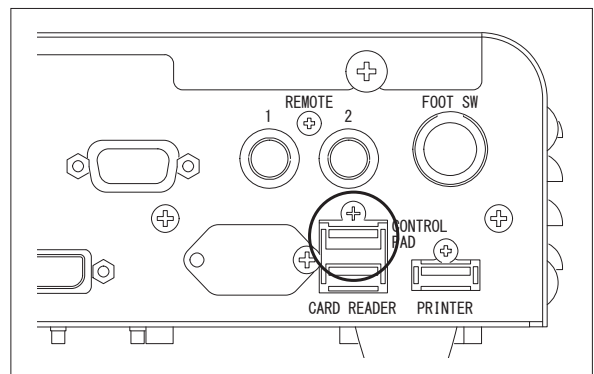
- (6) Pull the keyboard tray (the lower shelf, which is located at the upper side of cart) out to the front and place the control pad CP-900 on it.



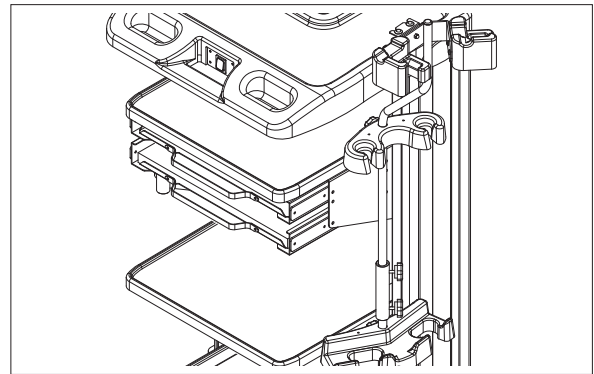
- (7) Pass the cable of keyboard through the rear side of cart to connect with the USB port (control pad) on the rear panel of SP-900.

[Note]

Connect the control pad CP-900 only. Do not connect other devices such as the keyboard for the endoscope or a commercially available keyboard.



- (8) After ensuring that the cable is not caught on something, slide the keyboard tray toward the rear side until it stops.



- (9) Insert the accessory power cord of the VP-7000 or VP-4450HD processor into the power supply connector on the rear panel of it and connect it securely.
(For VP-7000 or VP-4450HD)

[Note]

Do not use the power cord other than attached one. Make sure that the power cord is the attached one by checking the model number described on the power cord.

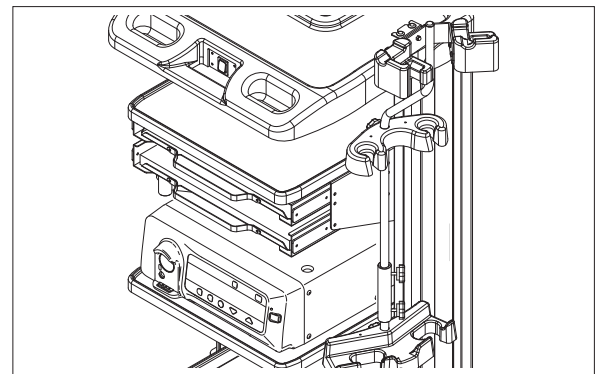
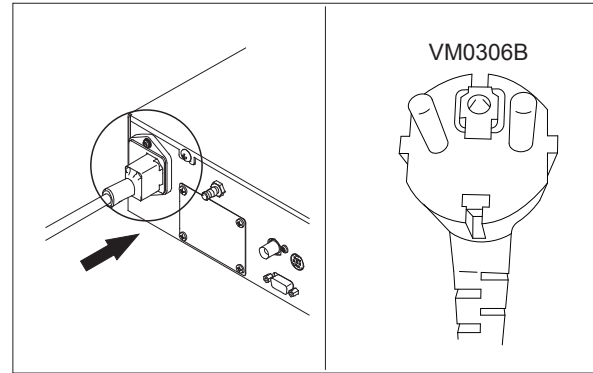
[Note]

The power cord model CC9-003(BR)(S) is provided to the Brazilian market only.

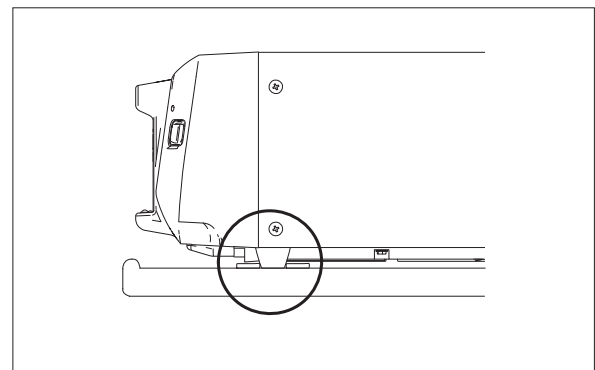
[Note]

Even when the power cord is already connected, make sure that the power cord is connected securely.

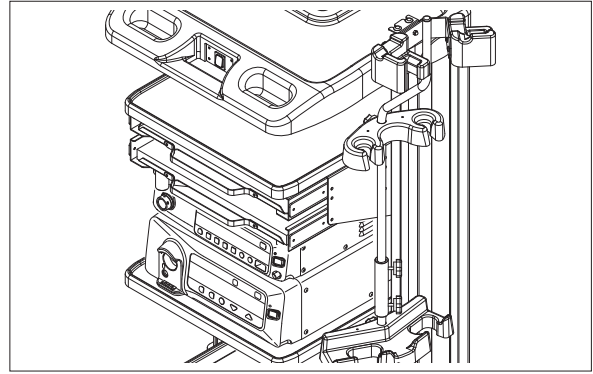
- (10) Place the processor on the movable shelf (upper shelf) of cart.



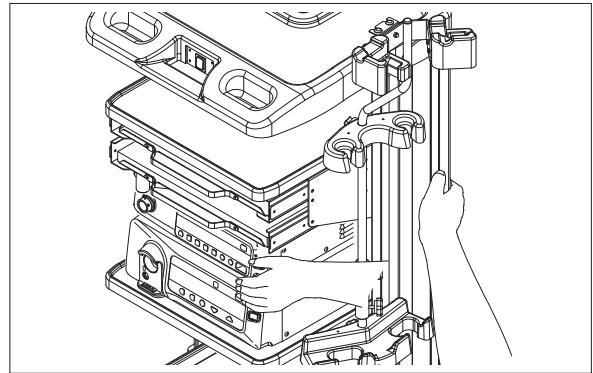
To avoid the processor from falling off, place the feet of the processor inside the stoppers.



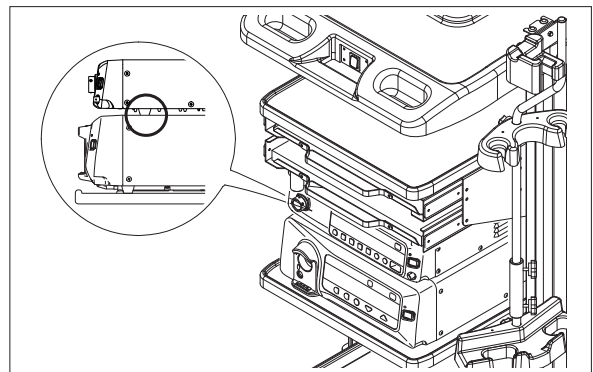
- (11) Place the light source on the processor from the front side of cart.



- (12) While holding the rear panel of processor to keep it from moving, push the light source toward the rear side of cart.



- (13) Place the feet of light source in the dents of processor.



- (14) Insert the accessory power cord of light source BL-7000 into the power supply connector on the rear panel of it and connect it securely.

[Note]

Do not use the power cord other than attached one. Make sure that the power cord is the attached one by checking the model number described on the power cord.

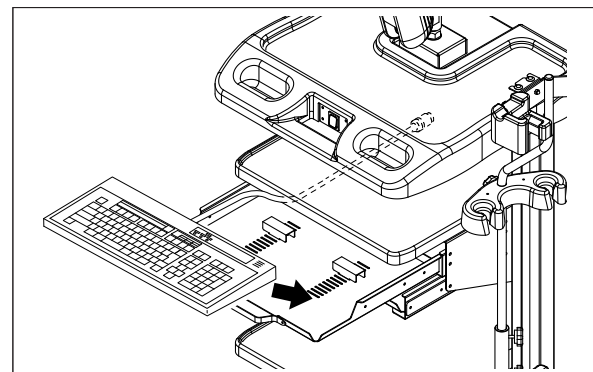
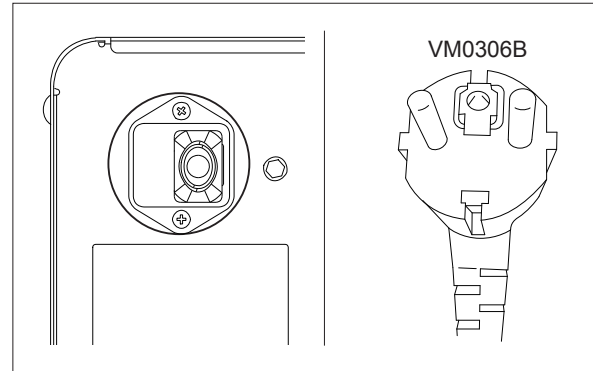
[Note]

The power cord model CC9-003(BR)(S) is provided to the Brazilian market only.

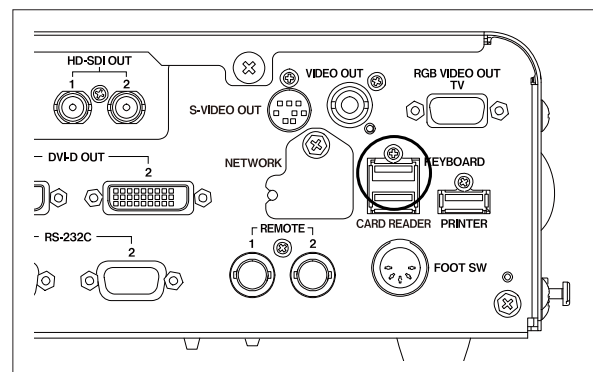
[Note]

Even when the power cord is already connected, make sure that the power cord is connected securely.

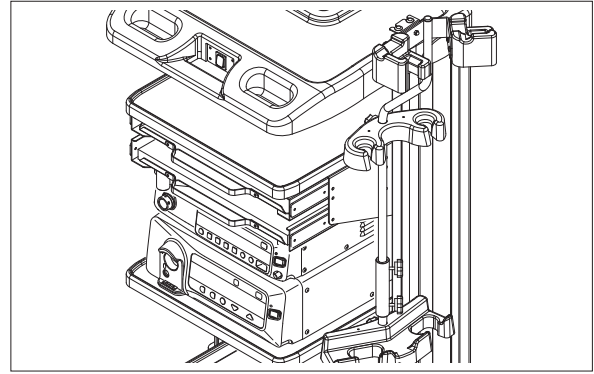
- (15) Pull the keyboard tray (the upper shelf) out to the front and place the keyboard of processor on it.



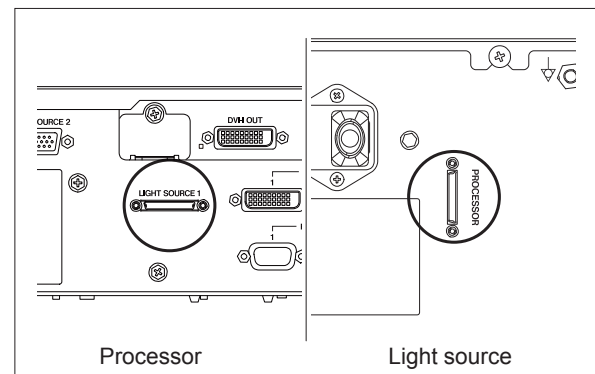
- (16) Pass the cable of keyboard through the rear side of cart to connect with the keyboard connector on the rear panel of processor.



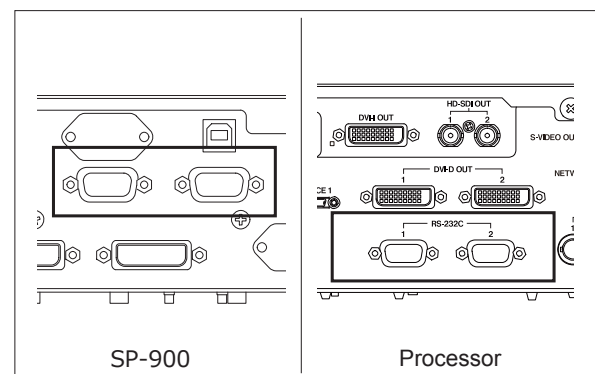
- (17) After ensuring that the cable is not caught on something, slide the keyboard tray toward the rear side until it stops.



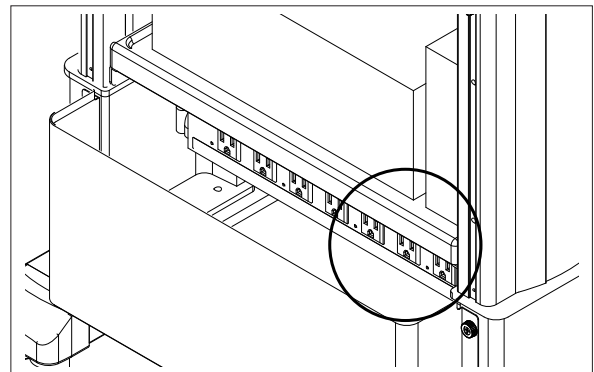
- (18) Connect the processor and the light source by using the interface cable CC7-101 which is an accessory of the processor.



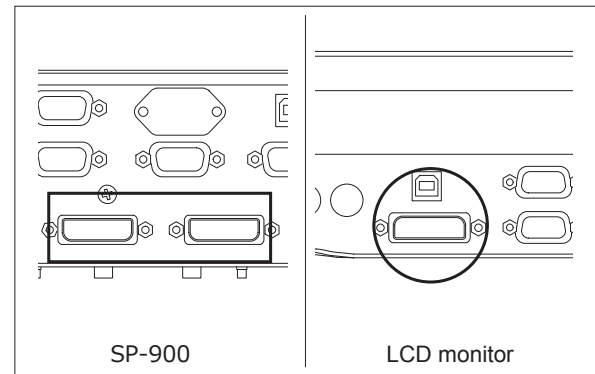
- (19) Connect SP-900 and processor by using the interface cable.



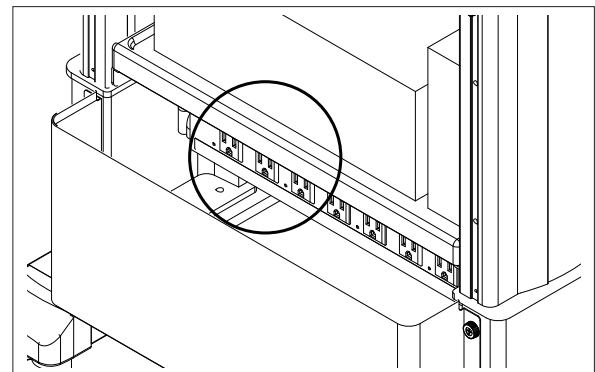
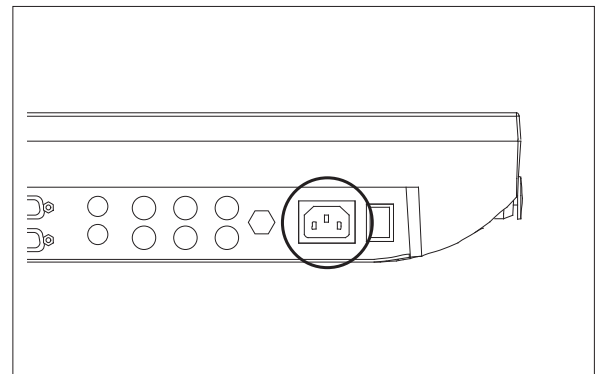
- (20) Insert the power plugs of the devices such as SP-900, processor and light source directly into the outlets for processor/light source on cart.



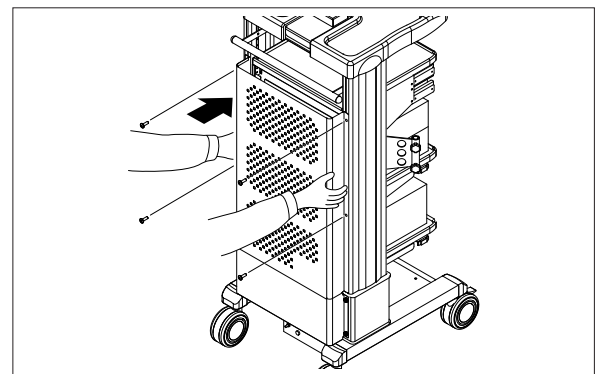
- (21) Connect the DVI image output (DVI-D) connector of SP-900 to the DVI input terminal on LCD monitor by using the accessory cable of the monitor.



- (22) Connect the DC power plug of AC adapter to the DC power input port on LCD monitor. And then, connect the power cord of the AC adapter and the power plug of SP-900 to the outlets for the peripheral on the cart.

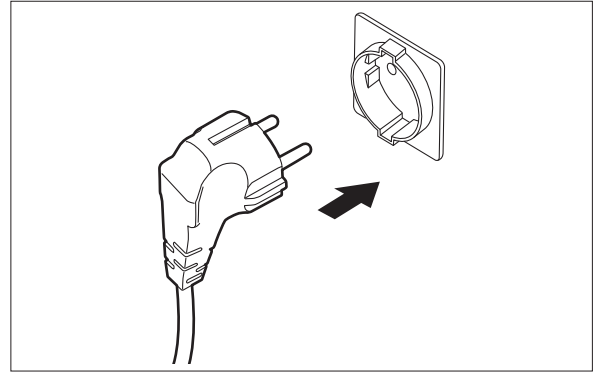


- (23) Remount the rear panel of the cart with 4 screws.



- (24) Insert the power plug of cart directly into the medical-grade receptacle on the wall.

→ “11.1.2 Power Supply”



- (25) Install the scanner arm onto the cart.

- (26) Install the scanner onto the scanner arm.

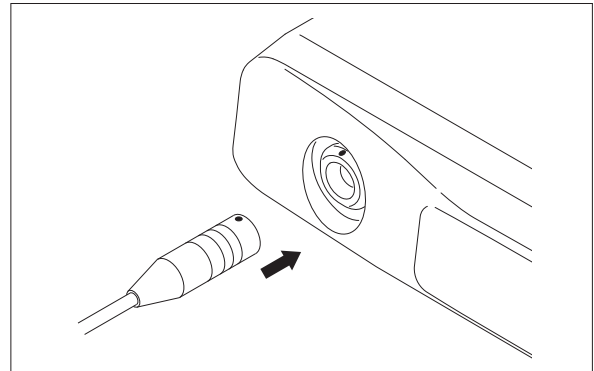
- (27) Connect the scanner to SP-900.

[Note]

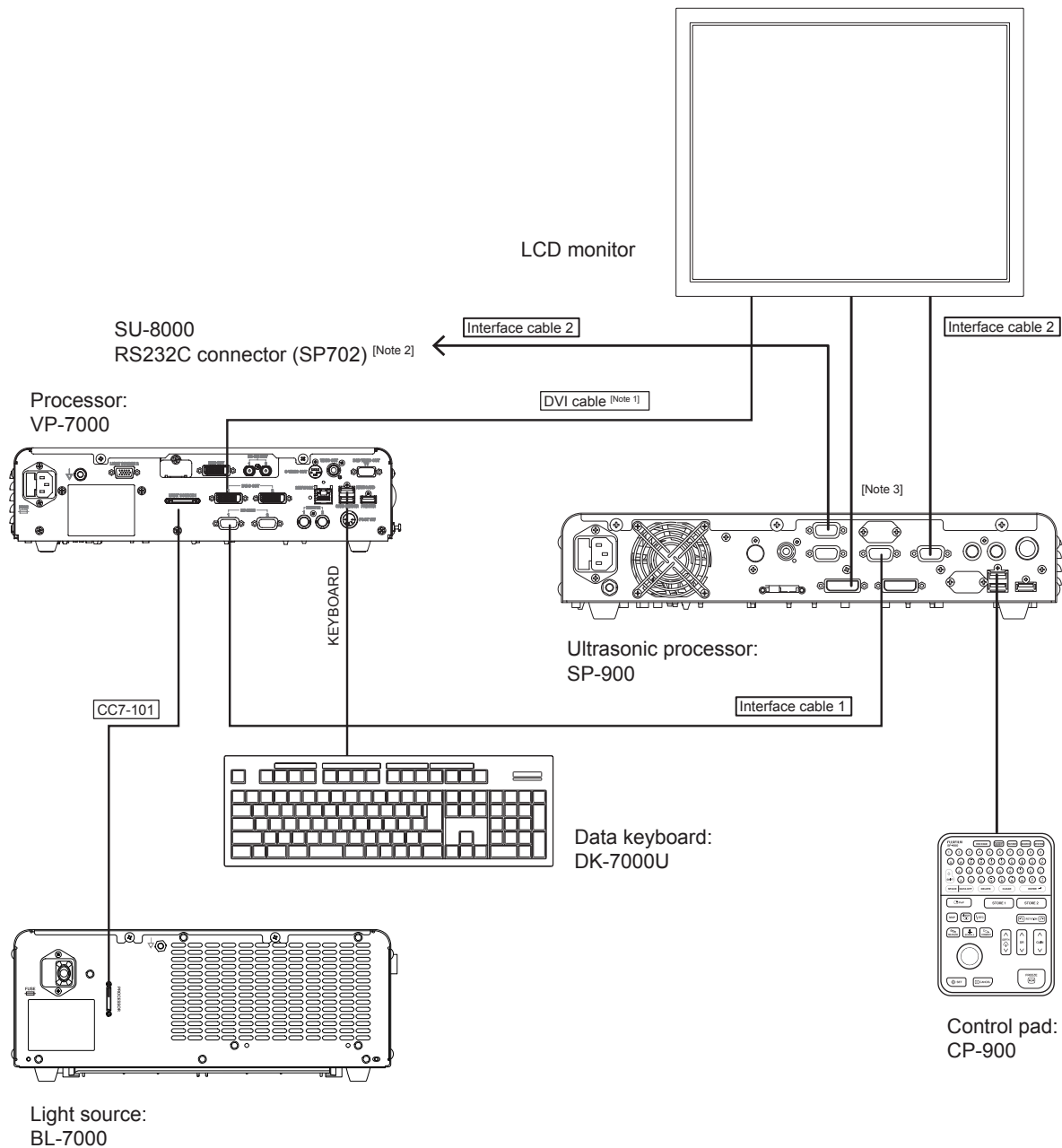
Care should be taken when connecting or disconnecting the scanner since SP-900 may move.

[Note]

The user may be caught by the scanner cable that connects this product and the scanner. Place the scanner cable carefully, so that the user is not caught by the cable.



<Standard system installation example (in case of using VP-7000 and BL-7000)>



[Note 1] When CL-22, CL-24, CCL220/AR or CCL244/AR is used, use the HD-SDI cable.

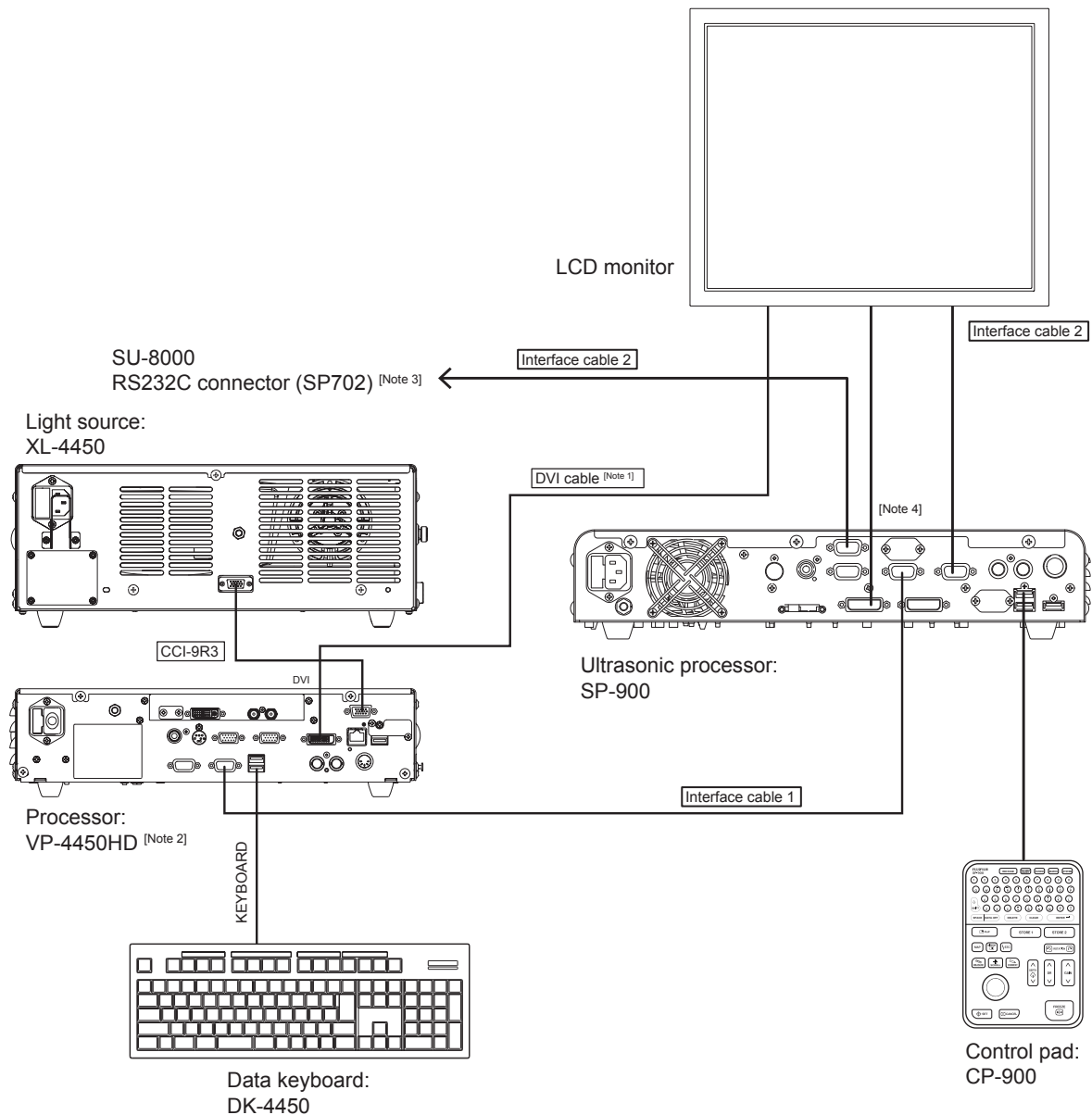
[Note 2] SP-900 can be operated by using the keyboard CP-8000 connected to SU-8000. (However, some operations are restricted.)

[Note 3] When the image is output from the RGB TV, video or S video connector, do not use the monitor as the main observation screen.

Compatible cables sold separately

Interface cable 1	CC6-101
Interface cable 2	CC5-801 (SP702/SU-8000)
DVI cable	CC5-301

<Standard system installation example (in case of using VP-4450HD and XL-4450)>



[Note 1] When CL-22, CL-24, CCL220/AR or CCL244/AR is used, use the HD-SDI cable.

[Note 2] The processor VP-3500HD can also be used.

[Note 3] SP-900 can be operated by using the keyboard CP-8000 connected to SU-8000. (However, some operations are restricted.)

[Note 4] When the image is output from the RGB TV, video or S video connector, do not use the monitor as the main observation screen.

Compatible cables sold separately

Interface cable 1	CC6-101
Interface cable 2	CC5-801 (SP702/SU-8000)
DVI cable	CC5-301

<Details on PinP connection>

When the PinP function is used, connect each device by referring to the table below.

■ Combination of the connector and cable

Monitor	Processor	SP-900		VP-3500HD	VP-4450HD VP-7000	
	Connector	DVI 1 or 2	RS-232C 1 or 2	DVI 1 or 2	DVI 1 or 2	HD-SDI 1 or 2
RADIANCE24	DVI 1	CC5-301	-	-	-	-
	DVI 2	-	-	CC5-301	CC5-301	-
	RS-232C ^[Note 1]	-	-	-	-	-
CCL220/AR CL-22	DVI	CC5-301	-	- ^[Note 2]	-	-
	HD-SDI	-	-	-	-	Commercially available BNC cable (3CFWS)
	RS-232C	-	CC5-801	-	-	-
CCL244/AR CL-24	DVI	CC5-301	-	- ^[Note 2]	-	-
	HD-SDI	-	-	-	-	Commercially available BNC cable (3CFWS)
	RS-232C	-	CC5-801	-	-	-

[Note 1] For details on the cable to be connected, consult your local FUJIFILM dealer.

[Note 2] The PinP function is not available in this combination.

11.2.2 Installation for System Expansion

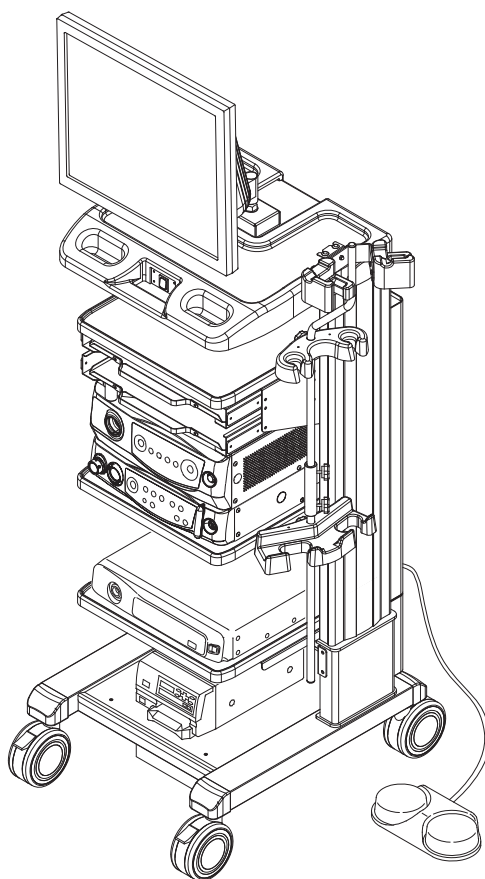
This system can be expanded by adding an endoscopic system and the peripherals to the standard system.

An example of the system to which the printer and foot switch are added is shown in the figure below.

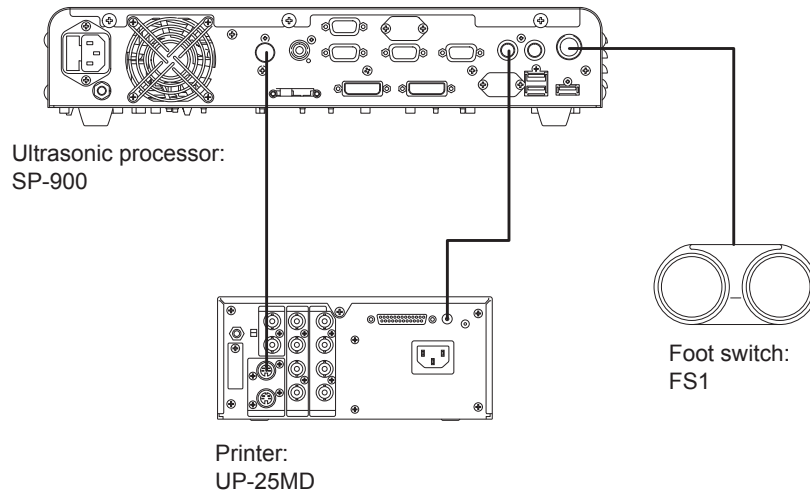
[Note] When mounting peripherals on the cart, follow the precautions below.

- Connect the power plug of the VP-7000, VP-4450HD or VP-3500HD processor directly to the receptacle for the processor/light source on the cart.
- Do not take power for electrosurgical instruments from the power outlet of cart.
- Do not take power for the power outlet of second cart from the power outlet of first cart.
- Do not connect any device other than the devices composing this system to the power outlet of cart.
- Do not stack the peripherals.
- Make sure that the feet of each unit are placed inside of the stoppers.

For installation for system expansion, follow the contents in the operation and installation manuals of each unit.

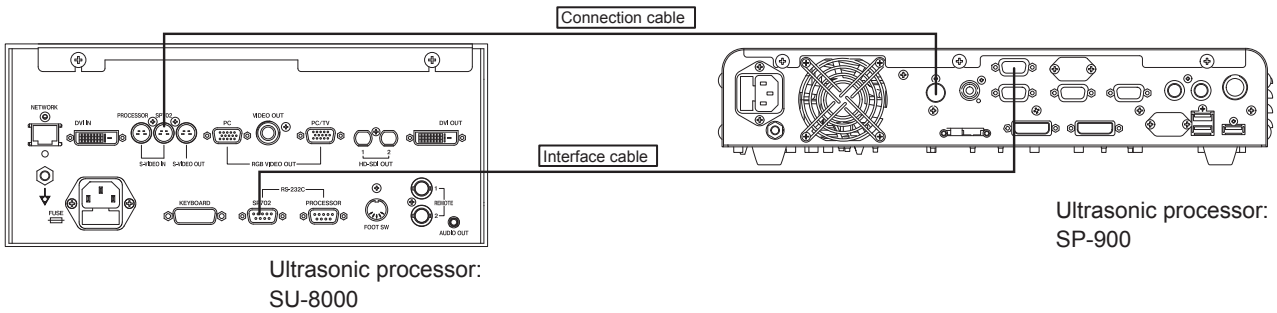


<Example of connections for system expansion (in case of connecting foot switch and printer)>



11.2.3 Connection with SU-8000

When the SU-8000 is connected to the SP-900, if the SP702 mode is selected on the SU-8000, the SP-900 can be operated by using the keyboard for the SU-8000. However, some functions are not available.

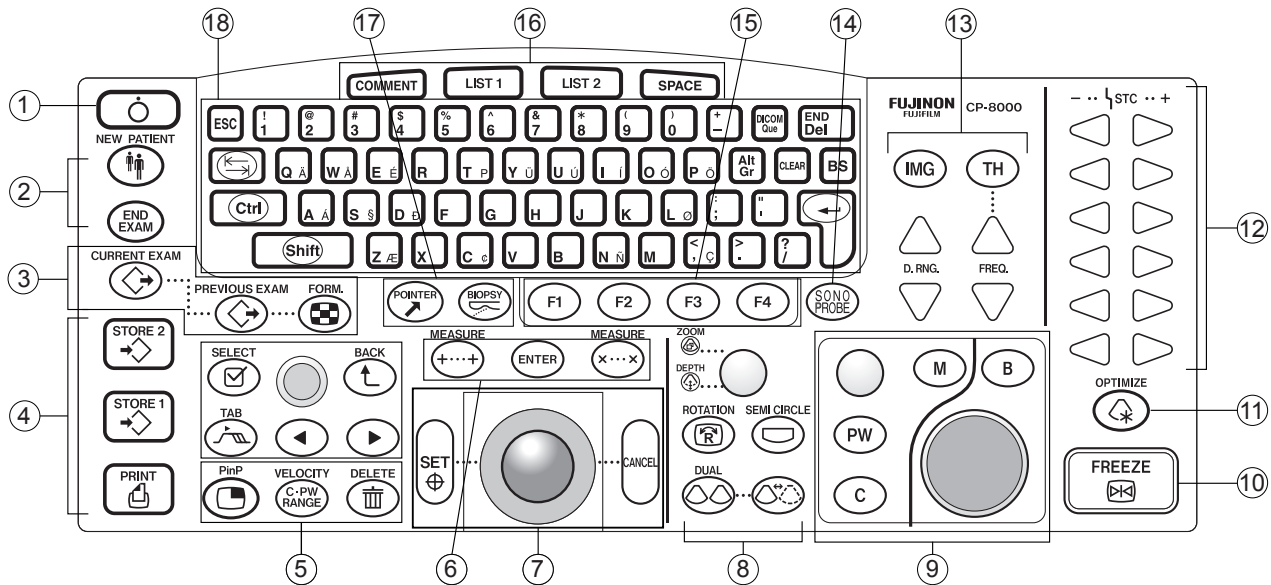


Compatible cables sold separately










Interface cable (Connecting SU-8000 and SP-900)	CC5-801
Connection cable (Connecting SU-8000 and SP-900)	CC1-601




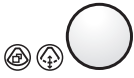




<Names and functions of keys on keyboard CP-8000>










For details on how to operate the keyboard, refer to the operation manual of the SU-8000.
























No	Name	Button	Button name	Function
1	Shutdown		[SHUT DOWN] key	Turns off the power.
2	Examination		[NEW PATIENT] key	Ends an examination and enters input mode for patient information such as the patient name and medical record number. Push again to exit input mode.
			[END EXAM] key	Ends an examination and deletes the result of measurement, ID and comments.
3	Display of examination image		[CURRENT EXAM] key	Displays saved exam images in order from the latest one when pressed during the examination.
			[PREVIOUS EXAM] key	Switches the stored exam images between displayed and non-displayed.
			[FORM] key	Switches the display mode while reviewing exam images.

No	Name	Button	Button name	Function
4	Saving and printing of exam image		[STORE 1] key	Saves and prints exam images. Saves the still and dynamic images currently displayed in the device set in the "System Setup" menu in advance (internal storage device, DICOM network storage device or FTP server). If a printer is set, printing starts.
			[STORE 2] key	
			[PRINT] key	
5	PinP/C•PW RANGE/DELETE		[PinP] key	Switches the screen display between an ultrasonic image and a SCOPE image.
			[C•PW RANGE] key	
			[DELETE] key	Activated only during a review of examination images. When pressed after selecting an image, a red X mark is indicated and the image becomes the target of deletion. If a red X mark is already indicated on the selected image, pressing this key removes the mark and cancels deletion.
6	Measurement		[MEASURE (+...+)] key	Performs measurement.
			[ENTER] key	This key is not used.
			[MEASURE (x...x)] key	This key is not used. (The same function as the [END EXAM] key is assigned.)

No	Name	Button	Button name	Function
7	Trackball/SET/ CANCEL		Trackball	Searches the images stored on freezing. Use this ball to move the center position, comment position of the selection state, and caliper for measuring distance. The trackball is also used for rotating an image in rotation mode and for performing frame advance/reverse in observation mode.
			[SET] key	Used for selecting a function. During measurement, this key is used for fixing the caliper mark, etc.
			[CANCEL] key	This key is not used. (Deletes the letter before the cursor.)
8	Display switch		ZOOM/DEPTH knob	Changes the visual field depth of an ultrasonic image. The visual field depth can be selected from among 10 mm, 15 mm, 20 mm, 30 mm, 45 mm and 60 mm.
			[ROTATION] key	Switches between rotation mode and observation mode.
			[SEMI CIRCLE] key	This key is not used.
			[DUAL] key	This key is not used.
			[L/R] key	This key is not used.

No	Name	Button	Button name	Function
9	Mode switch/Gain adjustment		Gain knob	Adjusts the sensitivity of the entire ultrasound image. The gain can be selected from among 64 steps (1 to 64).
			[B] key	This key is not used.
			[M] key	This key is not used.
			[PW] key	This key is not used.
			[C] key	This key is not used.
			PW/C/M gain knob	This knob is not used.
10	Freeze		[FREEZE] key	Switches scan ON and freeze. Stores multiple images immediately before freezing. The number of images varies with scanning time. When the [FREEZE] key is pressed again, the stored images will be deleted.
11	Optimize		[OPTIMIZE] key	This key is not used.
12	STC		[STC] key	Adjusts the gain according to the visual field depth. [Note] Only the [STC6] key is used. The visual field depth is selected by using the trackball and the [SET] key. For details, refer to "7.7 STC Adjustment".

No	Name	Button	Button name	Function
13	Switch of frequency (mainly)		[IMG] key	This key is not used.
			[TH] key	This key is not used.
			[FREQ] keys	Adjusts the dynamic range of the entire ultrasound image. Pressing the upper or lower key changes the dynamic range in one direction.
			[D.RNG] keys	These keys are not used.
14	Sonoprobe		[SONOPROBE] key	Switches between the SU-8000 scan engine and SP702.
15	Function keys		[F1 (CENTER)] key	Changes to the center moving mode.
			[F2 (MIRROR)] key	Reverses the right-hand and left-hand sides of the radial image.
			[F3 (CONTRAST)] key	Selects a map to adjust the gradation of a B-mode image.
			[F4 (SET)] key	Enters system setup mode.
16	Comment/List/Space		[COMMENT] key	Press this key to select comment input mode.
			[LIST1] key	This key is not used.
			[LIST2] key	This key is not used.
			[SPACE] key	Enters a space at the left-hand side of the cursor.
17	Pointer/Biopsy		[POINTER] key	Enters an arrow on the image. Press the [COMMENT] key and then the [POINTER] key to display an arrow on the screen.
			[BIOPSY] key	This key is not used.

No	Name	Button	Button name	Function
18	Character entry		Alphabet and numeric keys	Used for typing letters and numbers in ID or comment input mode.
			[BS] key	Clears a character to the left of the character cursor.
			[SHIFT] key	Used to input the uppercase characters of the keys on the keyboard.
			[ENTER] key	Fixes character entry and starts a new line.
			[DICOM Que] key	Displays the DICOM que when pressed once. Returns to the image display when pressed again.
			[ALT Gr] key	This key is not used.
			[CLEAR] key	Erases all of IDs and comments.

11.2.4 Connection with SU-1

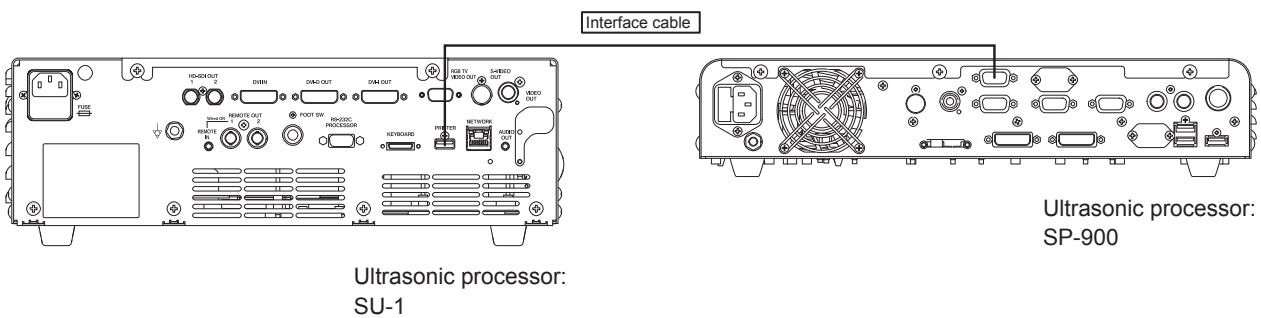
When the SU-1 is connected to the SP-900, if the SP mode is selected on the SU-1, the SP-900 can be operated by using the keyboard for the SU-1. However, some functions are not available.

[Note] Connect the interface cable to the SU-8000 terminal on the SP-900.

[Note] Use the SU-1 with the software version 1.13 or later.

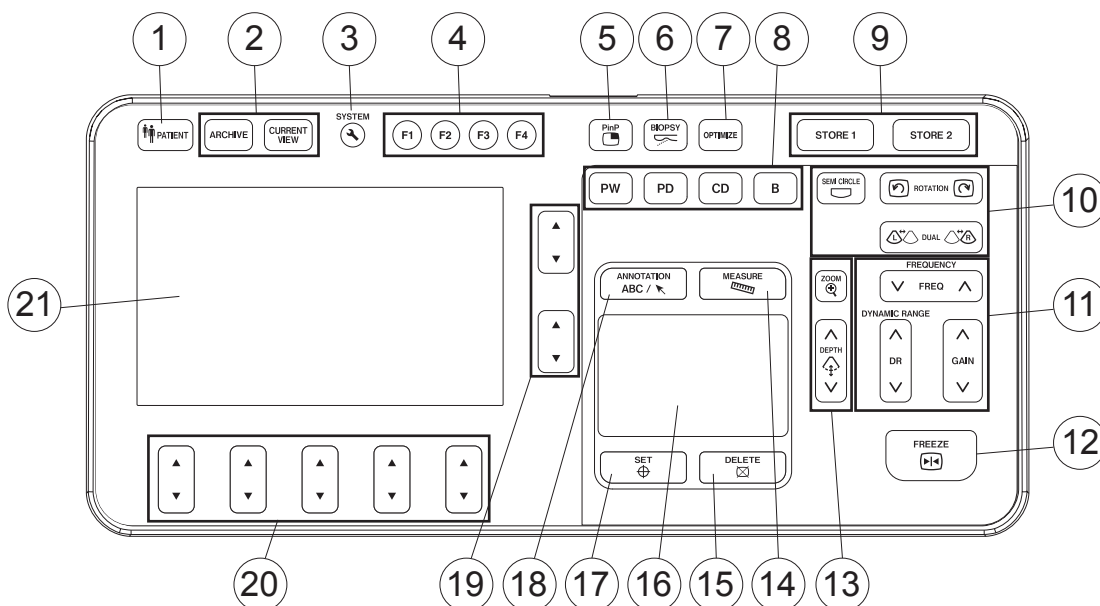
[Note] For details on how to select the SP mode on the SU-1, refer to the operation manual of the SU-1.

[Note] When the SP-900 is operated in the SP mode, disconnect the control pad CP-900 from the SP-900. If the control pad CP-900 remains connected, it may cause malfunction or other problems.











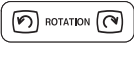












For details on the recommended cable, consult your local FUJIFILM dealer.




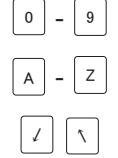










<Names and functions of keys on keyboard CP-1/CP-1TB (when the SU-1 is in the SP mode)>






No	Name	Button	Button name	Function
1	Examination		[PATIENT] key	Enters input mode for new patient information such as the patient name and medical record number. (This key corresponds to the [PATIENT ENTRY] key on the CP-900.)
2	Display of examination image		[ARCHIVE] key	This key is not used.
			[CURRENT VIEW] key	This key is not used.
3	System setup		[SYSTEM] key	Enters system setup mode.
4	Function keys		[F1] key	This key is not used.
			[F2] key	This key is not used.
			[F3] key	This key is not used.
			[F4] key	This key is not used.

No	Name	Button	Button name	Function
5	PinP		[PinP] key	Controls the monitor to switch the screen display between ultrasonic images and endoscopic images.
6	Display of puncture guideline		[BIOPSY] key	This key is not used.
7	Optimization function		[OPTIMIZE] key	This key is not used.
8	Mode switch		[B] key	This key is not used.
			[CD] key	This key is not used.
			[PD] key	This key is not used.
			[PW] key	This key is not used.
9	Saving and printing of examination image		[STORE 1] key	Saves and prints examination images.
			[STORE 2] key	Saves the still images currently displayed on monitor into the device set in the System Setup menu in advance (internal storage device). If a printer is set, printing starts.
10	Display switch		[SEMI CIRCLE] key	This key is not used.
			[ROTATION] key	Rotates the image clockwise or counterclockwise. When this key is held pressed, the image rotates continuously.
			[DUAL] key	This key is not used.

No	Name	Button	Button name	Function
11	Adjustment of frequency, dynamic range or gain		[FREQUENCY] key	This key is not used.
			[DYMANIC RANGE] key	Pressing the \wedge key increases the dynamic range. Pressing the \vee key decreases the dynamic range.
			[GAIN] key	Pressing the \wedge key increases the gain. Pressing the \vee key decreases the gain. When this key is held pressed, the gain changes continuously.
12	Freeze		[FREEZE] key	Freezes an ultrasonic image. To unfreeze it, press this key again. When an ultrasonic image is frozen, this key lights up in orange.
13	Adjustment of zoom or display depth		[ZOOM] key	This key is not used.
			[DEPTH] key	Used for changing the display depth of ultrasonic image.
14	Measurement		[MEASURE] key	Performs measurement.
15	Deletion or cancellation		[DELETE] key	Closes the screen currently displayed and returns to the previous screen.
16	Touch pad or trackball			Searches the images stored in freeze mode. Use this ball to move the center position, position of the selected comment, and caliper for measuring distance, and to select a system setup item, etc.
17	Selection of function or frame reverse		[SET] key	Used for selecting a function. During measurement, this key is used for fixing the caliper mark, etc.

No	Name	Button	Button name	Function
18	Entry of annotations		[ANNOTATION] key	Enters comment input mode.
19	Menu keys on the right side of touch panel			This key is not used.
20	Menu keys below the touch panel			This key is not used.
21	Touch panel		Alphanumeric keys	Used for typing numbers, letters and symbols in ID or comment input mode.
			[END EXAM] button	Ends an examination and deletes the measurement result, ID and comment.
			[PATIENT] button	Enters input mode for current patient information such as the patient name and medical record number.
			[SEARCH] button	Performs image search.
			[SCROLL] button	Moves the center of an ultrasonic image.
			[MAP] button	Selects a map to adjust the gradation of a B-mode image.
			[MIRROR] button	Reverses the right side and left side of the radial image to change the observation direction.
			[STC] button	Adjusts the gain according to the visual field depth.
			[Close] button	Terminates the SP mode.
			[Del] button	Deletes the letter before the cursor.
			[Clear] button	Erases the entry such as an ID and comment in each input mode.

No	Name	Button	Button name	Function
21	Touch panel		[↑] button	Used to input the uppercase characters of the keys.
			[Space] button	Adds a space before the cursor. Switches between the display and non-display of patient information.
			[Enter] button	Confirms the input in each mode.

11.3 Connecting Power Supplies

This system needs to be installed according to the requirements of EN 60601-1. Install this system by following the descriptions below.

11.3.1 Power Connection for Using Equipment in Combination

The equipment which can be used in combination with this system is divided into the following two types according to its power connection.

- 1) Devices which can be used in direct combination with the SP-900 system (Applicable to EN 60601-1)

Examples of such devices including the SP-900 system are shown in Table 11.1.

- 2) Equipment which can be used when its power is supplied from a power source other than the cart in which this system is installed. (Applicable to EN 60601-1)

Examples of such equipment are shown in Table 11.2.

- 3) Peripherals which can be used with the SP-900 system when required power is supplied from an insulated transformer applicable to EN 60601-1 (Applicable or conforming to EN 60601-1 or EN 60950)

Examples of such devices are shown in Table 11.3.

Do not use any device other than these three types since it may not be safe.

[Note] These combinations are determined from the viewpoint of electrical safety.

The performance of each device depends on the specification of each manufacturer.

Table 11.1 Equipment configuring the system

Type	Model name
Ultrasonic processor	SP-900
Control pad	CP-900
Scanner	RS-900
Processor	VP-7000, VP-4450HD, VP-3500HD
Endoscopic ultrasonic probe	P series, PB2020-M

Table 11.2 Medical equipment used when its power is supplied from other power source

Type	Model name
Ultrasonic processor	SU-8000, SU-1

[Note] Electrosurgical instruments cannot be used with this product.

Table 11.3 Peripherals which can be used with this system when its power is supplied from an insulated transformer

Type	Model name (example)
LCD monitor	CL-22 (FUJIFILM), CL-24 (FUJIFILM), RADIANCE24 (NDS), CCL220/AR (JVC KENWOOD), CCL244/AR (JVC KENWOOD)
Printer	UP-55MD (SONY), UP-25MD (SONY), UP-D25MD (SONY)
VCR	HVO-1000MD (SONY), HVO-550MD (SONY)

11.3.2 Power Connection on the Cart

The cart is equipped with 2 types of outlets; one for connecting the processor, and the other for peripherals and the SP-900 ultrasonic processor.

The power source of each device should be connected as shown in the example. Before connecting, switch off or unplug the power plug of cart.

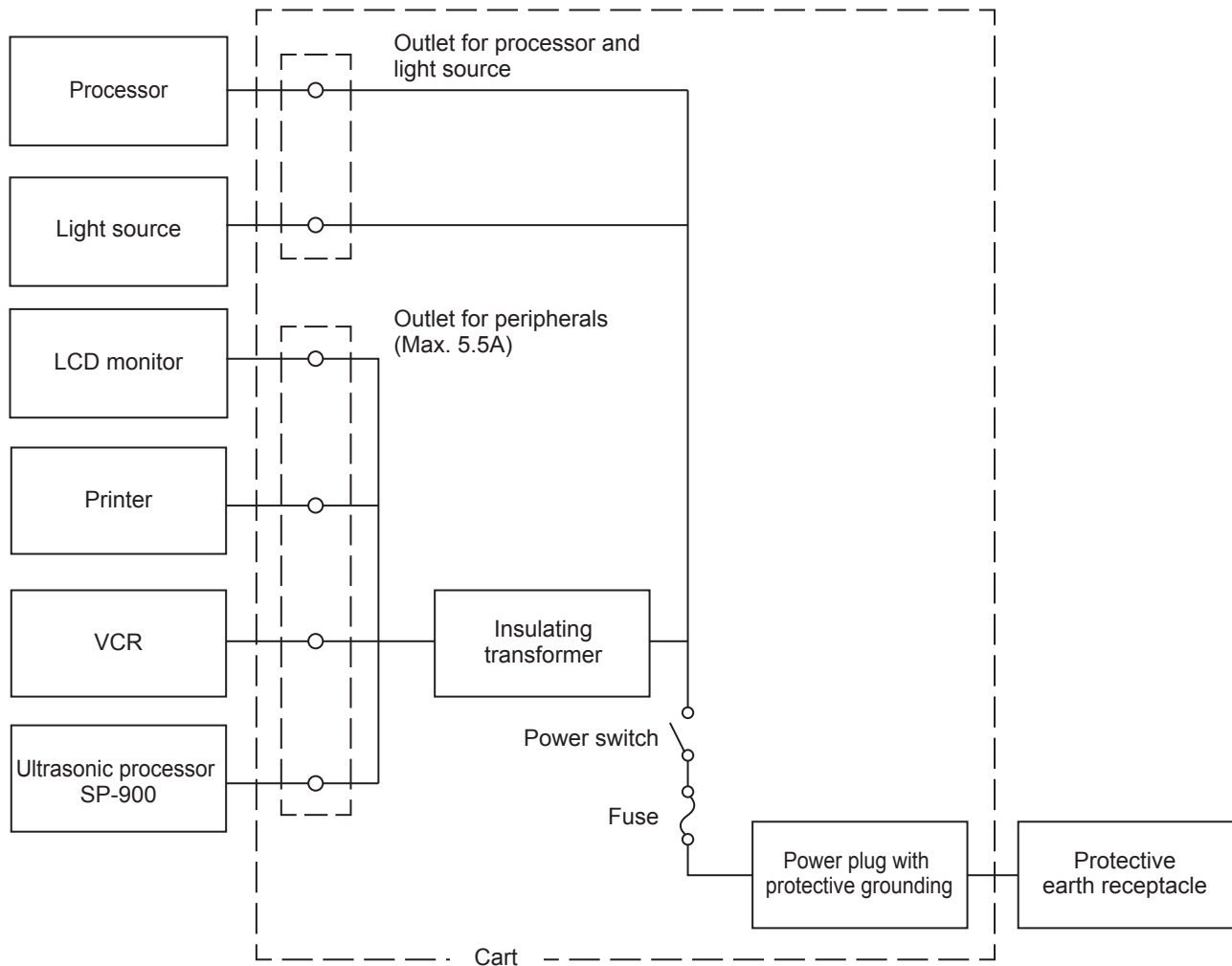
Insert the power plug of cart into the medical-grade receptacle on the wall. Do not take power for electrosurgical instruments from the power outlet of cart.

Do not connect any devices not listed in “3.1.4 Using Equipment in Combination”.

Take care that the total of rated current of each device connected to the receptacles for peripherals does not exceed 5.5A.

[Note] If SP-900 is installed together with the VP-7000, VP-4450HD, and VP-3500HD processors is used at 200V or higher, connect the power plug of SP-900 directly to a receptacle via an insulating transformer.

<Power connection example of SP-900>



11.3.3 Basic Information on Power Cord

Device connector	EN 60320-1 C13
Cross-section area of cable	1.0 mm ² or more, 3 wires (200V input)
Input voltage	100V to 120V: 125VAC or more More than 120V to 240V: 250VAC or more
Rated current	6A or more
Cable length	3 m or less
Power plug	3-pin plug that complies with the laws and regulations of each country

[Note] For the power cord model CC9-003(BR)(S), the input voltage must be 100V or more and 240V or less.

11.4 Preparation Before Use

This section describes preparations required for your daily operation.

It is assumed that all devices are installed onto the cart and properly connected.

11.4.1 Moving and Fixing

! CAUTION

Move the cart by two people. Not doing so may cause the cart to tip over and result in personal injury.

Move the cart by three people in uneven places. Not doing so may cause the cart to tip over and result in personal injury.

Remove the water tank before moving the cart. Not doing so may cause the cart to tip over due to spilt water and result in personal injury.

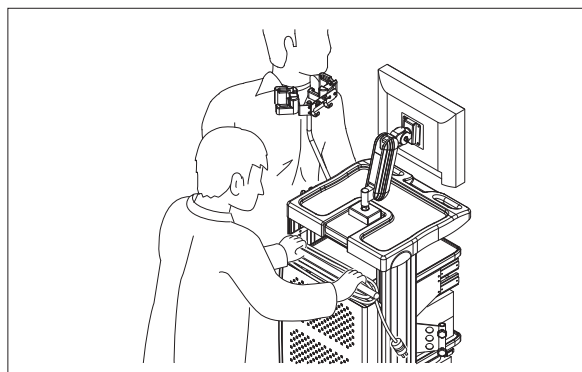
Remove the endoscope before moving the cart. Not doing so may cause damage to the endoscope.

Remove the endoscopic ultrasonic probe before moving the cart. Not doing so may cause damage to the endoscopic ultrasonic probe.

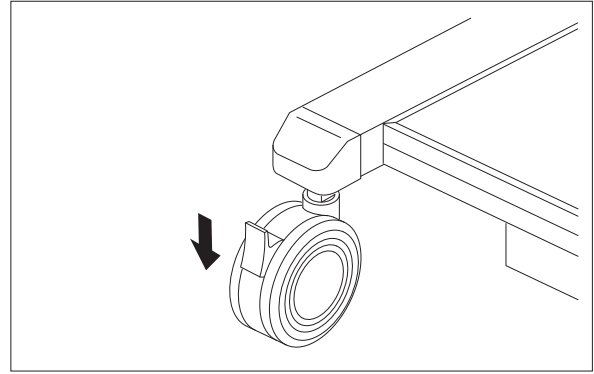
- (1) Unlock the casters of cart, if locked. Wind the power cable around the handle.



- (2) Move the cart by holding the handle. The cart should be moved by two people.
Move the cart by three people in uneven places.



- (3) When the cart is positioned at the destination, lock the casters.



11.4.2 Connecting Power Supply and Potential Equalization Terminal

! WARNING

The power supply should be used at the rated voltage. Otherwise, fire, electric shock or equipment failure may result.

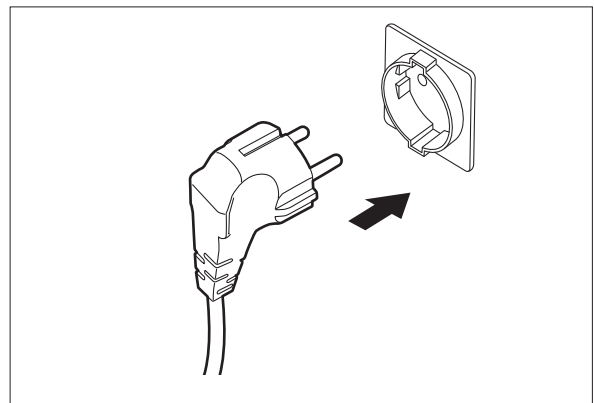
Connect the power plug to the protective earth receptacle directly. Use the peripherals that are compliant with medical safety standards. Doing so may pose a risk of electric shock.

[Note] Connect the power plug of the VP-7000, VP-4450HD or VP-3500HD processor directly to the receptacle for the processor/light source on the cart.

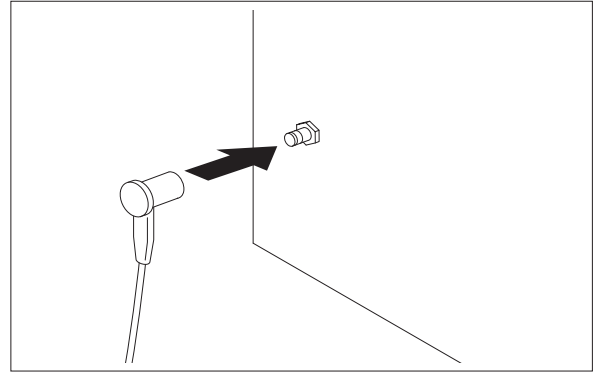
CAUTION

Do not use outlets with different voltages or inadequate current capacities. Doing so may cause equipment failure or malfunction.

- (1) Insert the power plug of cart into the medical-grade receptacle on the wall. Unlock the casters of cart, if locked. Wind the power cable around the handle.



- (2) Connect the accessory potential equalization cord to a potential equalization terminal.

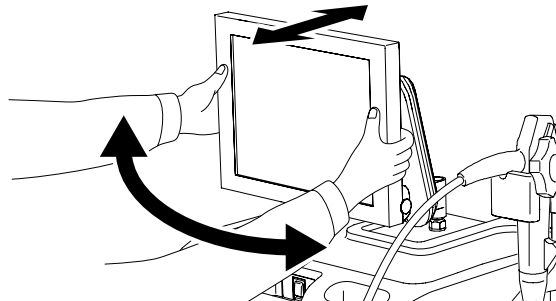


- (3) Connect the other terminal of the potential equalization cord to the potential equalization terminal of the cart.

11.4.3 Adjusting Monitor

< Adjustment of location and the angle >

The LCD monitor can be moved horizontally or back and forth.
Hold the monitor with hands and move it gently.



<Various settings>

Use the LCD monitor listed in Table 11.3.

For details on the monitor settings, refer to the operation manual of each monitor.

Main Specifications

<Category of Medical Electric 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.

<Applied Part>

Insertion portion of a compatible endoscopic ultrasonic probe

<SP-900>

Item	Specification	
Voltage	100-240V~	
Frequency	50 Hz/60 Hz	
Current consumption (rated)	0.7-0.5A	
Video output terminal	Video (composite) terminal	1 channel
	S video terminal	1 channel
	RGB TV terminal	1 channel
	DVI-D terminal	2 channels
Control terminal	Remote terminal	2 channels
	Foot switch terminal	1 channel
	RS232C terminal	2 channels
	Control pad terminal (USB)	1 channel
	Printer output terminal (USB)	1 channel
	Card reader control terminal (USB)	1 channel
	SU-8000 terminal	1 channel
Compatible endoscopic ultrasonic probe	P series, PB2020-M	
Dimension (W×H×D)	377×80×480 mm	
Weight	8.0 kg	
Scanning mode	B mode	
Scanning method	Mechanical radial scanning	
Penetration depth	20 mm or more (when used in combination with P2612-L and assuming the attenuation coefficient of 0.3 dB cm ⁻¹ MHz ⁻¹ in B-mode)	

Item	Specification
Axial resolution	Less than 1.0 (when used in combination with P2612-L)
Lateral resolution	3.0 mm or less (when used in combination with P2612-L)
Acoustic frequency	Spatial-peak temporal-average intensity (assuming the attenuation coefficient of $0.3 \text{ dB cm}^{-1} \text{ MHz}^{-1}$): $I_{\text{zpta}} \cdot \alpha \leq 720 \text{ mW cm}^{-2}$
	Mechanical Index (MI): Less than 1.0
Operation environment	Temperature: +10 to +40°C Humidity: 30 to 85%RH (no dew condensation) Pressure: 70 to 106 kPa (within range of atmospheric pressure)
Transport and storage environment	Temperature: -20 to +60°C Humidity: 10 to 90%RH (no dew condensation) Pressure: 70 to 106 kPa (within range of atmospheric pressure)
Term of validity/period for use (durability)	The term of validity (durability) is 6 years from first use, providing that the product undergoes periodic servicing. "Based on our company's criteria"

<P Series Probe>

Model	P2620-L	P2615-L	P2612-L	P2620-M	P2615-M	P2612-M
Frequency on screen	20 MHz	15 MHz	12 MHz	20 MHz	15 MHz	12 MHz
Total length	2700 mm			2200 mm		
Outside diameter	2.6 mm					
Penetration depth (assuming the attenuation coefficient of 0.3 dB cm ⁻¹ MHz ⁻¹)	5 mm or more	10 mm or more	20 mm or more	5 mm or more	10 mm or more	20 mm or more
Axial resolution	1 mm or less					
Lateral resolution	3 mm or less					
Acoustic frequency	17 MHz ± 15 %	12 MHz ± 15 %	10 MHz ± 15 %	17 MHz ± 15 %	12 MHz ± 15 %	10 MHz ± 15 %
Spatial-peak temporal-average intensity (assuming the attenuation coefficient of 0.3 dB cm ⁻¹ MHz ⁻¹)	I _{zpta} . α ≤ 720 mW cm ⁻²					
Mechanical Index (MI)	Less than 1.0					

<PB2020-M>

Model	PB2020-M
Frequency on screen	20 MHz
Working length	2150 mm
Outside diameter	1.95 mm
Penetration depth (assuming the attenuation coefficient of $0.3 \text{ dB cm}^{-1} \text{ MHz}^{-1}$)	7 mm or more
Axial resolution	2 mm or less
Lateral resolution	2 mm or less
Acoustic frequency	$20 \text{ MHz} \pm 15 \%$
Spatial-peak temporal-average intensity (assuming the attenuation coefficient of $0.3 \text{ dB cm}^{-1} \text{ MHz}^{-1}$)	$I_{\text{zpta.}} \alpha \leq 720 \text{ mW cm}^{-2}$
Mechanical Index (MI)	Less than 1.0

<Measurement Accuracy>

Measurement item	Accuracy
Distance in vertical direction	10%
Distance in horizontal direction	10%
Circumference	10%
Area	10%

<Principle of Operation>

1. Image processing

The SP-900 transmits ultrasound waves into the body cavity by driving the ultrasonic transducer of the ultrasonic probe, performs processing of the reflected ultrasound signals received by the ultrasonic transducer in the body cavity, and convert the electrical signals into image or video signals. The signals are displayed on the monitor or printer as ultrasonic images.

2. Ultrasonic image adjustment

Image adjustments such as gain control, enlargement/reduction, rotation and horizontal inversion can be performed with the control pad.

3. Data input

Patient information, comments and facility information can be entered with the control pad.

4. Image display

Images output from this product or from the processor connected to this product can be displayed.

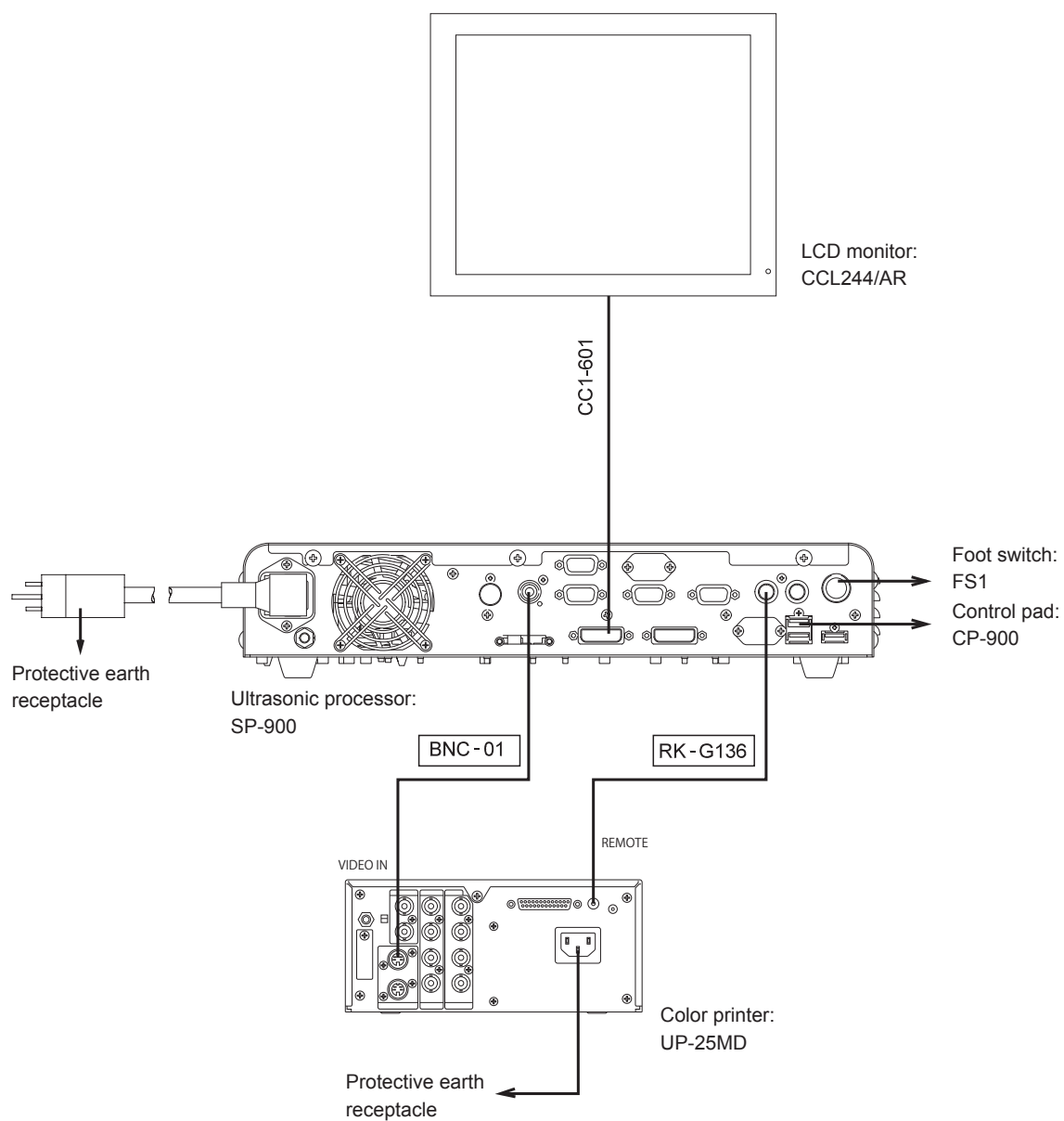
5. Incidental functions

(1) Display function

(2) Basic physical quantity/general-purpose measurement

(3) Recording/system function

<Connection Chart>



<Medical Device Directive>

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



<Electromagnetic Compatibility (EMC) Information>

This product complies with Class B of EN 55011 concerning radio-frequency emissions in the combination of the PB2020-M endoscopic ultrasonic probe.

In addition, in the combination of a P-series endoscopic ultrasonic probe, this product complies with Class A. If this product is used in domestic establishments with the Class A combination, electromagnetic interference may occur in any devices. In such a case, the user is encouraged to try to correct the interference according to “Chapter 1 Safety”.

This product is intended for use in the electromagnetic environments specified below. The customer or the user of this product should assure that it is used in such an environment.

Electromagnetic emission compliance information and guidance


Emission standard	Compliance	Guidance
RF emissions EN 55011	Group I	This product uses RF (Radio Frequency) energy for its internal function. Its RF emissions are very low and are not likely to cause any interference in nearby electric equipment.
RF emissions EN 55011	Class B (combination with PB2020-M) [Note] The class is Class A when this product is used in combination with a Class A device. Class A (combination with the P-series)	<p>[RF emissions]</p> <p>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.</p> <p>With the Class A combination, this product is intended for use in medical facilities and commercial facilities.</p> <p>Therefore, if this product is used in domestic establishments, electromagnetic interference may occur in any devices. In this case, it is recommended to use this product according to “Chapter 1 Safety”.</p>
Harmonic emissions EN 61000-3-2	Class A	
Voltage fluctuation/ flicker emissions EN 61000-3-3	Applicable	

Electromagnetic immunity compliance information and guidance

Immunity test	EN 60601-1-2 Test level	Compliance level	Guidance
Electrostatic discharge (ESD) EN 61000-4-2	$\pm 2, \pm 4, \pm 6\text{kV}$: contact $\pm 2, \pm 4, \pm 8\text{kV}$: air	Same as left	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	$\pm 2\text{kV}$: for power supply lines $\pm 1\text{kV}$: for input/output lines	Same as left	Main power quality should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	$\pm 0.5, \pm 1\text{kV}$: line to line $\pm 0.5, \pm 1, \pm 2\text{kV}$: line to earth	Same as left	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	$< 5\% U_T$ ($> 95\%$ dip in U_T) for 0.5 cycle $40\% U_T$ (60% dip in U_T) for 5 cycles $70\% U_T$ (30% dip in U_T) for 25 cycles $< 5\% U_T$ ($> 95\%$ dip in U_T) for 5 seconds	Same as left	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	Same as left	The power frequency magnetic field should be that of a typical commercial or hospital environment. It is recommended to use this product by maintaining enough distance from any equipment that operates with high current.

[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

Immunity test	EN 60601-1-2 Test level	Compliance level	Guidance
Conducted RF EN 61000-4-6	3Vrms 150kHz to 80MHz	3V[V1]	<p>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.</p> <p>Recommended separation distance</p> $d = \left[\frac{3.5}{V_1} \right] \sqrt{P}$ $d = \left[\frac{3.5}{E_1} \right] \sqrt{P} \quad 80 \text{ to } 800\text{MHz}$ $d = \left[\frac{7}{E_1} \right] \sqrt{P} \quad 800\text{MHz to } 2.5\text{GHz}$ <p>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).</p> <p>This product complies with the requirements of EN 60601-1-2: 2007. However electromagnetic interference may occur in this product under an electromagnetic environment that exceeds its noise level.</p> <p>Electromagnetic interference may occur in the vicinity of equipment marked with the following symbol.</p> 
Radiated RF EN 61000-4-3	3V/m 80MHz to 2.5GHz	3V/m[E1]	

Recommended separation distance between portable and mobile RF communications equipment and this product

The customer or the user of this product can prevent electromagnetic interference by maintaining the minimum distance between this product and cell phone or RF communication equipment (table below). Referring to the table below, keep cell phone or RF communication equipment away from this product.

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

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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. Troubles caused by careless handling or misuse of the product on the part of the user.
 - c. Troubles 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 dealer, provide the following information.

Model name: SP-900

Serial number ^[Note]:

Description of failure: as detailed as possible

Date of purchase:

[Note] The serial number is described on the back left-hand side of processor.

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.

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 (Singapore) 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**

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Oudenstaart 1, 5047 TK Tilburg, The Netherlands