ALOKA

ULTRASOUND DIAGNOSTIC INSTRUMENT

prosound α6

Instruction Manual

How to Use (volume 1/2)

\land Note

Instruction manuals consist of this manual, Safety Instruction and Measurement. Before using this instrument, please read Safety Instruction.

ALOKA CO., LTD.



Introduction

This is an instruction manual for model Prosound α 6, an ultrasound diagnostic instrument.

Before using this instrument, please read Safety Instruction. Especially be sure to read Chapter 1. "Safety Precautions".

Keep this manual securely for future reference.

This instrument and the manuals use the following symbols for safety use. Do understand the meaning before reading the text of this manual.

| \land Danger | Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. |
|--------------|---|
| 🕂 Warning | Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury. |
| 🕂 Caution | Indicates a potentially hazardous situation which, if not avoided, may result in injury or property damage. |
| ▲ Note | Indicates a request concerning an item that must be observed in order to prevent damage or deterioration of the instrument and also to ensure effective use. |

Contents of cautions shows the following graphics.



Classification of Prosound $\alpha 6$

- · Protection against electric shock: Class I medical electrical equipment
- Applied parts: Type BF applied parts
- · Protection against defibrillator emissions: Not compatible with defibrillator-proof applied parts
- Protection against harmful ingress of water or particulate matter: Ordinary protection (IPX0)
- Level of safety for use in air and flammable anesthetic gas, or in oxygen/nitrous oxide and flammable anesthetic gas:

This instrument is not suitable for use in air and flammable anesthetic gas, or in oxygen/nitrous oxide and flammable anesthetic gas.

• Operation mode: Continuous operation

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1. SWITCHES AND COMMENTS

1-1. Operation panel



Fig. operation panel

Rotary encoder 1 Rotary encoder2 Rotary encoder3 Rotary encoder4 ENTER

It is used for the menu displayed at the upper section of the touch panel. It is used for the menu displayed at the middle section of the touch panel. It is used for the menu displayed at the lower section of the touch panel. When functions of measurement or zoom are set, it is used. Press down on this and keep it depressed momentarily to finalize the measurement function. When used on the analysis or the REVIEW screen, the context menu is displayed. This is also used to relocate comments that have been previously input. 1-2.Graphic Display

1-2. Graphic Display



Fig. B mode image

- (1) Gray scale bar
- (2) Scale mark
- (3) Active mark

A [\bigcirc] mark indicates an active state (An active image is the image on which operations can be performed when two or more images are displayed.)

A [] mark indicates inactive state.

(4) Focus mark

(5) AIP : Indicates that AIP is operating.

For details, refer to Section 6-4-1-31. "AIP EDGE SENS".

- BbH : Indicates that broadband transmission is being performed in ExPHD (T.H.E.).
- SCI : Indicates that Spatial Compound is operating.

For details, refer to Section 6-4-1-28. "COMPOUND ANGLE".

[Remark]

For details, refer to Section 9. "SCREEN DISPLAY" of "Safety Instruction".

1-3. Treatment at the time of the discovery of abnormality

1-3-1. Safety security of patient

In use, watch it so that the instrument and the patient do not have any abnormality.

If any abnormality occurred while the use of the instrument, the probe shall be removed from the patient promptly, and cancel the use.

When the patient is abnormal, do appropriate medical treatments.

1-3-2. Instrumental treatment

When an abnormality occurred to the instrument, refer to the 14. 'What to do in this case' of the Safety operation manual and do appropriate treatments.

When any abnormality that is not described in the Safety operation manual occurred, the use is canceled, and a sign indicating the trouble shall be displayed or an appropriate sign shall be attached to the instrument, and contact our office listed in the back cover of the manual.

1-4. Operating the various switches

Operating instructions of each switch are explained below.

1-4-1. +

This switch is used to activate the measurement function which are assigned to the switches.

<Operation method>

(1) Press the **(+)** switch.

 \rightarrow Activates the measurement cursor and measurement function.

(2) Measure according to the measurement procedure.

For details, refer to the Measurement manual.

1-4-2. CANCEL

Used to terminate a selected operation or return to the previous step during a measurement.

1-4-3. CURSOR

The CURSOR function moves or sets the cursor and the baseline of the Doppler pattern.

<CURSOR>

<Operation method>

- (1) Press the M switch to change over from the 1B mode display to the B/M mode display.
 - \rightarrow The CURSOR switch is lighted in orange, and the cursor is displayed on the B mode image.
- (2) Using the trackball, move the cursor to the position where you wish to detect the M mode.

[Remark]

The method of operating the cursor in the B/D mode is the same as the description above.

The cursor cannot be moved when the B/M(B/D) image is frozen.

<BASE LINE SHIFT>

By shifting the baseline, the Doppler pattern can be displayed without the aliasing.

- (1) Press the PW switch to change over from the 1B mode display to the B/D mode display. \rightarrow The CURSOR switch is lighted in orange, and a cursor is displayed on the B mode image.
- (2) Adjust the position of the baseline with rotary encoder 4.
- (3) Press the CURSOR switch.
 - \rightarrow The baseline is reset at the center position.
- (4) Press the CURSOR switch again.
 - \rightarrow This function is finished.

1-4-4. DEPTH/RANGE

The DEPTH/RANGE function switches over the display depth of the image.

The display depth is switched over based on the transmission point of the displayed image.

The depth is common to both the B and M mode images. The display depth that was last set remains, even if the mode changes.

You cannot change the display depth of a frozen image.

<Operation method>



: If you press the switch lever upward, a displayed depth becomes shallow.

(The image is getting enlarged.)

The least depth is obtained by pressing this switch continuously until the depth no longer decreases.

: If you press the switch lever downward, a displayed depth becomes deepened. (The image is getting reduced)

The greatest depth is obtained by pressing the switch continuously until the depth no longer increases.

1-4-5. ENTER

This function changes over the control function when you are controlling various functions with the trackball. It is used mainly when inputting a measurement, a preset, a review, and comments.

Press down on this and keep it depressed momentarily to finalize the measurement function. When used on the analysis or the REVIEW screen, the context menu is displayed. This is also used to relocate comments that have been previously input.

<Operation method>

Example: Performing measurement

(1) Perform measurement.

(2) Press the ENTER switch.

 \rightarrow The measurement caliper mark divides into two marks.

- (3) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The caliper position is defined.

<Operation method>

Example: Moving comments

- (1) Position the cursor over the comment that you want to move and press on the ENTER switch, keeping it depressed momentarily.
 - \rightarrow The selected comment becomes highlighted.
- (2) Using the cursor, move the comment and press the ENTER switch, keeping it depressed momentarily.
 - \rightarrow The migration of the comment is established.

1-4-6. FOCUS

The FOCUS function converges the ultrasound beam to make a clearer image.

A focal point can be changed when the ultrasound beam is being transmitted.

B mode image has eight transmission focal points, F1 to F8 in the depth direction. You can set the focus at up to any four of these points.

In the case of an M mode image, one optimum focal point is set near the center of the display range. (The display range varies with the display depth and the M-WINDOW.) The above also applies when only an M mode image is displayed.

In the case of a B/D mode display, one focal point is set according to the sample volume. (Only when you set the Auto)

Also, when an M mode image or a D mode image in a B/* mode display is frozen, you can perform multi-stage focus setting.

[Remark]

You can not turn off all focal points. At least one focal point must be selected.

<Operation method>

Select the auto focus or the manual focus on the menu. For details, refer to Section 6. "Touch panel".

- (1) Press the FOCUS switch.
 - \rightarrow The transmission focus position can be set.
- (2) Using the trackball, move the transmission focus position.
 - \rightarrow Rolling the trackball up moves the transmission focus position to the shallow depth point, and rolling the trackball down moves the transmission focus position to the deep depth point.

[Remark]

When the AUTO focus is set at two or more points, you can change the distance between the focal points by using rotary encoder 4.

[Remark]

The focus position can not go outside the displayed depth in AUTO focus.

[Remark]

After changing the focus position to any place in AUTO focus, changing the depth with the DEPTH/RANGE switch changes the focus position to the optimum position according to the changed depth.

[Remark]

In Manual focus, the focus position can be positioned to the maximum depth for a particular probe being used. Furthermore, even if you change the depth, the focus position will remain unchanged.

\land Note

If you set multiple focus points, that results in obtaining an image with high resolution, but decreasing the frame rate.

Select the optimum setting so as to suit the desired body part while checking the acoustic power index.

1-4-7. FREEZE

The FREEZE function freezes a moving image.

When you press the FREEZE switch, the B mode image freezes upon the completion of one ultrasound wave scan, and the M and D mode images freeze immediately, or the M and D mode images freeze just after they are displayed completely. Also, stops counting the date and time and ultrasound transmission.

[Remark]

In order to protect the instrument, you can set the instrument so that the freeze condition automatically goes ON when you do not perform a panel operation for a certain period. (You can set this period to between 1 and 20 minutes using a preset. You can also turn this function OFF when you wish to use the monitor for a long period. For details, refer to Section 7. "PRESET".)

By connecting an optional foot switch, you can turn the freeze function ON and OFF using either the FREEZE switch or the foot switch.

<Operation method>

- (1) Press the FREEZE switch.
 - \rightarrow The switch is lighted in orange, and the displayed image freezes.
- (2) Press the FREEZE switch.
 - \rightarrow The switch is lighted in blue, and the frozen image becomes a real time image.

1-4-8. B GAIN, MULTI GAIN



The gain adjust and FREEZE function are operable by the B GAIN switch while the MULTI GAIN switch acts as

an aggregate of each gain adjustment in the M, D and FLOW modes. With the MULTI GAIN switch, you can adjust sensitivity in the M, D and FLOW modes according to the switching between these modes.

<Operation method>

- (1) Rotate the switch left or right and adjust the sensitivity to a suitable level while observing an image.
 - \rightarrow Turning the switch clockwise increases the image sensitivity, and vice versa.
- (2) Press on the MULTI GAIN switch when the PW Doppler is displayed in the B FLOW mode.
 - → If you press on the MULTI GAIN switch, you can adjust the FLOW gain. If you press on the MULTI GAIN switch again, you can adjust the Doppler gain. Each time you press on the MULTI GAIN switch, the gains that can be adjusted are toggled.

1-4-9. KEY BOARD

Display the full keyboard on the touch panel menu.

The full keyboard is displayed automatically when ID is input or the Preset setting screen is displayed.

[Remark]

The full keyboard can be displayed on the touch panel menu if an optional keyboard unit is attached.

<Operation method>

- (1) Press the switch.
 - \rightarrow The virtual keyboard is displayed on the touch panel menu.



1-4-10. MEASUREMENT

This switch is used to display measurement menus.

<Operation method>

(1) Press the switch.

 \rightarrow The measurement menu is displayed on the touch panel menu.

(2) Measure according to the measurement procedure.

For details, refer to the Measurement manual.

1-4-11. MENU

This switch is used to displays menus.

<Operation method>

- (1) Press the MENU switch.
 - \rightarrow The menu is displayed on the touch panel menu.

(2) Select the item, follow the setting procedure to register it.

For details, refer to Section 6. "Touch panel".

1-4-12. MODE

Image mode selection to display on a screen is made.

The modes which can be displayed are as follows:

| В | B/B | 4B | B/M | М | PW | M/PW | CW | FLOW | POWERFLOW | eFLOW |
|---|-----|----|-------|-----|----|-------|------|-------|------------|-----------|
| - | 2,2 | | 2,111 | 1.1 | | 1.1.1 | 0.11 | 12011 | rombra bom | •1 D 0 11 |

<Operation method>



The instrument enters the B mode (only a B mode image is displayed on the screen). If you press on the B mode switch and keep it depressed momentarily when the Doppler (B FLOW, PW or CW) is displayed during B FLOW mode, you will be returned to the B mode (2D)

[Remark]

Use the Preset to configure how long the B mode switch should be kept depressed to activate this function. Refer to Section 7. "PRESET".



: The instrument enters the 2B mode (two B mode images are displayed on the screen).



: The instrument enters the 4B mode (four B mode images are displayed on the screen).

[Remark]

4B switch can be selected on the touch panel menu. Register it on the touch panel menu with the preset beforehand.



: The instrument enters the B/M mode.

: The instrument enters the B/PW mode.



: The instrument enters the B/M/PW mode.

[Remark]

M/PW Mode is only available when the Phased Array is active and is in use.

Press the MPW switch when operating in B/PW mode to change to B/M/PW mode.

The M/PW switch can be selected from the touch panel menu or the operation panel (the function must be set to the touch panel or the operation panel in the Preset).



: The instrument enters the B/CW mode. (Option: UCW-ALPHA6 is necessary.)



: Displays a B mode image or an M mode image in Flow.

: Displays a B mode image or an M mode image in eFLOW.

[Remark]

The eFlow mode can be selected from the touch panel or the operation panel (the function must be set to the touch panel or the operation panel in the Preset).

<Request function>

At the time of two-screen display such as 2B, B/M, and B/D mode, it is a function that, after freezing only one image is called up to the screen and can be displayed.

A transition diagram by each mode is shown.

(Transition Diagram)



B/M mode



[Remark]

The Full M/D is displayed only on the touch panel menu.

[Remark]

The transition of a B/D mode is the same as B/M mode.

1-4-13. NEW PATIENT

This function enables you to turn the system to initial settings. This function is convenient for examining a new patient after completion of previous examination.

<Operation method>

- (1) Press the NEW PATIENT switch.
 - \rightarrow This instrument returns to an initial setting, and the ID input screen is displayed.

For details, refer to Section 2-1. "Before Starting an Examination".

1-4-14. PRESET

This function enables you to switch over to a preset that is suitable for the area being diagnosed, or to change the set contents.

For the method of changing the set contents, refer to Section 7. "PRESET".

<Operation method>

- (1) Press the PRESET switch.
 - \rightarrow The preset list is displayed on the screen.
- (2) Using the trackball, move the arrow to a preset that you desired to set, and press the ENTER switch.
 - \rightarrow The set conditions registered in the selected preset are activated.

[Remark]

A preset list is displayed on the touch panel menu when the PRESET switch is pressed. You can select a preset that you desired to set.

1-4-15. PRINT(Archive Group)

Outputs images to a recording device connected to the unit. Recording is possible in real time, or in freeze mode. When the recording device is set, the optimum gamma correction is applied to record at the appropriate time.

[Remark]

Adjust the setting in advance from the preset for a particular recording device connected to the unit. Refer to Section 7-3-3. "PRINT (FREEZE)" or Section 7-3-4. "PRINT (REALTIME)".

[Remark]

Correct recording is not possible if the recording instrument set by the preset and that actually connected do not match. Check that the recording instrument matches.

<When printing is performed after freezing>

[Remark]

Assign the recording device name to the Archive Group in Print (Freeze) of Common preset. Up to three recording devices can be set. Refer to Section 7-3-3. "PRINT (FREEZE)".

<Operation method>

- (1) Display the optimum image, then press the FREEZE switch to freeze the image.
- (2) Use the Search function to display the image to be recorded.

[Remark]

For detail of the Search function, refer to Section 1-4-19. "SCAN AREA".

 \rightarrow The displayed image will be recorded as a still image.

[Remark]

While recording, the second and subsequent recording operations will not be accepted.

< If printing is performed in real time>

[Remark]

Assign the recording device name to the Archive Group in Print (Realtime) of Common preset. One recording device can be set. Refer to Section 7-3-4. "PRINT (REALTIME)".

<Operation method>

- (1) Display the optimum image in real time.
- (2) Press the (a) or (a) switch.
 - \rightarrow The image that is on display at the time when the switch is pressed is recorded as a still image.

[Remark] If the or switch is pressed in real time when Print(Realtime) has not been assigned, the following

message is displayed: <FREEZE> the image, Then try again.

1-4-16. PROBE

The probe function selects the probe to be used when several probes are connected to the instrument.

[Remark]

If the probe is registered with the probe menu of the Preset beforehand, it may be convenient. For details, refer to Section 7-3. "Common Preset".

Moreover, when Next Probe is assigned to the touch panel, the probe is sequentially switched from one.

<Operation method>

- (1) Press the PROBE switch when the freeze status is Off.
 - \rightarrow A menu of probe such as the following example is displayed.

| Ð | 7145 | Tree Tree | 4 | 14 | Actually Paper | |
|---|-------------------|-----------|--------------|----|----------------|--|
| SUCCESSION SUCCESSION | San adar Sideal . | pi Ş | rosound Ç | Ì | | It corresponds to the number of a probe connecting terminal. |
| Connector Select A switch corresponding to the number of a connector is displayed. | ¹ mm: | | | | -2- | An application for the selected probe being registered on a preset is displayed. |
| Probe Select The probe name being registered on a preset is displayed. | | | | | | |

- (2) Press a switch corresponding to the number of a connector to which an intended probe is connected. \rightarrow An image of the probe selected is displayed.
- (3) Press the Probe Select on the touch panel menu when selecting a probe registered with a preset.
 - \rightarrow A probe menu such as the following example is displayed.



- (4) Press the switch with the name of the probe intended for use.
 - \rightarrow An image of the probe selected is displayed.

[Remark]

Now, the operating probe is displayed with selected button.

1-4-17. REC

This function enables you to records an image to DVD connected to this instrument.

<Operation method>

- (1) Press the REC switch.
 - \rightarrow A video recording of VCR is started.
- (2) Press the REC switch again.
 - \rightarrow The video recording stops tentatively.

1-4-18. REVIEW

This function enables you to review the stored images.

<Operation method>

- (1) Press the FREEZE switch.
- (2) Press the REVIEW switch.
 - \rightarrow The stored image is displayed on the Image Viewer.

For details, refer to Section 2. "PATIENT INFORMATION".

1-4-19. SCAN AREA

This function continuously enlarges or reduces the scanning range of B mode images. It can raise the frame rate without shortening the display depth, by reducing the scanning area. When the scanning range is less than the maximum scanning range, you can move it left or right with the trackball.

<Operation method>

- (1) Press the SCAN AREA switch.
 - \rightarrow You can now enlarge, reduce or shift the scanning area.
- (2) Using the rotary encoder 4, enlarge or reduce the image.
 - \rightarrow Turning the rotary encoder clockwise or counterclockwise causes the image to increase or decrease.

[Remark]

The reference point for enlargement or reduction is the center of the scanning range.

- (3) Using the trackball, shift the scanning range.
 - → Rolling the trackball to the right or left causes the scanning range to shift to the right or left. (Steering function)

[Remark]

You can enlarge or reduce the image about its center even after shifting the scanning range.

[Remark]

If the cursor is displayed, the cursor shifts along with the scanning range as the cursor approaches the end of the scanning range.

1-4-20. SEARCH

This function enables you to display the image stored in the cine memory.

<Operation method>

- (1) Press the FREEZE switch.
- (2) Press the SEARCH switch.
- (3) Using the trackball, search for the image to be displayed.

[Remark]

When displaying several images, use the trackball for the active side, and the rotary encoder 4 for the non-active side.

[Remark]

You can perform measurement, for example, on a searched screen, however in this case the trackball will be used for the measurement, preventing you from using it for the search function. If you wish to use the search function again, proceed from step (2).

1-4-21. SELECT

This function enables you to select the active image when several images are displayed (in the 2B mode, B/M mode, B/D mode display, etc.)

<Operation method>

- (1) Display multiple images.
- (2) Press the SELECT switch.
 - → When displaying only one of two images in real time in the 2B mode, for example, the real time display will switch over. In the case where two images are displayed in real time, such as in the B/M or the B/D mode, only the M image or the D image will be displayed in real time.
- (3) Press the SELECT switch.
 - \rightarrow The real time display of the left and right images switches over.
- (4) Press the FREEZE switch.
 - \rightarrow Both the left and right images freeze.
- (5) Press the SELECT switch.
 - \rightarrow The active image switches over.
- (6) Press the FREEZE switch.
 - \rightarrow The active side image is displayed in real time.

1-4-22. STC

The STC function is an 8-step slide variable resistor which adjusts the gain at each display depth.

The gain of both B mode and M mode images varies simultaneously.

The number (cm) displayed on the side of each STC knob indicates the display depth for which the gain can be adjusted.

<Operation method>

[Remark]

Normally, set the STC knobs to the center (reference) position.

- (1) Move the STC knobs to the left or right.
 - → Moving the knobs to the right or left increases or decreases the gain for the display depth. Adjust the knobs corresponding to the depths where there is a deviation in sensitivity, either left or right, so as to make the sensitivity uniform.

[Remark]

The GAIN function also adjusts the gain.

[Remark]

Regardless of the side number (cm) of the STC knob, it is possible to equally divide the number of steps of STC by the depth display with a preset.

[Remark]

The positions of STC knobs can be registered and recalled. For details, refer to Section 6-3-6. "STC MEMORY".

1-4-23. STORE

This function stores the image frozen or searched to HDD in system, USB memory, or the network server.

<Operation method>

- (1) Display the image you wish to store.
- (2) Press the STORE switch.

 \rightarrow A image is stored in the destination to be set up beforehand.

[Remark]

For details, refer to Section 2. "PATIENT INFORMATION".

[Remark]

When you press the STORE switch at the time a still image is displayed, a still image is stored. When you press the STORE switch at the time a moving image is displayed, a moving image is stored.

1-4-24. VEL RANGE

This function increases and decreases the range of the flow velocity .

This function also adjusts the display range of the flow velocity for the color Doppler.

[Remark]

When you change VEL RANGE in the color Doppler mode, the size of the flow area sometimes changes as well.

<Operation method>



:Turn the VEL RANGE switch clockwise. A flow rate range is enlarged. The position that the switch does not function any more though turning is the maximum flow rate range.

:Turn the VEL RANGE switch counterclockwise. A flow rate range is reduced. The position that the switch does not function any more though turning is the minimum flow rate range.

1-4-25. ZOOM

The ZOOM function enlarges or reduces part of a B mode image.

The ZOOM has two methods for setting and can be switched over the setting with the preset.

If the setting of Zoom Method is made to the Center, you can enlarge or reduce an image around the center.

If the setting of Zoom Method is made to the Box, you can have a ROI displaying a magnified area, in which the image is enlarged or reduced.

The magnified image is also movable.

The focal points of the enlarged image are automatically set near the center of the display range. Shown below are examples of automatic setting.

1.SWITCHES and COMMENTS

1-4.Operating the various switches

<Examples>

- Automatically setting the focal points uniformly at the center of the display range according to the number of focal points
- Shifting the focal points along with the shift of the image
- Setting the number of steps for multi-step focusing

[Remark]

You can also use this function to shift an image without enlarging it. The number of step and magnification of Zoom are different with probes which are used.

<Operation method>

(When the Preset is at the Center)

- (1) Press the ZOOM switch.
 - \rightarrow The switch is lighted in orange.
- (2) Turn the rotary encoder 4 clockwise.
 - \rightarrow The image is enlarged one step at a time from the center. This switch ceases to function when the image reaches the maximum size.
- (3) Turn the rotary encoder 4 counterclockwise.
 - \rightarrow The image is reduced one step at a time from the center. This switch ceases to function when the image reaches the minimum size.
- (4) Using the trackball, move the image.
 - \rightarrow You can also enlarge or reduce the image after shifting it.
- (5) Press the ZOOM switch.
 - \rightarrow The zoom is reset, and the image returns to its original size and position.

[Remark]

Even when the preset is set to Center Zoom, pressing the ENTER switch after pressing the ZOOM switch, will change to Box ZOOM. For details, refer to (When the Preset is at Box), which is noted later.

(ZOOM in the B/D mode)

When the "Zoom Lock" is selected on the menu, a B mode image is enlarged with the sample volume position being as a center in the PW mode.

For details, refer to Section 6-4-5-8. "Zoom Lock".

(When the Preset is at Box)

- (1) Press the ZOOM switch.
 - \rightarrow A ROI is displayed on the image.
- (2) Turn the Rotary encoder 4 from clockwise or counterclockwise.
 - \rightarrow The ROI is enlargement or reduced.

- (3) Using the trackball, move the ROI to a part where enlargement is wanted.
- (4) Press the ENTER switch.
 - → The image is enlarged. Turning the rotary encoder 4 from clockwise or counterclockwise, you can enlarge or reduce an image.
- (5) Press the ZOOM switch.
 - \rightarrow The zoom is reset, and the image returns to its original size and position.

[Remark]

Until the switch such as the PRESET, DEPTH, and NEW PATIENT switches are pressed, the magnification and the position which have been set are memorized.

1-4-25-1. Read Zoom

Read zoom is a function that displays a frozen B mode image at a magnification factor of 2 when the ZOOM switch is pressed. The position of the image that is enlarged twice by the read zoom can be moved.

<Operation method>

- (1) Press the FREEZE switch to freeze an image.
- (2) Press the ZOOM switch.
 - \rightarrow The image is enlarged twice.
- (3) Using the trackball, move the enlarged B mode image.
- (4) Turning the rotary encoder 4 from clockwise or counterclockwise, you can enlarge or reduce an image.
- (5) Press the ZOOM switch.
 - \rightarrow Read zoom is reset.

1-4-26. Full keyboard

[Remark]

Option EU-9133 is necessary.

The full keyboard of this instrument performs the same function as the keyboard of a general purpose computer, the only difference being that some keys also have functions unique to the instrument.



Fig. Full keyboard

<Full keyboard function>

- ID entry function For details, refer to Section 2-1. "Before Starting an Examination".
- The full keyboard function can start up the measurement directly.
 When you press an alphabet key, you can directly start the measurement items and the control functions that are assigned to the pressed key without going to the measurement menu.
 For details, refer to the Measurement manual.
- (3) Comment

Pressing the Comment key activates comment cursor for entering comments. For details, refer to Section 1-5. "COMMENT AND ANNOTATION FUNCTION".

(4) Function

Pressing the Function keys, F1-F13, activates predefined function assigned to a Function key. As for the assignment, refer to Section 7-12. "CUSTOM SW,-FOOT SW,-KEYBOARD".

1-5. Comment and annotation function

Enter text in the text area of the screen. There are four entry methods, as follows:

- Enter text.
- Leave the arrow displayed and enter text.
- Use the System Dictionary to enter text.
- Use the Learning Function to enter text.

Other than direct text input, there is the System Dictionary which displays key words beginning with the entered letter on an Annotation menu, and the Learning Function which prioritizes previously selected key words in the menu display. These functions save time when entering data.

Text can be entered from the virtual keyboard displayed on the touch panel menu, as well as from the keyboard.

[Remark]

This chapter explains text input from the keyboard.

The operation method and actions are identical for the keyboard and the virtual keyboard.

[Remark]

To display the virtual keyboard on the touch panel menu, use Common Preset \rightarrow Common2 setting screen \rightarrow Virtual Keyboard On, from the Preset Setup screen. To display both the Annotation function and the virtual keyboard, go to Common Preset \rightarrow Common2 setting screen, and turn on Annotat+Keyboard. When the virtual keyboard is displayed, eight key words are displayed on the touch panel menu. And use to display the next menu, then the ninth and subsequent key words are displayed.



Virtual Keyboard

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Annotat+Keyboard

Change over the menu, if the number of key words exceeds the quota.

1-5-1. Text entry

Enter text at any desired position on the screen.

<Operation method>

1-5.Comment and annotation function

- (1) Press the Comment key on the keyboard.
 - \rightarrow An arrow is displayed on the text area of a screen. An Annotation menu is displayed on the touch panel menu.



[Remark]

The Comment key can be set on the touch panel menu with a preset. For details, refer to Section 7. "PRESET".

- (2) Using the trackball or the arrow key, move an arrow to a position to input.
 - \rightarrow The entry position is specified.
- (3) Input words with the keyboard, and then press the ENTER switch or the Enter key from the keyboard.
 - \rightarrow The character string is confirmed on the screen.

[Remark]

When you register a key word, the key word to be registered is displayed on the touch panel menu. You can select it. Refer to Section 1-5-7. "Registration and deletion of a key word".



1-5-2. 1and text entry

Enter \uparrow and the text at any desired position on the screen.

<Operation method>

- (1) Press the **Comment** key on the keyboard.
 - \rightarrow An arrow is displayed on the text area of a screen.
- (2) Using the trackball or the arrow key, move an arrow to a position to input.

[Remark]

When using rotary encoder 4, the arrow rotates to 8 directions.

- (3) Press the ENTER switch.
 - \rightarrow Confirm the arrow entry position and direction, and display the text cursor.



[Remark]

The displayed position of the text cursor differs depending on the angle of the arrow.

- (4) Enter text from the keyboard, then press the ENTER switch or the Enter key on the keyboard.
 - \rightarrow The character string is confirmed on the screen.



[Remark] The arrow can also be entered from the keyboard.

1-5.Comment and annotation function

1-5-3. Movement of a character string

Reposition an entered character string on the screen.

<Operation method>

- (1) Using the trackball, move the arrow to the place where you wish to move the character string.
 - \rightarrow A character cursor is displayed alongside the character string.



- (2) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The character string is displayed with black and white reversed, indicating that it can be moved.



- (3) Using the trackball, move the character string.
- (4) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The position of the character string is finalized.

1-5-4. Deleting a character string

Delete an entered character string on the screen.

<Operation method>

- (1) Using the trackball, move the arrow to the right of the character that you wish to delete.
 - \rightarrow A character cursor is displayed alongside the character string.



- (2) Press the Del key of the keyboard.
 - \rightarrow The character string disappears.

[Remark]

If you press the Del key without specifying a word using the arrow, all of the words on the screen will disappear, and the arrow will return to position in which it was set by the preset.

[Remark]

You can delete all of the words on the screen by canceling the freeze condition with a preset.
1-5-5. Deleting a character

<Operation method>

- (1) Using the trackball, move the arrow to the right of the character that you wish to delete.
 - \rightarrow A character cursor is displayed to the right of the character.



- (2) Press the backspace key.
 - \rightarrow The character to the left of the character cursor disappears.



1-5.Comment and annotation function

1-5-6. System dictionary function

Six types of dictionary are stored in the instrument. When entering text, key words previously registered in a dictionary can be used to save entry time.

[Remark]

If system dictionaries are used, set whether or not to use each dictionary from the Preset Setup screen, using Common Preset \rightarrow Common2 \rightarrow Annotation Dictionary \rightarrow System Dictionary.

<Operation method>

- (1) Press the Comment key on the keyboard.
 - \rightarrow An arrow is displayed on the text area of a screen. An Annotation menu is displayed on the touch panel menu.
- (2) Enter the first letter of the key word that you wish to display.
 - \rightarrow An underline cursor is displayed beneath the character to be entered, and key words whose first letter is the same as the selected letter appear in the annotation menu.



[Remark]

Fifteen key words are displayed for one search. If the target key word is not found, enter additional characters in order to narrow the search.

Search for key words using the dictionaries inside the instrument (Dictionary 1 - 6). The key word that is displayed on the touch panel menu changes when the dictionary is changed.

[Remark]

Regardless of input command characters, fixed key words can be displayed on the Annotation menu.

(3) Select a key word from the Annotation menu.

 \rightarrow The character string registered for the key word is entered at the arrow position.

[Remark]

Key words displayed on the Annotation menu are those registered to the Key. The character string entered on the screen is the one registered to the Word. Refer to Section 1-5-7. "REGISTRATION AND DELETION OF A KEY WORD".

[Remark]

When changing the graphic size of letters, change it before selecting the letters.

[Remark]

It can be set about the displaying of word whether in abbreviation or full spelling with a preset.

1-5-7. Registration and deletion of a key word

Any desired key words can be registered from Dictionary1 to Dictionary6, and will be displayed on the Annotation menu during text entry.

<Operation method>Registration of a key word

- (1) Select the **Registration** on the touch panel menu.
 - \rightarrow The word registration window is displayed.

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- (2) Point \bigotimes to the term of DIC 1 and press the ENTER switch.
 - \rightarrow A dictionary is replaced.

[Remark]

This instrument have six dictionaries, such as Dictionary1, Dictionary2, Dicationary3, Dictionary4, Dictionary5 and DIctionary6.

- (3) Point \bigotimes to the term of Key and press the ENTER switch.
- (4) Input the key word.
 - \rightarrow Character string the same as the key word which is input is entered into the term of Word automatically.

[Remark]

Key words of up to 8 characters can be entered.

The character string entered here is displayed as the key word in the Annotation menu.

- (5) Press the ENTER switch or the Enter key.
 - \rightarrow The key word is settled.
- (6) When changing letters registered with the term of Word, point 🖏 to the term of Word and press the ENTER switch.
 - \rightarrow Input a word.

[Remark]

Words of up to 54 characters can be entered.

[Remark]

Only use this procedure if the key word for Annotation menu and the character string to be entered on the screen differ. It is not necessary if the key word and the character string to be entered on the screen are the same.

(7) Press the ENTER switch or Enter key.

 \rightarrow The key word is settled.

- (8) Point 🖏 at the OK after all the items are entered and press the ENTER switch.
 - \rightarrow The key word and the character string are registered with a dictionary.

[Remark]

The key word and the character string are registered with a dictionary that is currently selected.

1.SWITCHES and COMMENTS

1-5.Comment and annotation function

<Operation method>Deletion of a key word

- (1) Select the **Registration** on the touch panel menu.
 - \rightarrow The word registration window is displayed.
- (2) Select the key word to delete from the Annotation menu.
- (3) On the Key word dialog box, move the \bigotimes to Delete and press the ENTER switch.
 - \rightarrow The key word registration is deleted from the dictionary, and the key word disappears from the Annotation menu.



2. PATIENT INFORMATION

2-1. Before Starting an Examination

The ID function is used to enter patient data (ID number, name, etc.) and display it on the screen. You can use the entered data for displaying a report, for example.

[Remark]

When entering patient data, the VIRTUAL KEYBOARD can be used, as an alternative to the full keyboard.

2-1-1. Explanation of ID entry screen

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When pressing the NEW PATIENT switch, the following ID entry screen is displayed.

Patient Name and Referring Phys input on single columns

Patient Name and Referring Phys input in three columns

Fig. ID entry screen

Search

Searches patient information from the patient database in the system, and displays it on the ID input screen.

Find

Reads patient data from the HIS (Hospital Information System) to the instrument. The patient information to display can be specified by examination date. If a change occurs in the latest patient data or the date, re-press the Find.

Worklist

Displays a list of patient data read from the HIS.

[Remark]

You can select the Worklist unless you read the patient data from the HIS. Also, you cannot acquire information unless you perform a setting for connecting the instrument to the Worklist server via a network using the Common Preset. For details, make inquiries to the network supervisor whose manages the hospital network.

[Remark]

Once you start an examination, you cannot change the Patient ID, Patient Name, Sex, Date of birth, Age, Procedure ID, Accession, Study ID, Study Description, Referring Phys, Reporting Phys, Sonographer, Body Part Examined, Laterality, or Description.

To change the patient data, press the NEW PATIENT switch, then once again select the patient data from the Worklist.

[Remark]

If an MPPS server is set in the hospital, you can notify the MPPS server at the start and end of an examination performed using the instrument. However, you cannot acquire data unless you perform a setting for connecting the instrument to the MPPS server via a network using the Common Preset. For details, make inquiries to the network supervisor who manages the hospital network.

Data Management

Stores the patient information to the external media (USB memory), reads it from the external media, and deletes it from the system or the external media.

ID Input

You can select one of the following five methods of entering ID data by performing the ID Input operation of the menu.

| (1) ID Name | : Entering ID, name, age and sex |
|-------------------|--|
| (2) ID Obstetrics | : Entering obstetrical data in addition to (1) |
| (3) ID Gynecology | : Entering gynecological data in addition to (1) |
| (4) ID BSA | : Entering body surface area in addition to (1) |
| (5) ID Urology | : Entering urological data in addition to (1) |

If you change any of the above items, the selected format will be held until you call the next preset. You can set this selection using a preset as well.

The data items that were no longer displayed when you changed the format are memorized. When the format is changed once again to enable the data to be displayed, the previous data is displayed.

Series/Image Information

Displays the screen for inputting detailed attribute information related to images. For detail, refer to Section 2-1-1-3. "SERIES/IMAGE INFORMATION".

Option

Displays the Worklist tab and Other tab. Use the Worklist tab to set individual Query Key items to transmit to the Worklist server. Use the Other tab to switch whether or not to divide the name input boxes into three sections, to switch acquisition of Study Description and Series Description from the Worklist on and off, to switch compliance with the VistA electronic health record system on and off, and other functions. Settings can also be restored to their initial defaults. For detail, refer to Section 2-1-1-4. "OPTION".

OK

Stores the entered information, and closes the ID entry screen.

Cancel

Cancels the entered information, and closes the ID entry screen.

2-1-1-1. Patient Information

Patient ID

Enter the patient ID. When you start up the system or register a NEW PATIENT and you do not enter the patient ID, "No ID" is automatically entered.

[Remark]

If the Patient ID has been left as "No ID", the message "Please Enter PATIENT ID" is displayed, and the image cannot be stored. To store the image, first enter the Patient ID.

Patient Name

Enter the patient name. Entry can be switched between single line entry and division into sections for family, given and middle name. For detail, refer to Section "OTHER TAB"(2-11page).

Sex

You can select any one of appropriate from M (Male), F (Female), Other and Blank.

[Remark]

Gender is able to input to every Application in advance with ID Comment of Preset. For detail, refer to Section 7-7. "ID COMMENT".

Date of birth

In case of Direct Input.

A descriptive example of input: A case of Jan. 0l, 2001 is to be input as 2001/01/01

Inputting this column with date, the system counts the age automatically (Rounded down less than a decimal point) and the age is consequently displayed in Age column.

When using the calendar:

Using the trackball, move Arrow mark to the $\mathbf{\nabla}$ mark indicates Date of Birth and press the ENTER switch, then a calendar is displayed.

Using the trackball, move the arrow to the Christian year, and by pressing the ENTER switch, you can change the year by year.

Using the trackball, move the arrow to a Month. Pressing the ENTER switch, you can display the drop-down menu of the month calendar Jan. through Dec., so that you can select the month you intend to input.



Age

The age is calculated from the current date and the Date of birth, and displayed with all digits to the right of the decimal point discarded. The unit of the age is "D" for 6 days after birth or younger, "W" for 7 to 29 days after birth, and "M" for 30 to 364 days after birth, and "Y" for 365 or older.

When the data is directly entered into the Age after the data is entered into the Date of birth, the data of the Date of birth is erased (blank display).

Height

You can select the unit of the height from the options below.

- Meters
- Centimeters
- Feet/Inches

The units above can be registered in the Preset.

Weight

You can select the unit of the weight from the options below.

- Kilograms
- Pounds/Ounces

The units above can be registered in the Preset.

Occupation Enter the occupation of a patient.

2-1-1-2. Study Information

1) Common items for all the ID entry screens

Study ID

The number of times that the same patient was accepted is input.

Procedure ID This is a test ID acquired from the Work List.

Accession The number of examinations performed in one day is input.

Study Description This is test content acquired from the Work List.

Referring Phys/Reporting Phys/Sonographer

Enter the name of the person performing the examination. The staff names that are entered with the keys are stored as options in the system. Entry can be switched between single column entry and division into sections for family, given and middle name. For detail, refer to Section "OTHER TAB"(2-11page). When erasing it, select it with a pull-down menu and press the Delete key.

2.Patient Information

2-1.Before Starting an Examination

2) Items varied depending on ID types

BSA (ID BSA)

This item calculates the BSA (Body surface area) according to the selected equation. The unit is m^2 . It is also possible to enter the BSA directly from the keyboard.

[Remark]

а

The computation expression of BSA has three sets of the following:

- DuBois BSA = $0.007184 \times H^{0.725} \times W^{0.425}$ BSA: m², H:cm, W: kg
- b. Boyd BSA = $0.0003207 \times H^{0.3} \times W^{(0.7285 - 0.0188 \times \log W)}$ BSA: m², H:cm, W: g
- c. Shintani BSA = $0.007358 \times H^{0.725} \times W^{0.425}$ BSA: m², H:cm, W: Kg

LMP/BBT/EGA/EDC/GA (ID Obstetrics, ID Gynecology)

This item is displayed when a patient is female. You can enter the date of the last menstruation period and others.

```
LMP (Date of the last menstruation period)
```

```
GA = (Current date - LMP) \div 7
```

EDC = 280 days + LMP

BBT (Estimated date of ovulation)

 $GA = (Current date - BBT + 14 days) \div 7$

EDC = (280 days - 14 day) BBT

EGA (Previous examination date and Gestational age on previous examination date)

 $GA = (Current date - Previous examination date) \div 7 + EGA$

EDC = Previous examination date + (280days - EGA)

EDC (Estimated date of confinement)

 $GA = (280 \text{ days} - (EDC - Current \text{ date})) \div 7$

GA (Gestational age)

 $EDC = Current date + (280 days - GA \times 7)$

[Remark]

For the ID Obstetrics, you can select any of the LMP, BBT, EGA, EDC, or GA. For the ID Gynecology, you can select either of the LMP or BBT.

GRAV/PARA/AB/ECTO (ID Obstetrics, ID Gynecology)

Only the integers (0 to 99) can be entered.

[Remark]

- GRAV: Number of gravidaPARA: Number of paraAB: Number of abortions or miscarriages
- ECTO : Number of ectopic pregnancies

Serum PSA (ID Urology)

Enter the value of Serum PSA directly from the keyboard. The unit is ng/ml. This item is displayed when a patient is male.

2-1-1-3. Series/Image Information

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Displays the screen for input the attributes related to images.

Performed Protocol Code Sequence

Used to issue a report on the contents of an examination to the MPPS server or to the DICOM image data. By pressing the Edit, you can combine the examination request items acquired from the Worklist with the examination method in the instrument and then issue a report.

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Scheduled Protocol Code Sequence

The contents of an examination necessitated by the examination are displayed. Concretely, the examination request items registered in the Worklist are displayed. The required examination contents are automatically input to Performed Protocol Code Sequence. If you wish to add to the contents of an examination once again, press the ADD and the examination contents will be transferred.

Built in System

The examination contents registered in the instrument in advance are displayed. You can issue a report concerning this data together with the required examination contents when issuing a report concerning the examination contents to the MPPS server at the end of the examination. You can also transfer the examination contents by pressing the ADD after selecting the examination contents.

OK

Completes the input. Press this switch when there is no error in the examination contents.

Body Part Examined Select the part to be examined from the list.

Laterality Enter the laterality of a body part to be examined.

Description

Enter the description of a image. If Scheduled Procedure Step Description has been acquired from the Worklist, the image description will be entered automatically under Description. For detail, refer to Section "OTHER TAB"(2-11page).

Image type Select the image type from the list.

Patient Orientation

Enter an anatomical orientation of a patient. Enter A (anterior), P (posterior), H (head), F (foot), R (right), or L (left) for the orientation of a patient used when an image is viewed from the side and when an image is viewed from the side from above, using a backslash.

Region Calibration

Select whether or not to include the measured data of each image into the image data. Select ON or OFF.

Combined Calibration

Select whether or not to include the brightness data into the Region Calibration. Select ON or OFF.

Full Attributes

Select whether or not to include all the data of a image when the image is recorded and transferred. Select On or Off.

Agent Enter the name of contrast media.

Route Enter the route of contrast media.

Volume Enter the volume of the contrast media that is given.

Total dose Enter the total dose of the effective components of the media contrast.

2-1-1-4. Option

Make settings for extended functions necessary for ID input. Use the ID Screen Option screen to make settings for the Worklist tab and Other tab. You can set the individual query keys to send to the Worklist server when using the Worklist. Use the Other tab to switch whether or not to divide the name input boxes into three sections, to switch acquisition of Study Description and Series Description from the Worklist on and off, to switch compliance with the VistA electronic health record system on and off, and other functions. Settings can also be restored to their initial defaults.

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Option...

Select the Option... button to display the ID Screen Option screen.

Use the ID Screen Option screen to make settings for the Worklist tab and Other tab.

[Remark]

In the captured screen above, the setting is made to divide the name input boxes into three sections. To activate this function, select Option then Other tab. Then add a check mark to Use split boxes for "Patient name" and "Referring physician name."

[Remark]

All settings made under ID Screen Option are stored once you leave the ID screen.

Worklist tab

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QueryKey

You can set the individual query keys to send to the Worklist server when using the Worklist. There are the following seven selection items.

- Patient ID
- Patient Name
- Accession Number
- RequestedProcedure ID
- Modality
- Scheduled Station AE Title
- Scheduled Procedure Step Start Date

[Remark]

If you check the check box for Scheduled Procedure Step Start Date, you can specify the examination date to search with the Find function before using the Worklist. There are the following four selection items.

- Today
- Today +/- 1day
- This week
- Specified date

[Remark]

Remove the check mark from Scheduled Procedure Step Start Date to avoid specifying the examination date.

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Other tab

This tab makes advanced settings for the ID entry screen. Use the Other tab to switch whether or not to divide the name input boxes into three sections, to switch acquisition of Study Description and Series Description from the Worklist on and off, to switch compliance with the VistA electronic health record system on and off, and other functions. Settings can also be restored to their initial defaults.

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a. Switching the name entry box between splitting into three sections and no split

When a check mark is added for Use split boxes for "Patient name" and "Referring physician name", the entry boxes for patient name and Referring Phys name are split into three sections, for family, given and middle names.

b. Switching acquisition of Study Description and Series Description from the Worklist on and off

When a check mark is added for Use Requested Procedure/Scheduled Procedure Step Description for Study/Series Description, Study Description and Series Description are acquired from Requested Procedure Description and Scheduled Procedure Step Description in the Worklist, and entered automatically.

[Remark]

The information entered automatically for Study Description and Series Description may vary, as shown below, according to the acquisition results of Requested Procedure Description and Scheduled Procedure Step Description from the Worklist. If there is no check mark, Study Description and Series Description are left blank.

• If Requested Procedure Description and Scheduled Procedure Step Description were both acquired, they are entered automatically for Study Description and Series Description, respectively.



• If only the Scheduled Procedure Step Description could be acquired, that is entered automatically for both Study Description and Series Description.



• If only the Requested Procedure Description could be acquired, that is entered automatically for both Study Description and Series Description.



c. Compliance with the VistA electronic health record system

Add a check mark to comply with the VistA (Veterans Health Information Systems and Technology Architecture).

If this is checked, all examination orders returned by the Worklist server are displayed on the Worklist screen when you search examination orders in Worklist.

d. The Set Defaults function

Values set under Option are stored and retained even when the power is switched off. Select the **Set Defaults** button to restore all items set under ID Screen Option to their default values.

2-1-2. How to register a patient

Before starting an examination, you should enter the patient information and the examination information. The patient Name and ID are displayed above the ultrasound image.

- (1) Press the NEW PATIENT switch.
 - \rightarrow ID input screen is displayed.

A cursor is displayed in the field of the ID in the Patient Information. Now you can enter a patient ID from the keyboard.

- (2) Press the Tab key or the Enter key on the keyboard.
 - \rightarrow The cursor moves to the column of Name. Now you can enter a patient name from the keyboard.

[Remark]

When examining the same patient for the second or subsequent time, simply enter the ID and the previously registered patient data is automatically displayed.

[Remark]

Pressing the ENTER switch located on the operation panel has the same effect.

- (3) Enter a patient name.
 - → Patient Name is input in order of family name (Last Name) and given name (First Name), and it is divided with one space between the family name and given name.

[Remark]

Up to 64 characters can be entered as the patient name. The 65th character cannot be input. If the name is entered in three sections, the total character count for the family, given and middle names can be up to 64 characters.

- (4) Press the Tab key or the Enter key on the keyboard.
 - \rightarrow Enter the information you know in the same steps above.

[Remark]

Pressing the ENTER switch located on the operation panel has the same effect.

- (5) Sex is selected from the Drop-down menu and press the Return key.
- (6) Using the trackball, move the arrow to the OK button on the upper left corner of the ID screen, then press the ENTER switch if the input is completed.
 - → An input screen of the patient / examination information is finished. An ultrasound tomography image screen is displayed, and among input information, patient Name and patient ID are displayed on a screen.

[Remark]

When you select the Cancel button, the changed contents are discarded, and then the ultrasound tomography image screen is displayed. When patient registration is completed, the unit returns to the condition at the time when the ID function was started.

[Remark]

If you re-write patient data that has been registered once, a message asking you whether or not you wish to renew the data will appear.

[Remark]

When you want to change patient information that has already been entered, press the ID switch located on the operation panel and re-enter the information in the ID input screen.

2-1-3. Search function

This function searches for the patient data that matches the search conditions from the patient database inside the instrument, and displays the selected patient data on the ID input screen.



Fig. Search screen

Search

Reads the patient information from the patient database in the system according to the search criteria, and displays the information on the patient list display screen.

OK

Reads the patient information that is selected from the list, and returns the previous screen.

Cancel

The search screen is closed, and then the ID screen is displayed.

<How to search>

- (1) Using the trackball, move the arrow to Search button on the upper left corner of the ID screen, then press the ENTER switch.
 - \rightarrow Display the Search screen.
- (2) Enter the patient ID or Name you wish to search, and using the trackball, move the arrow to Search button, then press the ENTER switch.
 - \rightarrow The Patient IDs and Names that match the search criteria are displayed on the list.
- (3) Using the trackball, move the arrow to the desired patient information in the search result displayed in the list, then press the ENTER switch.
 - \rightarrow The selected information is highlighted in blue.
- (4) Using the trackball, move the arrow to the OK button, then press the ENTER switch.
 - \rightarrow The screen returns to the ID entry screen and the patient information that was entered in the past is displayed.

[Remark]

It is possible to fuzzy search using either/both Patient ID or/and Patient Name as the search criteria. If you press the **Search** button without entering the search criteria, all the patient information in the system is displayed.

2-1-4. Find

Patient information is read from HIS (Hospital Information System) into the instrument, and the list is displayed. Select the Find button on the ID entry screen to acquire patient data from the HIS (Hospital Information System) and display it on the Worklist screen.

[Remark]

It is necessary to be connected the HIS server with a network with a preset. For the setting a network, the **Common Preset** of a preset is used for setting.

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Fig. Find screen

OK

Reads the patient data for the patient concerned, and re-displays the ID screen.

Cancel

Re-displays the original screen.

Name

Switches the patient display in the list to patient name, and arranges the data in order of patient name.

ID

Switches the patient display in the list to patient ID, and arranges the data in order of patient ID.

<Operation method>

- (1) Press the Find button on the ID screen.
 - \rightarrow Patient information in the HIS is read.
- (2) Select the patient name from the list and press the OK button.
 - \rightarrow The patient information on the ID screen is input.

[Remark]

Select the Find button again to acquire the latest patient data. Patient data is acquired from HIS each time the Find button is selected. For the Worklist operation method, refer to Section 2-1-5. "WORKLIST".

2-1-5. Worklist

The patient information obtained from HIS by Find is saved in this instrument. The Worklist lists the saved patient information, and reduces manual inputting with the keyboard.

<Operation method>

- (1) Press the Worklist button on the ID screen.
 - \rightarrow The patient information saved in the instrument is read.

| OK. | Densel | Schedu e | der 3 | 100540104 | |
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- (2) Select the patient name from the list, and press the OK button.
 - \rightarrow The patient information on the ID screen is input.

[Remark]

If results containing multiple dates are returned, they can be filtered by examination date. Use the list box to specify the examination date to search.

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(3) When an examination is selected from the Worklist, that data is checked against the last patient data for the same ID. If the Worklist data and the information in the last patient data of the same ID differ, the patient information is updated according to the following conditions:

• If the Patient Name, Sex or Date of Birth differs between the information of Worklist data and that of the same ID data, a message is displayed querying whether to use the values from the Worklist or those from the last patient data of the same ID. Select Built in HDD to use the same values as the last patient data of the same ID.

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- If the values acquired from the Worklist include Occupation, LMP, Height, Weight, BSA, EDC, BBT, KGW, ED or GW, the Worklist values are updated automatically. If the values acquired from the Worklist include none of these, the values from the last patient data for the same ID are used without update.
- The following data cannot be acquired from the Worklist. Even if the patient information is acquired from the Worklist, the examination values from the last patient data for the same ID are used without update.
 GRAV(Number of gravida), PARA(Number of para), AB(Number of abortions or miscarriages), ECTO(Number of ectopic pregnancies), PSA (serum PSA value)
- Even if the last patient data for the same ID includes Study Description, Series Description or Referring Phys, the Worklist values are used if the patient information can be obtained from the Worklist.

2-1-6. Data Management

This function reads/writes the patient information from/to the external media, and deletes the patient data.

[Remark]

When using the floppy disk drive, contact our office listed on the back cover.

Data Management screen

When the Data Management button is selected on the ID entry screen, the patient data management screen is displayed. You can operate the functions shown below on the searched patient information.

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Fig. Data Management screen

Search

Searches the data from the medium specified in the Target Medium according to the search criteria.

Delete

Deletes the patient information selected in the list.

Read from Media

Reads the patient information that is selected in the list from the external medium into the system. This function can be operated when the FD, Media is specified in the Target Medium.

Write to Media

Writes the patient information that is selected in the list from the system into the external medium. This function can be operated when the Built in HD is specified in the Target Medium.

Optimize database

Optimizes the database in the system to reduce the access time to the database.

Close

Closes the Data Management function, and returns to the ID screen.

All

Selects all of the data in the list. Pressing this button once again returns all of the data to a non-selected condition.

<Operation method>

- 1) When reading the patient information from the external medium into the system:
 - (1) Select FD, Media disk from the Target Medium.
 - \rightarrow The File List that is in the selected medium is displayed.
 - (2) Select the desired File in the File List, and press the OK button.
 - → Enter any of or all of the Patient ID, Patient Name, or/and From Until (Date) of which you wish to read the patient information into the system, into the search criteria.
 - (3) Press the Search button.
 - \rightarrow A list of patient data that matches the search conditions is displayed from the selected file.
 - (4) Select the patient information that you wish to read into the system, and press the Read from Media button.
 → The selected patient information is read into the HD in the system.
- 2) When storing the patient information from the system into the external medium:
 - (1) Enter any of or all of the Patient ID, Patient Name, or/and From Until (Date) of which you wish to store the patient information into the search criteria.
 - (2) Select the Built in HD from the Target Medium, and press the Search button.
 - \rightarrow A list of patient data stored on the internal HD that matches the search conditions is displayed. The Write to Media button will active once the patient data to store has been selected.
 - (3) Select the file you wish to store into the external medium, and press the Write to Media button.
 - \rightarrow The dialog box in which you can select a medium and enter a file name is displayed.
 - (4) Select a medium, enter a file name, and press the OK button.
 - \rightarrow The selected patient data is stored onto a the specified medium.

[Remark]

When ALL is selected, and all patient information is selected, the following dialog message will be displayed. Selecting OK will save all patient information on specified media.

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[Remark]

For the situation above, all the data that you selected are stored in one file.

If all of the selected patient information cannot be stored into one medium, the message appears. In this case, you should select the data to be stored, and repeat the same procedure.

- 3) When deleting the patient information:
 - (1) Enter any of or all of the Patient ID, Patient Name, or/and From Until (Date) of which you wish to delete the patient information into the search criteria.
 - (2) In the Target Medium, select the medium in which the patient information to be deleted is stored.

[Remark]

When you select the media, the File List is displayed. Select the desired file, and press the OK button.

- (3) Press the Search button.
 - \rightarrow A list of patient data that matches the search conditions is displayed from the selected media file.
- (4) Select the patient information you wish to delete, and press the **Delete** button.
 - \rightarrow The delete confirmation dialog box is displayed, so select OK. The selected patient information will be deleted.



[Remark]

When ALL is selected, and all patient information is selected, the dialog for the following deleting confirmations is displayed. Selecting OK will delete all patient information.

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2-2. Before Completing an Examination

If you use this instrument to examine the same patient multiple times, you can end an examination by selecting the End Study switch which ends each examination one at a time, or by selecting the NEW PATIENT switch which end all of the examinations.

Also, if an MPPS server is set in the network, a dialog box for ending the examination appears at the end of an examination, enabling you to inform the MPPS server that the examination is completed.

It is also possible to perform an examination without entering the patient data (No ID). However, if you wish to store an image, you must be sure to enter an ID. For this reason, it is recommended that you press the End Study switch or the NEW PATIENT switch at the end of an examination.

[Remark]

You must have the optional DICOM communications software SOP-ALPHA 6-10 and the SOP-ALPHA 6-21 software that is enabled for DICOM SR.

[Remark]

The three switches that can be assigned to the panel are the NEW PATIENT switch, the End Study switch, and the ID switch. If you receive a request to perform multiple examinations on the same patient data using the patient data acquired from the Worklist server, or you wish to notify the MPPS server of the end of an examination, assign the End Study switch instead of the ID switch. Note that by doing this you will be unable to end examinations individually.

[Remark]

If a Worklist server and/or MPPS server is set in the hospital, you will be unable to acquire data unless you perform a setting for connecting the instrument to the Worklist server and/or MPPS server using the Common Preset. For details, make inquiries to the network supervisor who manages the hospital network.

[Remark]

If a local printer and a network printer are connected, you can automatically print out images for each group of pages into which the data is divided. If the number of images printed out at the end of an examination is less than the number of pages in a group, you can forcibly print out the images according to the message that appears on the screen.

2-2-1. When the instrument is not connected to the Worklist or MPPS server

- (1) End the examination using the NEW PATIENT switch.
 - \rightarrow The screen switches over the ID input screen, and the patient data is erased.

2-2-2. When the instrument is connected to the Worklist and MPPS servers via a network

By connecting the instrument to the Worklist server and MPPS server, you can perform multiple examinations on a single patient. Even if you interrupt an examination mid-way and resume it later on, you can acquire patient data from the Worklist. Also, by using the MPPS server, you can notify the server of the end of the examination.

1) Ending all examinations of the patient

<Notification of end of examination>

- (1) End the examination by selecting the NEW PATIENT switch.
 - \rightarrow When an image is saved, the MPPS dialog box appears.

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- (2) Select COMPLETED from the Performed Procedure Step Status area.
- (3) Press the OK button on the MPPS dialog box.
 - \rightarrow The examination end data is sent to the MPPS server, then the screen switches over to the ID image screen, and the patient data is erased.

[Remark]

If you decide not to carry out an examination after calling the patient data from the Worklist and carrying out preparations for an examination, press the NEW PATIENT switch to end the examination. To restart the examination, call the same patient from the Worklist once again <Notification of reason for interrupting an examination>

- (1) End the examination with the NEW PATIENT switch.
 - \rightarrow In the case where an image is saved, the MPPS dialog box appears.

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(2) Select DISCONTINUED from Performed Procedure Step Status.

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(3) Select the reason for the suspension of an examination from Performed Procedure Step Discontinuation Reason Code Sequence.

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| | Cancel | | | | |

Examples of character strings used in reports

- Doctor cancelled procedure
- Instrument failure
- Incorrect procedure ordered
- Patient allergic to media/contrast
- Patient died
- Patient refused to continue procedure
- Patient taken for treatment or surgery
- Patient did not arrive
- Patient pregnant
- Change of procedure for correct charging
- Duplicate order
- Nursing unit cancel
- Incorrect side ordered
- Discontinued for unspecified reason
- Incorrect worklist entry selected
- Patient condition prevented continuing
- (4) Press the OK button on the MPPS dialog box.
 - \rightarrow After the end data is sent to the MPPS server, the screen switches over to the ID input screen, and the patient data is erased.

[Remark]

If you decide not to carry out an examination after calling the patient data from the Worklist and carrying out preparations for an examination, press the NEW PATIENT switch to end the examination. To restart the examination, call the same patient from the Worklist once again.

2) Performing multiple examinations on the same patient

- (1) End the examination using the End Study switch.
 - \rightarrow When an image is saved, the MPPS dialog box appears. When an image is not stored, the screen of (3) on Page 1-43 appears.
- (2) After the entering the examination end contents, press the OK button on the MPPS dialog box.
 - \rightarrow After the end data is sent to the MPPS server, the screen switches over to the ID input screen.

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When issuing notification of the end of an examination, select COMPLETED.

When issuing notification of the reason for an interruption of an examination, select DISCONTINUED.

- (3) Select Worklist from the ID screen, and then select the next examination order.
 - → In the case of the Worklist, narrow down the multiple examination orders from the current patient ID and display them. Next, select the examination order to be performed next, and press the OK button. The examination order data is transferred to the ID screen.
- (4) Press the OK button on the ID screen.
 - \rightarrow Perform the following examination. Also, when you wish to perform a different examination, call that examination using the End Study switch after the end of the current examination.

[Remark]

If you press the End Study switch when an image is saved, the MPPS dialog is displayed. If an image is not saved, the MPPS dialog is not displayed.

[Remark]

Do not press the **Cancel** switch on the ID screen after pressing the **End Study** switch. When you press the **Cancel** switch, all of the patient data is erased. To return to an examination, press the **OK** button on the ID screen.

- (5) To end all of the examinations, press the NEW PATIENT switch.
 - \rightarrow The screen switches over to the ID input screen, and the patient information is erased.

2-2-3. When connected via network to the DICOM SR Server

Ultrasound measurement results can be converted to DICOM SR format (hereinafter referred to as DICOM SR files) and sent to a DICOM SR server.

[Remark]

When connecting to a DICOM SR server, use PRESET on the operation panel \rightarrow Common Preset \rightarrow DICOM-SR setting screen, then set network-related settings. For details, refer to Section 7-3-7. "DICOM SR".

[Remark]

Refer to the Measurement section for more information regarding the creation and transmission of the SR object. DICOM SR files can only be sent for abdominal measurement (Abdom), obstetrical measurements (OB) and gyne-cological measurements (GYN), cardiac measurement (Cardio) and vascular measurement (Vascular).

The following two methods can be used to send DICOM SR files to a DICOM SR server.

1) To send the DICOM SR file currently being performed

<Operation method>

- (1) After finishing the ultrasound examination, press the New Patient switch.
 - \rightarrow Examination results are converted to DICOM SR files and sent to the DICOM SR server.

[Remark]

The SR Auto Creation function must be set to "On" in Common Preset. If SR Auto Creation is not set to "On", the examination results will not be sent automatically to DICOM SR server.

[Remark]

If the New Patient operation was not performed at the end of the examination, and the instrument was then switched off, the previously unsent DICOM SR file will be sent to the server when the instrument is switched on, and the New Patient operation is performed next time.

2) To create a past DICOM SR file and send it together with the current file

Depending on how this device is configured and the status of options that have been enabled, there may be cases where DICOM SR files of previous examinations are not created. A DICOM SR file can be prepared for the previous ultrasound examination, or for the one before that, and sent together with the DICOM SR file for the examination currently being performed.

<Operation method>

- (1) After the ultrasound examination, the measurement report screen is displayed for checking of measurement results.
- (2) Select the $\mathbf{\nabla}$ for the examination date in the upper right of the report screen to display the list, then specify the examination date.
 - \rightarrow The report screen for the specified examination date is displayed.

| Return | Header | Press. | Next | Basic | • | Graph | US Image | Dutput |
|--------|--------|--------|------|-------|---|-------|----------|--------|
| | | | | | | | | |

- (3) Select Output.
 - \rightarrow It displays the Select Device dialogue.
- (4) After selecting the Create SR, select OK.
 - \rightarrow The DICOM SR file is created for the specified past ultrasound measurement results.

| Select Device | |
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- (5) After the ultrasound examination, operate the New Patient.
 - \rightarrow Both the past and the current DICOM SR files are transferred to the DI-COM SR server.

[Remark]

The status of the forwarded DICOM SR file can be checked from the thumbnail display on the search result screen for the Review function. For details, refer to Section 4-3-2. "SEARCH FOR IMAGE DATA".

[Remark]

For details of the creation and transmission of SR objects, refer to Section 1-10-7-4. "CONTROL MENU" in the Measurement manual.

2-3. User Authentication

Usage rights for ultrasound diagnostic instrument are limited to registered users, protecting patient data from unregistered users. As only registered users can operate the instrument, those who have not received authentication cannot operate it. There are also levels of access rights for individual functions, and unregistered users cannot perform actions such as altering settings. As only registered users have access, those users are able to manage and protect presets and other aspects of instrument setting status.

\land Note

The factory default setting disables the user authentication function. No users are registered. Contact our office before using user authentication.

2-3-1. User Levels

Three levels are set, and the functions that users can operate are limited according to their user levels. A user who is not registered to a user level cannot perform the operations provided at that level.

| Operable functions | | User Level (Access right) | | | |
|------------------------------------|---|---------------------------|---|----------|--|
| | | 1 | 2 | 3 | |
| User management screen operations | | | | | |
| | Setting the user authentication function On or Off | | × | \times | |
| | User management (new user registration, user deletion, level setting) | U | | | |
| Patient data management operations | | 0 | 0 | × | |
| Preset setup operations | | 0 | 0 | × | |
| Changes to login passwords | | 0 | 0 | 0 | |
| All othe | r operations | 0 | 0 | 0 | |

2-3-2. Login

If the User authentication is set On, the login screen is displayed when the instrument starts or after the user has logged, to authenticate the user.

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Fig. Login screen

Password : Register new passwords and change existing passwords.

OK : Use the entered user name and password for authentication.

[Remark]

If the User authentication is set Off, the login screen is not displayed. There is no need for user authentication, and all operations are available.

2-3-3. User Authentication

Only users who have performed user authentication from the login screen and have the necessary permission can use the instrument.

<Operation method>

- (1) Enter the user name and the password on the login display.
- (2) Select OK.
 - \rightarrow Once the user name and password have been entered for authentication and permission received, the user can use the instrument.

[Remark]

If the entries are incorrect, the following dialog box appears.

Select OK to redisplay the login screen. Enter the correct user name and password.

| localid name or p | uussword | |
|-------------------|----------|---|
| | P | J |

2-3-4. Setting new passwords

A new user using the instrument for the first time must set a new password when logging on for the first time.

- (1) Enter the new user name in User name on the login screen.
- (2) Select the Password.
 - \rightarrow The Password setting screen is displayed.

| Change [†] Rag aller p | brwa.d |
|---------------------------------|--------|
| Liser name | A ofe |
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| Record musion | |
| Ok. | Cancel |

(3) Enter the password in New Password and Reconfirmation.

[Remark]

Choose a password of 4 to 16 alphanumeric characters. If the password is incorrect, the following error dialog box is displayed. Select OK to redisplay the password setting screen. Enter the password, using 4 to 16 alphanumeric characters.



[Remark]

If the New Password and the Reconfirmation do not match, the following error dialog box is displayed. Select OK to redisplay the password setting screen. Enter the correct password.



(4) Select OK.

 \rightarrow When authentication is approved, the login screen is displayed.

[Remark]

Select Cancel to display the login screen without changing the password.

2-3-5. Changing passwords

Change an existing password to a new password.

<Operation method>

- (1) Enter the User name for which to change the password in User name on the login screen.
- (2) Select Password.
 - \rightarrow The password setting screen is displayed.

| Change [†] Rag aller p. | orwid |
|----------------------------------|--------|
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| Current technord | |
| New provident | |
| fiecenî mut en | |
| Ok | Cancel |

(3) Enter the old password in Current Password, and the new password in New Password and Reconfirmation.

[Remark]

Choose a password of 4 to 16 alphanumeric characters. If the password is incorrect, the following error dialog box is displayed. Select OK to redisplay the password setting screen. Enter the password, using 4 to 16 alphanumeric characters.



[Remark]

If the User Name and Current Password do not match, the following error dialog box is displayed. Select OK to redisplay the password setting screen. Enter the correct password.



[Remark]

If the New Password and the Reconfirmation do not match, the following error dialog box is displayed. Select OK to redisplay the password setting screen. Enter the correct password.

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| | l k | | | |
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(4) Select OK.

 \rightarrow When the password change is approved, the login screen is displayed.

[Remark]

Select Cancel to display the login screen without changing the password.

2-3-6. Log Off

When a user log off, that user period of usage ends, and the login screen is displayed for another user to use.

[Remark]

Assign a Log Off switch to the touch panel menu, or to a custom switch in advance.

<Operation method>To assign the Log Off switch to the touch panel menu

- (1) Press the PRESET switch.
 - \rightarrow It displays the preset list.

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- (2) Using the trackball, move the arrow to Set-Up of Preset, and press the ENTER switch.
 - \rightarrow The preset selecting list appears.


- (3) Select the Application.
 - \rightarrow The setting screen is displayed as follows.

| Sets the touch panel menu. | <u>54-16.</u> | | |
|----------------------------|---------------|-----|--|
| | | - b | |

- (4) Select the Manu-USER on the left of the display.
 - \rightarrow The registration screen is displayed for the user switch area.

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[Remark]

The following procedure is the same when assigning the switch to the menu function area.

- (5) Select the Full M/D
- (6) Select the Next on the select Items.

 \rightarrow Select a few times to display Other mode.

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- (7) Select the Log Off
 - \rightarrow Full M/D is changed to Log Off.

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<Operation method>To assign the Log Off switch to a custom switch

- (1) Press the PRESET switch.
 - \rightarrow It displays the preset list.

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- (2) Using the trackball, move the arrow to Set-Up of Preset, and press the ENTER switch.
 - \rightarrow The preset selecting list appears.



- (3) Select the Application.
 - \rightarrow The setting screen is displayed as follows.

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- - \rightarrow The registration screen is displayed for the custom switch.

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[Remark]

The following procedure is the same when assigning the switch to the Custom-Foot SW or to a custom keyboard.

(5) Select the

 \rightarrow The following screen is displayed.

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(6) Select \bigvee under Common \rightarrow The pull-down menu is displayed.

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- (7) Select Other2.
 - \rightarrow Other2 mode is displayed.

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- (8) Select the
 - \rightarrow B is changed to Log Off.

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<Operation method>To Log Off

- (1) Press the Log Off switch that has been assigned to a custom switch, or Log Off on the touch panel menu.
 - \rightarrow The login screen is displayed.



[Remark]

When the instrument is shut down, that is taken to mean that the user log off, and the login screen will be displayed the next time the instrument starts. While the login screen is displayed, operations other than the operation in the login screen are impossible.

[Remark]

It is not possible to log off from the Review, Preset, Store, Loop playback, ID and EXT screens.

2-3-7. User Management

Settings such as new user registration, user deletion, user levels and the like can be performed in the user management.

[Remark]

Only Level 1 users have the access to this function.

<Operation method>

- (1) Press the PRESET switch.
 - \rightarrow It displays the preset list.

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- (2) Using the trackball, move the arrow to Set-Up of Preset, and press the ENTER switch.
 - \rightarrow The preset selecting list appears.

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- (3) Select User Admin.
 - \rightarrow The user authentication screen is displayed.

| User authentication | | | |
|---------------------|--------|--|--|
| User name | | | |
| Passmord | | | |
| <u>ak</u> | Cancel | | |

Fig. User authentication screen

- (4) Enter the user name and password, then select OK.
 - \rightarrow The user management screen is displayed.

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Fig. User management screen

[Remark] Only users of user level 1 have permission.

[Remark]

Select Cancel to return to the Preset SetUp screen.

2-3-7-1. User Authentication setting (User Authentication)

Set whether to perform user authentication when the instrument starts or after the user has logged off.

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Fig. User management screen

- If the setting has been changed, the changed setting becomes effective the next time the instrument starts.
- If the user authentication setting is Off, the login screen is not displayed and all operations are possible. However, user authentication at user level 1 should be performed before entering the user management screen.

2-3-7-2. New user registration (Add User)

Register a new user with permission to use the instrument.

<Operation method>

- (1) Select Add User on the user management screen.
 - \rightarrow The user registration screen is displayed.

| Add new user | | | |
|--------------|--------|--------|--------|
| User name | | | |
| Access right | Level1 | Level2 | Level3 |
| ak | | Cancel | |

- (2) Enter the user name, then set the user level and select OK.
 - \rightarrow The new user is registered and the display returns to the user management screen.

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[Remark]

Enter a user name of 1 to 16 alphanumeric characters.

[Remark]

Select Cancel to return to the user management screen without registering a user.

2-3-7-3. User deletion (Delete User)

Delete registered users.

<Operation method>

(1) Select the user to delete on the user management screen.

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(2) Select Delete User.

 \rightarrow A confirmation dialog box is displayed.

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(3) Select Yes.

 \rightarrow The user is deleted and the display returns to the user management screen.

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[Remark]

Select No to return to the user management screen without deleting a user.

[Remark]

A user who is logged in cannot be deleted.

2-3-7-4. User level change (Access control)

Change the user level for a registered user.

<Operation method>

(1) Select the user to change to another level on the user management screen.

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| | | |

(2) Select Access control.

 \rightarrow The Access Control screen is displayed.

| Edit the access right | | | | |
|-----------------------|----------------------|--|--|--|
| User name | test | | | |
| Access right | Level1 Level2 Level3 | | | |
| 0 | Cancel | | | |

(3) Change the user level, then select OK.

 \rightarrow The access level is changed and the display returns to the user management screen.

[Remark]

Select Cancel to return to the user management screen without changing the access level.

[Remark]

The access level cannot be changed for a user who is logged in.

2-3-7-5. CSV file output (User List)

Output the user names and user levels of currently registered users as a CSV file.

<Operation method>

(1) Choose the storage media for the file from FD or Media.

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[Remark]

When using the floppy disk drive, contact our office listed on the back cover.

(2) Select User List.

 \rightarrow The user authentication content is saved.

[Remark]

The file name is assigned automatically.

However, if a file of the same file name exists, it will be overwritten.

3. Image Display Modes

3-1. B mode

The B mode is used to display an arbitrary cross-section of the body as a slice image.

3-1-1. Basic Operation Procedure

<Single image display>

- (1) Press the B switch on the operation panel, and a 1B mode image is displayed. Apply the probe to the part of the body to be scanned.
 - \rightarrow B mode image of the part of the body being examined is displayed on the screen.
- (2) Perform adjustment so as to obtain a satisfactory image.
 - → Adjust the brightness with the STC knob and the B GAIN switch. Perform image processing adjustments, including contrast adjustment, using rotary encoder on the touch panel menu. Adjust the display depth to the optimum value with the RANGE switch.

[Remark]

Several image adjustments can be coordinated with one knob on the IP Select (B), and when the frequency is changed, it is regulated with Image Freq (B/M).

- (3) Once you have obtained a satisfactory image, press the FREEZE switch to freeze the image.
- (4) Perform measurement as necessary.For details, refer to the Measurement manual.
- (5) Record the image as necessary.

<Two images display>

You can display a B mode image as a two images display at the left and right or upper and lower halves of the screen. Using a preset, select whether to divide a real time images into 2B images, or to divide a frozen image into 2B images. Select the image using the SELECT switch or B/B switch.

(In the right and left display, and in the case Cine Division is 2 or 4 displays with a preset)

- (1) Press the B|B switch.
 - \rightarrow The B mode image is displayed on the left side of the screen. (2B mode screen)

[Remark]

You can change to 2B display after freeze with B mode display. In that case, press the B switch during B mode display. Then the cine division number on the screen turns to 2 from 1. When the B/B switch is pressed after freeze, both images at the time that B switch was pressed or at the time of freeze state are displayed together.

- (2) Press the SELECT or B|B switch.
 - \rightarrow The left image freezes, and the right image is displayed in real time.

This section consists of 18 pages.

- (3) Once again, press the SELECT or B|B switch.
 - \rightarrow The right image freezes, and the left image is displayed in real time.
- (4) Press the FREEZE switch.
 - → The image freezes. Next, if you press the SELECT or B|B switch, you can perform measurements on the specified image. (However, when the left and right images are joined to each other, you can perform measurement across both of them.)
- (5) To perform a request, press the B switch in the freeze state.
- (6) When the freeze state is released, the specified image (the image that is indicated by the "• " active mark) is displayed in real time.

(In the right and left display, and in the case Cine Division is 1 displays with a preset)

This function is enables you to display a frozen B mode image stored in the cine memory as a 2B mode image on the left and right halves of the screen when 2B MAPPING is set to On using a preset. By using this function, you can display systolic and diastolic images for the same cardiac cycle on the left and right

sides of the screen, which is convenient for when measuring cardiac functions.

- (1) Display 1B image, then press the FREEZE switch.
 - \rightarrow A 1B image is displayed on freeze.
- (2) Press the B|B switch.
 - → The B mode image is displayed on the left half of the screen, and nothing is displayed on the right half of the screen. In this state, you can use the search function. Using the trackball, select the desired image.
- (3) Press the SELECT or the B|B switch.
 - \rightarrow The same image are displayed on the right side and the left side.
- (4) Press the SEARCH switch.
 - \rightarrow Using the search function, display an image on the right side of the screen that is in a different phase to the image on the left half. Using the trackball, select the desired image.

[Remark]

Switch over the active image using the SELECT or B|B switch.

- (5) Press the FREEZE or B|B switch.
 - \rightarrow 2B Mapping is finished. The active image of 1B with 2B mode display is displayed.

<Four images display>

You can display a B mode images as a four images display.

[Remark]

You must first set Cine DIVIS of the preset or menu to 4B. It is also necessary to assign 4B mode to a menu. For details of the setting method, refer to Section 7. "Preset".

- (1) Select 4B on the touch panel menu.
 - \rightarrow The screen is divided into 4 sections, and B mode image is displayed in real time on the upper left side.

(2) Press SELECT switch or 4B on the touch panel menu.

 \rightarrow When you freeze the image at the upper left side, real time image is displayed at the upper right side.

[Remark]

When pressing SELECT or 4B switch, an image is displayed in real time in the order: upper left \rightarrow upper right \rightarrow bottom left \rightarrow bottom right .

- (3) Press the FREEZE switch and then press B switch on the freeze state.
 - \rightarrow Each time you press the B switch, the request image switches over. You can also perform a 2-part screen request using the B/B switch.
- (4) Once again, press the FREEZE switch to unfreeze the image.
 - \rightarrow The specified image (image bearing the [] mark) is displayed in real time.

3-1-2. Direct to B

If you have set Direct to B to Immediate on the Preset, you will return from either the M image or Doppler (B FLOW/ M Flow, PW or CW) display in B FLOW mode, to the B mode (2D) by pressing on the B Mode switch. When Direct to B has been set to Off, you will return to the B Flow mode.

[Remark]

When Direct to B has been set to 0.3 or 0.5 sec in the Preset, you can return to the B mode (2D) by pressing on the B Mode switch and keeping it depressed momentarily.

[Remark]

Set the function to operate B mode switch(press and momentarily hold) by Preset. Refer to Section 7-3. "Common Preset"



3-2. Tissue Harmonic Echo

This mode receives ultrasound waves at a frequency equal to twice that used in the conventional B mode or M mode, and performs image processing at the second harmonic wave reflected from the patient's tissue, resulting in a clear image that is free from artifacts such as side lobes. Particularly, this mode offers improved image diagnosis of patients that do not readily transmit ultrasound wave signals. This function is limited to certain probes that have a wider frequency band than conventional probes.

Because the receiving frequency is high, the sensitivity sometimes falls off slightly. When examining a patient, take care that the sensitivity is adequate.

The corresponding probe has some restrictions on operation. (If you are using a probe that does not support this function, you cannot enter the function from the menu.)

\land Note

You cannot use this function on the second harmonic wave obtained as a result of using an ultrasound contrast medium or medication.

In addition, the ExPHD (T.H.E.) function provides higher resolution B mode and M mode images by removing redundant secondary higher harmonics.

3-2-1. Basic operation procedure

- T.H.E.
- (1) Obtain optimum ultrasound image.
- (2) Press the T.H.E. on the touch panel menu.
 - \rightarrow Receiving frequency doubles.

[Remark]

Several image parameters an be adjusted using the IP Select (B), and when the frequency is changed, it is regulated with Image Freq (B/M). The frequency can be adjusted in four settings at the maximum.

(3) Press the T.H.E. on the touch panel menu again.

 \rightarrow T.H.E. is finished.

• ExPHD(T.H.E.)

- (1) Obtain optimum ultrasound image.
- (2) Press the ExPHD(T.H.E.) on the touch panel menu.
 - → Receiving frequency doubles. In addition, the ExPHD (T.H.E.) function provides clearer B mode and M mode images by removing the extra components of the second harmonics.

[Remark]

Several image parameters an be adjusted using the IP Select (B), and when the frequency is changed, it is regulated with Image Freq (B/M). The frequency can be adjusted in four settings at the maximum.

- (3) Press the ExPHD(T.H.E.) on the touch panel menu.
 - \rightarrow ExPHD(T.H.E.) is finished.

3-3. B/M and M modes

The M mode is a mode, that fixes an ultrasound beam on one straight line on a B mode image to display and observe the movement of a ultrasound wave reflector that is on a straight line with a time course. The B/M mode is a mode displaying B mode image and M mode image simultaneously. The M mode image can be observed while confirming a search position with B mode image. On the B mode image, a dotted line is displayed. This dotted line is called a cursor.

When it is not on freeze, scale lines are displayed only on the top and bottom edge on the M mode image.

A scale such as the chart below is displayed when it freezes.



A scale is displayed in a depth direction by 1cm (when a depth display is 6cm or less, equals to 0.5cm) and in a time course 0.5sec.

3-3-1. Basic operation procedure

<B/M,M mode>

- (1) Press the M switch.
 - \rightarrow The B mode and M mode images are displayed simultaneously in real time.
- (2) While the CURSOR switch is lit orange, roll the trackball left or right.
 - → The cursor on the B mode image moves left or right, and the part indicated by the cursor is displayed as an M mode image.
- (3) Adjust the gain and contrast so as to obtain a satisfactory image.
- (4) Once you have obtained a satisfactory image, press the FREEZE switch.
 - \rightarrow Both the B and M images freeze.

[Remark]

If you wish to freeze only one of the images, press the SELECT switch. Each time you press this switch, the image switches in the sequence B freeze \rightarrow M freeze \rightarrow B freeze.

- (5) Once again, press the FREEZE switch.
 - \rightarrow Unfreeze both the B and M mode images.

[Remark]

When only one side on freeze, both images turn to real time display by pressing the M switch.

[Remark]

When only M mode image is required to display in real time with a full screen, press the Full M/D switch.

<M-WINDOW function>

This function displays an M mode image in enlarged form.

- (1) While the CURSOR switch is lit orange, turn rotary encoder 4.
 - → Turning the rotary encoder1 clockwise, reduce the size of the window. Turning the rotary encoder1 counterclockwise, enlarge the size of the window.
- (2) Using the trackball, move the window.
 - \rightarrow An M mode image in the range of the window is displayed.
- (3) Finish the function.
 - \rightarrow When the rotary encoder 4 is turned to the utmost left side, the function is finished.

<Free angular M-mode>(Option:SOP-ALPHA6-5 is necessary)

This function is for creating an M mode image from the information obtained from the free angular M mode cursor that has been set optionally over a B mode image. You can create an M mode image even on a B mode image saved by the Cine memory.

<u>∧</u> Note

Operate on a black and white image.

- (1) Display a satisfactory B mode image.
- (2) Press the CURSOR switch twice or select the FAM on the touch panel menu.
 - \rightarrow A solid line cursor for a free angular M-mode is displayed centrally on the B mode image.



(3) Using the trackball, move the M cursor arbitrarily up, down, left and right, and then randomly rotate the M cursor using the rotary encoder 4.



- (4) After positioning the free angular M-mode cursor, press the M switch.
 - \rightarrow On the B/M mode image, the M mode image on the free angular M mode cursor is displayed.



(5) Once you have obtained a satisfactory image, press the FREEZE switch.

[Remark]

In searching for an M mode image, use the trackball and for the B mode image, use the rotary encoder 4.

[Remark]

If the Trace Fit turns Off on the touch panel menu, a zoom which applied for at M mode image can be changed by the MAG (FAM) on the menu.

- (6) After releasing the freeze, press the CURSOR switch again, or turn FAM off on the touch panel.
 - \rightarrow The optional M mode is finished.

[Remark]

When disposing images taken in by Cine-memory, operate it as in the course of (2) to (4) above.

After the creation of M mode image is completed, a request for the image becomes possible.

[Remark]

To perform free angular M mode in a B mode image captured as a line moving image, bring loop play to a stop on the full screen display of the Review function, then press the CURSOR switch, or press FAM on the touch panel menu. The cursor is displayed, so proceed with operations (3) to (4).

<Simultaneous display of plural free angular M-mode cursors>

This function is for creating multiple Mode images, displaying multiple M mode cursors on optional locations of a B mode image. You can create an image even on a B mode image taken in by the Cine memory.

Before starting an operation, specify the number of M cursors in the Multi FAM on the menu.

The maximum number of M cursor displayed is three.

\land Note

Operate on a black and white image.

<Example: When displaying three M cursors>

- (1) Display a satisfactory B mode image.
- (2) Press the CURSOR switch twice or select the FAM on the touch panel menu.
 - \rightarrow The No.1 cursor (A) is displayed.
- (3) Moving the free angular M-mode cursor with the trackball from side to side or up and down, you can turn the cursor with the rotary encoder 4. The size of the free angular M-mode cursor is adjustable with the Cursor Size on the menu.
- (4) Press the ENTER switch.
 - → The second cursor (B) is displayed.
 Furthermore, by pressing the ENTER switch, the third cursor (C) is displayed.



- (5) When all the cursors are displayed, press the ENTER switch.
 - → By pressing the ENTER switch every time, you can change the active state of cursor in the sequence of $A \rightarrow B \rightarrow C \rightarrow A$.

[Remark]

The active state of cursor is deleted by selecting the Active FAM Off on the menu.

[Remark]

The solid line of M mode cursor expresses a display range of M mode image.

- (6) Press the M switch.
 - \rightarrow By the number of displayed M mode cursors, M mode images are displayed up and down separately.

[Remark]

When disposing an image acquired by the cine memory, operate it as shown in (2) through (6).

[Remark]

To perform free angular M mode in a B mode image captured as a line moving image, bring loop play to a stop on the full screen display of the Review func-

tion, then press the CURSOR switch, or press FAM on the touch panel menu. The cursor is displayed, so proceed with operations (3) to (6).



<Cursor display for a free angular M-mode minor axis cross-section image>

In order to display on M mode of left ventricle minor axis simply and easy, you can display three cursors (or two cursors) simultaneously, and able to display a free angular M-mode image.

\land Note

Operate on a black and white image.

- (1) Display a satisfactory B mode image of left ventricular short-axis.
- (2) Press the CURSOR switch twice or select the FAM on the touch panel menu.
 - \rightarrow A free angular M-mode cursor is displayed on the screen.
- (3) Turn the PSAX on a menu ON.
 - \rightarrow Three free angular M mode cursors segmenting with 60 degrees angle centrally are displayed on a screen.
- (4) Using the trackball, simultaneously move the three cursors to a position above the left ventricular short-axis image.
- (5) Rotate the cursor with the rotary encoder 4.
- (6) Press the M switch.
 - \rightarrow The M mode is displayed dividing into three parts up and down.

[Remark]

To change the number of cursors to two (90°), turn the Multi FAM on the menu to 2.

[Remark]

When disposing an image saved by the cine memory, operate it as shown in (2) through (6) above.

[Remark]

To perform B mode image captured as a line moving image, bring loop play to a stop on the full screen display of the Review function, then press the CURSOR switch, or press FAM on the touch panel menu. The cursor is displayed, so proceed with operations (3) to (6).





3-4. B/D and D modes

The D mode displays the data of the blood flow and the cardiac muscle tissues in the heart and the blood vessels. The blood flow information displayed in this mode is called a D mode image. A D mode image is not an image of a part of the body, but is a graph of blood flow information. For this reason, it is also called a Doppler pattern.

The B/D mode is a mode in which a B mode image and a D mode image are displayed simultaneously. It enables you to observe blood flow information on a D mode image while checking the B mode image to see what part of the body the detected blood flow information belongs to.

The following two kinds of ultrasound beams are used to display a D mode image.

- (1) PW Doppler: The ultrasound beam is emitted as discrete pulses, and a D mode image displayed. You can obtain blood flow information concerning any point on a B mode image.
- (2) CW Doppler: The ultrasound beam is emitted continuously, and a D mode image displayed. CW Doppler is suitable for obtaining high speed flow data for evaluating the severity of mitral stenosis, aortic stenosis, regurgitation, and so on.

3-4-1. Basic operation procedure

<B/D mode>

- (1) Press the PW switch.
 - → B mode image and D mode image are displayed according to the setting of Triplex Mode and Simul Mode with a preset.

(Refer to the following.)

In the case of Triplex

When the B mode is changed to the B/D mode, both the B mode and D mode images are displayed in real time.



In the case of B-Real

When the B mode is changed to the B/D mode, the B mode image is displayed in real time while D mode image is displayed in a blank state.



In the case of D-Real

When B mode is changed to a B/D mode on using the PW sound On, the B mode image is frozen and the D mode image is displayed in real time.

When the PW Sound On is not used, this function operates as is the case with B-Real.



[Remark]

If you press the SELECT switch while both B and D mode images are displayed in real time, the B image freezes, and the D mode image is displayed in real time. If you then press the SELECT switch again, the images displayed in real time switch over. If you press the PW switch when only one image is displayed in real time, both images will be displayed in real time.



- (2) While the CURSOR switch is lit orange, set the velocity detection position using the trackball.
 - → The sample volume on B mode image moves, and the velocity over the sample volume is displayed on D mode image.
 Depending on your objective, set the sample volume level using SAMPLE VOLUME on the touch panel.
- (3) Adjust the velocity range with the VEL RANGE.
- (4) When there is a discrepancy in the incident angle of the ultrasonic waves and the blood vessel, correct this difference in angles by using Angle Correct on the touch panel.
- (5) Adjust the gain with the MULTI GAIN switch.Adjust D mode image with the CONTRAST(D) on the touch panel menu.

[Remark]

You can move the baseline by using the CURSOR switch and rotary encoder 4.

- (6) If a satisfactory image is obtained, press the FREEZE switch.
 - \rightarrow Both the B mode and D mode images freeze.

[Remark]

When you wish to freeze only one of these images, press the SELECT switch.

Each time you press this switch, the image that freezes switches over in the sequence B freeze \rightarrow D freeze \rightarrow B freeze, and so on.

[Remark]

When you wish to display only the D mode image in real time over the entire screen, press the **Request** on the touch panel menu.

3-5. Flow mode, Power Flow mode, eFlow mode

This function displays data concerning flow inside blood vessels and also the velocity of the cardiac muscle tissue by displaying color on a B mode image.

Like other Doppler modes, Doppler information is obtained from the change in the approaching and receding blood flow.

3-5-1. Basic operation procedure

<Flow display>

- (1) Display a satisfactory B mode image.
- (2) Press the FLOW switch.
 - \rightarrow The blood flow data is displayed in color on the B mode image. The flow component that approaches the probe is displayed in red, and the component that moves away from the probe is displayed in blue.

[Remark]

Red and blue may be reversed depending upon the set conditions such as Color Polarity.

- (3) Press the SCAN AREA switch.
 - \rightarrow You can move the flow area using the trackball.
- (4) Press the ENTER switch.
 - \rightarrow The frame of the flow area is indicated by solid lines. You can enlarge or reduce the enclosed area by using the trackball.



[Remark]

If you turn rotary encoder 4 while the SCAN AREA switch is lit orange, the black and white area is enlarged or reduced in the horizontal direction.

[Remark]

The width of the flow area is always displayed smaller than the width of the black and white area. If you performed an operation that results in the width of the flow area becoming greater, the area being changed has priority, and the size of the black and white area is automatically adjusted.

(5) Press the ENTER switch.

 \rightarrow The frame of the flow area is displayed as a dotted line, and the flow area shift function is re-activated.

- (6) Rotate the MULTI GAIN switch so as to adjust the flow sensitivity.
- (7) The flow velocity range is changed with the VEL RANGE.
 - \rightarrow At the time of a slow bloodstream, a flow velocity range is lowered. At the time of a fast bloodstream, a flow velocity range is increased.

[Remark]

A change in the flow velocity range, there may change the size of a flow area.

(8) If a satisfactory image is obtained, press the FREEZE switch. The image becomes frozen (still).

<Power Flow display>

This function colors the image according to the intensity (area) of the Doppler signals. This function has the sensitivity about slow blood flows.

- (1) Display a satisfactory B mode image.
- (2) Press the POWER FLOW on the touch panel.

[Remark]

When POWER FLOW is not displayed on the touch panel, assign it using the Preset. Refer to Section 7-11. "Menu-User SW Assign, -Group Assign, -Function Assign, Menu Analysis".

(3) The flow velocity range is changed with the VEL RANGE.

[Remark]

A change in the flow velocity range, there may change the size of a flow area.

(4) If a satisfactory image is obtained, press the FREEZE switch. The image becomes frozen.

<Black and white/Color real-time images simultaneous display: DDD>

This function can display a color (power flow) real-time image and a black and white real-time image on the right and left side of the screen at the same time.

- (1) Press the B switch to display the 1B mode image.
- (2) Press the FLOW switch.
 - \rightarrow Colors are displayed on the B mode image.

Press the POWER FLOW on the touch panel to display the power flow.

[Remark]

When POWER FLOW is not displayed on the touch panel, assign it using the Preset. Refer to Section 7-11. "Menu-User SW Assign, -Group Assign, -Function Assign, Menu Analysis".

- (3) Press the DDD switch on the touch panel menu.
 - → The B mode image on the left side of the screen is displayed in black and white, and the B mode image on the right side is displayed in color (power flow).
 Both images are displayed as the real-time image, and they show the same image.
- (4) Press the DDD switch on the touch panel menu or another mode switch.
 - \rightarrow The Black and white/Color real-time images simultaneous display is finished.

<Directional Power Flow display >

This function adds a color consideration of directionality to the conventional power flow display.

(1) Press the POWER FLOW on the touch panel.

[Remark]

When POWER FLOW is not displayed on the touch panel, assign it using the Preset. Refer to Section 7-11. "Menu-User SW Assign, -Group Assign, -Function Assign, Menu Analysis".

- (2) Press the Directional(Flow) on the touch panel menu.
 - \rightarrow Start a Directional Power Flow mode.
- (3) Operate the same procedure as in a flow display.

<eFlow display >

This function observes a bloodstream finely with the power flow display of a high resolution.

- (1) Display a satisfactory B mode image.
- (2) Press the eFLOW switch.
- (3) The flow velocity range is changed with the VEL RANGE.

[Remark]

A change in the flow velocity range, there may change the size of a flow area.

(4) If a satisfactory image is obtained, press the FREEZE switch. The image becomes frozen.

<Directional eFlow display >

This function adds a color consideration of directionality to the power flow display.

- (1) Press the eFLOW switch.
- (2) Select the Directional eFlow on the menu.
 - \rightarrow Start a Directional eFlow mode.
- (3) Operate the same procedure as in a flow display.

3-6. Tissue Doppler Imaging display

The Tissue Doppler Imaging (TDI) display is intended to make visible the motion of the cardiac muscle tissue, and so on. It thus differs from the target Doppler display which is intended to show normal blood flow.

3-6-1. Basic operation procedure

If the TDI switch on the touch panel menu is pressed, FLOW, POWER FLOW, PW become TDI mode.

<Displaying TDI FLOW image>

- (1) Obtain optimum B mode image and press the TDI from the touch panel menu.
- (2) Press the FLOW switch on the operation panel.
 - ® It becomes a TDI FLOW display.
- (3) Press the TDI again.
 - ® It becomes a Conventional FLOW display.

<Displaying TDI PW image>

- When the TDI is on, press the PW switch on the operation panel.R It becomes TDI PW display.
- (2) Press the TDI again.
 - ® It becomes a normal PW display.

4. SAVE OF IMAGE

4-1. Search

A search function is a function that temporarily stores an image in the memory of the instrument before the image is frozen, so that you can observe the image after it has been frozen.

Even if you miss the freeze timing, you can search the necessary image from previously displayed images.

When used together with ECG waveform, this function displays a scale and a search mark for searching an image in a certain time phase.

The search has a search mode that enables B mode images to be observed, and a scroll function that enables M mode images or D mode images to be observed.

If multiple images are displayed, such as in the 2B, B/M, B/PW and CW mode, you can store each image separately and observe it. However, when one of the images is displayed in real-time, you cannot perform either a search or a scrolling operation.

\land Note

Keep the following points in mind when using the search.

The amount of image data that can be held in the memory differs depending upon the probe used, the display mode, display depth and other image display conditions. It is not constant.

\land Note

Keep the following points in mind when using the search.

(1) Only images held in the memory can be searched or scrolled.

If you freeze an image immediately after releasing the freeze state, you can search or scroll the images held in the memory during this interval, even if the memory is not filled to capacity.

If the capacity of the memory is exceeded, images in the memory are erased in the sequence from the oldest image from the point where the image was frozen.

You cannot perform a search or scroll operation on an erased image.

(2) When you cancel the freeze condition, the images held in the memory up to that point in time are deleted.

4-1-1. Search and scroll function

<Search function>

If you perform a forward search until the newest image in the memory is displayed, then continue further, the oldest image re-appears, and a forward search takes place again.



<Scroll function>

If you perform a forward scroll until the newest image in the memory is displayed, the scroll operation is terminated at that point. (A loop is not created as in the case of a search.)



<Search number>

If you freeze an image, a search number is displayed on the screen.

The displayed position differs depending upon the mode. (There is no display related to the scroll function.)





4-1-2. Basic Operation Procedure

<Searching and scrolling B, M or PW, and CW mode images>

- (1) Press the FREEZE switch.
 - \rightarrow The image is frozen.
- (2) Press the SEARCH switch.
 - \rightarrow It is ready for searching and scrolling.

[Remark]

With the TrackBall Priority function of a preset, a search and scroll can be done automatically at the time of freeze without pressing the SEARCH switch.

- (3) Using the trackball, perform a search or scrolling operating inside the necessary image range.
 - → Rolling the trackball to the right causes a search or scrolling operation to take place in the forward direction, and rolling it to the left causes the search or scrolling operation to take place in the reverse direction.



<Searching and scrolling B/M, B/PW, and CW mode images>

- (1) Press the FREEZE switch.
 - \rightarrow The image is frozen and a search number is displayed on the B mode image.
- (2) Press the SEARCH switch.
 - \rightarrow It is ready for search and scroll.

[Remark]

With the TrackBall Priority function of a preset, search and scroll can be performed automatically at the time of freeze without pressing the SEARCH switch.

- (3) Using the trackball, search and scroll a desired image range.
 - → When M, PW, and CW mode images are active, these images are scrolled with the trackball, and B mode image can be searched with the rotary encoder 4.

[Remark]

When the active and non-active images are changed over by pressing the SELECT switch, the trackball searches B mode images, and rotary encoder4 searches the M mode image and the D mode image.

[Remark]

If you call one image with the request function, the image can be searched or scrolled. You can perform a search or scrolling operation using the trackball.

4-1-3. Cine scale and search mark

If you operate the search while an ECG waveform is displayed, the search mark are displayed on the ECG waveform. [Remark]

In the case of B or 2B display, a search mark is displayed.

This enables you to readily obtain a grasp of the memory capacity, the ratio of one frame to the capacity, and the time phase on the ECG waveform of the currently displayed image.



Fig. Cine scale and search mark

Search mark : The search mark moves along with the progress of a search, and with the search mark, it is known the position for the image in the memory and the time phase on an ECG waveform pattern.

4-1-4. Loop playback function

This function continuously plays back images stored in the cine memory (loop playback). Loop playback can be performed in the 1B, 2B and 4B modes.

4-1-4-1. Operating method of loop playback

(1) Press the SEARCH switch, then rotate the trackball upward.

 \rightarrow Loop playback starts.

[Remark]

During loop playback, the search mark does not appear on the cine scale.

In the loop playback section, ECG Cycle and Time Cycle of a heartbeat setting and a time/minute period are the subjects with a starting point after freeze.

When changing loop playback section, refer to Section 4-1-4-2. "OPERATING METHOD OF SET THE LOOP PLAYBACK RANGE".

(2) Set the loop production speed.

 \rightarrow The speed slows when the trackball is rotated downward. The speed increases when the trackball is rotated upward.

[Remark]

When the speed to play back is slowed, it becomes a slow motion playback. A frame rate is displayed at the position of the search number.

- (3) Turns the trackball from side to side.
 - \rightarrow The loop playback is finished.

[Remark]

At this time a search mark is displayed at the time phase position of the displayed image.

4-1-4-2. Operating method of set the loop playback range

You can set the loop point to any desired position.

- (1) Press the SEARCH switch, then roll the trackball to display the starting frame of the loop.
- (2) Press the ENTER switch to finalize the starting point.
 - \rightarrow The time phase setting mark is displayed.
- (3) Using the trackball, display the end frame of the loop.
- (4) Press the ENTER switch to finalize the end point.
 - \rightarrow The time phase setting mark is displayed.

[Remark]

Pressing the ENTER switch repeatedly finalizes the starting point/end point alternately.

[Remark]

Loop playback takes place between the lower frame number whose time phase was set, as the starting point, and the higher frame number, as the end point.

4.Save of Image

4-1.Search

- (5) Rotate the trackball upward.
 - \rightarrow Images of a designated section are played back in loop.
- (6) Unfreeze the image.
 - \rightarrow The set-up loop playback section is released.

4-1-4-3. Simultaneous loop playback of 2B and 4B images

In the case of the 2B mode and the 4B mode, you can perform loop playback of both the left and right images.

(1) Display the 2B (4B) mode image.

[Remark]

The loop point of each image can be set with the SELECT switch during freeze.

[Remark]

From Preset \rightarrow Display2, press the Search switch if T.B.Priority(Frz On) is set to other than Search.

(2) Rotate the trackball upward.

 \rightarrow Loop playback starts.

- (3) Rotate the trackball right or left.
 - \rightarrow Loop playback finished.

[Remark]

In a B mode such as 2B (4B) mode in which multiple images are acquired, if the number of played back images is different, the playback mode can be changed over by setting Loop Mode in the menu. You can select one of the following four types:

| Long | : | It is adjusted to the B mode which has the greatest number of playback images. A B mode |
|-------|---|--|
| | | with a small number of the playback images will stop the loop playback until the playback of B |
| | | mode with the greatest number of the playback images is completed. |
| Short | : | It is adjusted to the B mode which has the smallest number of playback images. A B mode |

- with a great number of the playback images will stop the loop playback until the playback of B mode with the smallest number of the playback images is completed.
- Align : As a base for playing back time for the greatest number of the B mode images, the playback time for other B mode images are adjusted to the time all the playback images are completed.
- Free Run : The loop playbacks are carried out among B modes independently without synchronizing them.
4-2. Store

Store function enables you to store images using a digital storage function that conforms to the DICOM standard, and also enables you to send data via a digital interface and a network to a personal computer (server). The instrument has the following functions.

- DICOM images, information data and the like are recorded in removable media (USB memory, etc.), CD-Rs (when connected to an optional DDU-100, DDU-200 or DDU-M01), or DVDs (when connected to an optional DDU-200 or DDU-M01) and read out.
- A still image is converted into JPEG, TIFF, and BMP type and a moving image is converted to an AVI type or M-PEG format, the image data is an output to each disk.
- An ultrasonic diagnostic instrument is connected to a network directly, and image data are transmitted to PCs and/ or Network server as a DICOM image.
- Recorded images are arranged in multi-format, and can be printed a DICOM printer.

Images stored under the DICOM standard include not only image data, information data (name, ID, sex, date of birth, etc.) but also comments, a color palette and also the name of the diagnostic instrument and calibration data for performing playback measurement. This is convenient for restudying an image or performing playback measurement.

\land Note

To ensure that the entire system conforms to electrical safety standard IEC60601-1-1, it does not support a commercially available drive. Use each of the drives in the equipment.

<u>∧</u> Note

If you turn off the power switch of the ultrasound diagnostic instrument while recording or reading the data is in progress, a part or all of the data being written to the media or disc may get corrupted, lost or destroyed.. To prevent this, check the following before turning off the power switch of the instrument.

- (1) Confirm that the message "Please wait..." is not displayed on the monitor.
- (2) Confirm that the Busy lamp on each drive is not lit.

\land Note

When vibration is added to a drive having a disk inside, there may be the disk being damaged. When you move the drive, remove the disk from the drive.

▲ Note

In order to prevent accidental erasing of disk data, this instrument does not have any media formatting functions.

\land Note

For USB memory, use a commercially available product in the USB mass storage class, equipped with an access lamp. It is not possible to use memory with an encryption function or capable of recognition

\land Note

Do not remove the USB memory while the access lamp of the USB memory is blinking (during data transfer). This may cause damage of the recorded data.

\land Note

Once you record data to each disk, you cannot subsequently change it or erase it from this instrument (you can read the recorded data and, while leaving the original data on the disk, additionally create data to which a change has been added). Consequently, before recording image data to a disk, check very carefully to ensure that there is no error in the text data (data entered from the keyboard) to be recorded together with it. Particularly, if there is an error in an entry such as the patient's name or patient's ID, it will be difficult to subsequent retrieve image data.

\land Note

To display an acquired still image or moving image file with a PC in the DICOM format, it is necessary to separately purchase DICOM Viewer software.

In addition, an image saved in this instrument can be converted into BMP, TIFF, JPEG, an AVI files using the Export function.

When displaying an image with a PC, the latest image reading software is required (an example: Paint of Microsoft (R), Windows Media Player 9 or more). It is essential to have an image editing and reading software corresponding to commercial BMP, TIFF, JPEG, and AVI files.

• Microsoft and Windows Media Player are registered trademarks of Microsoft Corporation of the U.S.A.

4-2-1. Images and Types feasible to acquire

The digital save and file formats that this instrument supports are as follows:

| Name | Classification | Save type | Media save | Net save | Remark |
|---------------|----------------|----------------------|---------------|-------------|--|
| Image File | Still image | DICOM Palette | 0 | 0 | Some Viewers do not support the image playback of the Palette. ^{*1} The following three kinds are feasible for compression. •Implicit Little Endian (non-compression) •Explicit Little Endian (non-compression) •Run-Length Encoding (reversible compression) |
| | | DICOM RGB | 0 | 0 | The following three kinds are feasible for compression. •Implicit Little Endian (non-compression) •Explicit Little Endian (non-compression) • Run-Length Encoding (reversible compression) |
| | | DICOM JPEG | 0 | 0 | PEG compression is possible, and compressibility can be switched with JPEG Q Factor of Common Preset. |
| | | DICOM Monochrome2 | × | 0 | The following three kinds are feasible for compression. Implicit Little Endian (non-compression) Explicit Little Endian (non-compression) Run-Length Encoding (reversible compression) |
| | | JPEG | 0 | × | Compressibility can be toggled between Preset - Common Preset→Common1→JPEG Q Factor. |
| | | ВМР | 0 | × | |
| | | TIFF | 0 | × | |

Table Images and types which are feasible for taking-in

4-2.Store

| Name | Classification | Save type | Media save | Net save | Remark |
|------|----------------|----------------------|---------------|-------------|--|
| Line | Moving image | Line Format | Δ | Δ | Images saved on disks are corresponding to display, playback, and analysis only within this instrument. These cannot be operable with commercial DICOMViewer software equipped with PC or a server. *2 *3 |
| | | DICOM Monochrome2 | × | 0 | The following three kinds are feasible for compression. ^{*2*3} • Implicit Little Endian (non-compression) • Explicit Little Endian (non-compression) • Run-Length Encoding (reversible compression) |
| | | DICOM RGB | 0 | 0 | The following three kinds are feasible for compression. ^{*2*3} • Implicit Little Endian (non-compression) • Explicit Little Endian (non-compression) • Run-Length Encoding (reversible compression) |
| | | DICOM JPEG | 0 | 0 | JPEG compression is possible, and Compressibility can be toggled between Preset \rightarrow Common Preset \rightarrow DICOM–Store, Send \rightarrow Send to Storage \rightarrow JPEG Q Factor *2*3 |
| | | AVI | 0 | × | |

Table Images and types which are feasible for taking-in

[Remark]

* 1 In DICOM Palette saving for a still image, brightness, flow rate, dispersion and color information are saved separately. Flow mode and color may be not displayed in some Viewer.

[Remark]

* 2 When saving a moving image as DICOM or AVI in this instrument, acquire the moving picture as Line data, and convert the Line data to Image data in the REVIEW screen to save it. The converted image can be saved as non-compressed DICOM Multiframe, JPG-compressed DICOM Multiframe, or AVI data that can be played back on a PC.

[Remark]

* 3 Line data is Aloka's private file format which is used for analyzing the instrument. It has superior time resolution. When image data is transferred in this format to the playback memory in the instrument, it can be displayed, played back or analyzed as the same image as the original real time image. However, it cannot be displayed using commercially available DICOM Viewer software installed in a PC or a server.

| Name | Classifi cation | Save type | Media save | Net save | Remark | |
|------------|--------------------|------------|---------------|-------------|--|--|
| Image File | Still image | DICOM JPEG | 0 | 0 | JPEG compression is possible. Compressibility can be toggled between Common3 Preset→DDU-M01(Video Clip Unit)→JPEG Q Factor. | |
| | | JPEG | 0 | × | Compressibility can be toggled between Common3 Preset→DDU-M01(Video Clip Unit)→JPEG Q Factor. | |
| | | BMP | 0 | × | | |
| | | TIFF | 0 | × | | |
| | Moving image | DICOM JPEG | 0 | 0 | JPEG compression is possible. Compressibility can be toggled between Common3 Preset→DDU- M01(Video Clip Unit)→JPEG Q Factor. | |
| | | AVI | 0 | × | | |
| | | AVI | 0 | × | | |

When the optional DDU-M01 has been utilized, the digital save and file formats are as follows:

Table Images and types which are feasible for taking-in

[Remark]

When the DDU-M01 has been utilized, JPEG compression will be required for images when saving them. When saving images with something other than JPEG, the compressed image will convert to BMP, TIFF or AVI format, leading to image degradation.

4-2-2. DDU-200, DV-800(B) and DDU-M01 disc operations

[Remark]

When using a cartridge-type DVD-RAM with a drive that is not compatible with DVD-RAM cartridges, remove the disc from the cartridge before loading it in the tray. This will have no effect with regards to recording and playing the disc.

[Remark]

The drives of DDU-200, DV-800(B) and DDU-M01 are enabled for DVD-RAM cartridges. Follow the operations indicated below to insert and eject discs using these cartridge-enabled drives.

4-2-2-1. DVD-RAM Disc

<Operation method>

- (1) Place the DVD-RAM disc on the tray with printed side of the shutter facing up.
- (2) Press lightly on the DVD-RAM disc towards the drive.
- (3) Press lightly on the label of the DVD-RAM disc to prevent it from sticking up and insert into the tray.



4-2-2-2. DVD-RAM without Cartridges and CD-R

- Place the front of the disc beneath the stopper and the back of the disc beneath the disc holders and in the disc guides on both sides.
- The disc will not work properly if it is placed on top of the disc holders or disc guides, or otherwise incorrectly placed. This may also result in scratches or other damage to the disc.

<Operation method>

- (1) Place the front of the disc beneath the stopper.
- (2) Place the back of the disc beneath disc holders 1 and 2.
- (3) Align the disc with the inner sides of the disc guides and set it in place.



4-2-2-3. The handling of media

The following restrictions apply to recording density and speed for DVDs and CD-R media that are supported by DDU-200, DV-800(B) or DDU-M01.

- DVD-RAM 4.7G For double-sided discs, media with 9.4 G/3x or 5x recording speed
- DVD+R 4.7G Media with 4x or 8x recording speed. Only for DV-800(B) or DDU-M01
- CD-R 640M Media with 24x recording speed. DV-800(B) excluded

▲ Note

For double-sided DVD-RAM discs, both sides of the disc cannot be used. Use only one side of the disc.

/Ŷ Note

If the surface to be recorded is dirty, use a commercially available disc cleaner to clean it prior to use. Cartridge-less media are especially vulnerable to dust and fingerprints, so be careful when handling. When the disc surface is dirty, malfunctions may occur, leading to a substantial increase in the amount of time required for recording.

4-2-2-4. Optional devices that are necessary for connection

The following optional equipment is necessary to connect DDU-100, DDU-200, DV-800(B) or DDU-M01 units to this instrument.

- DDU-100 PM-A6-H005
- DDU-200 PM-A6-H005
- DV-800(B) PM-A6-H004
- DDU-M01 PM-A6-H004

4-2-3. Setting of acquiring methods

4-2-3-1. Acquire Mode

This function sets the mode to acquire a moving image. It can be set with a preset or the menu.

- Pre Time : Acquires moving images displayed just before pressing the STORE switch within a time (1-16 seconds) set beforehand.
- Pre ECG : A moving image is acquired for the set number (1 to 10 heartbeat) of R-waves prior to when the STORE switch was pressed.
- Post Time : Acquires moving images displayed just after pressing the STORE switch within a time (1-16 seconds) set beforehand.
- Post ECG : A moving image is acquired for the set number (1 to 10 heartbeat) of R-waves after the STORE switch was pressed.
- Manual : Acquires images from immediately after the STORE switch was pressed until the STORE switch is pressed again.



4-2-3-2. ECG Cycle

When the Acquire Mode is set in Pre ECG or Post ECG, the number of heartbeats can be set. It can be set with a preset or a menu.

1-10 (cycle) : It is set between one and ten heartbeat.(integer value)

4-2-3-3. Time Cycle

When Acquire Mode is set either in Pre Time or Post Time, it sets the acquire time. It can be set with a preset or a menu.

1-16sec : Acquire time is set for 1 and 16 seconds (integer value).

4-2-4. Setting of Acquire data

4-2-4-1. Format Type (Single)

The classification of data is set when a still image is acquired. It is set with a preset.

| DICOM | : Still image is saved with a DICOM type. |
|-------|---|
| JPG | : Still image is saved with a JPEG type. |
| BMP | : Still image is saved with a BMP type. |
| TIFF | : Still image is saved with a TIFF type. |

4-2-4-2. Store Media

When a still image and a moving image are acquired, you can set the destination to save. You can save with the Format Type(single or multi). It can be set with a preset or a menu.

| HDD | : An image is saved in HDD. A moving image of Line is always saved in HDD. |
|-------------|---|
| Media | : An image is directly saved to the Removable Media. |
| CD-R Buffer | : It is saved in the buffer for CD-R writing. After saving, it can be saved to a CD-R disk from the |
| | CD-R drive with a CD-R writing software on the Review screen. |
| DVD | : An image is directly saved to the DVD when DDU-200 is connected to the unit. |
| NET(DICOM) | : An image is saved to a network server. The images are always saved with the DICOM type. |

[Remark]

When sending data to the DICOM server using NET (DICOM), only still images can be saved. To send a moving image to the server, press the REVIEW switch to display the REVIEW screen, and then select an image to send it.

4-2-5. Basic Operation Procedure

Using the STORE switch, you can directly store the currently displayed image data to the HDD of the instrument, removable media (USB memory, etc.), a CD-R buffer or a DVD, or to a server on the network. The save destination for the image data is set with Store Media. If an optional DDU-M01 has been connected, you can use the DDU-M01 STORE switch to store DICOM files or JPEG, BMP, TIFF or AVI images in the DDU-M01 HDD, DVD-RAMs, DVD+Rs, or CD-Rs.

4-2-5-1. Saving a still image

The format to save the still image of this instrument is the DIOCM type or BMP, TIFF, and JPEG types. With this DIOCM type, the Palette containing flow rate, brightness, and decentralized information and RGB as color information are available. Some RGB is also possible for compression setting. Furthermore, the DICOM types can be added with patient information and scale factor information.

<Operation method>

- (1) Press the FREEZE switch.
- (2) Search for the image to store from the cine memory, and display it.
- (3) Press the STORE switch.
 - → The still image is stored in the destination to save which is set with Store Media.
 When the images are stored in the hard disk of this instrument, the thumbnail is displayed in the right side of the screen.



[Remark]

The image number is displayed on the thumbnail. Image numbers are [Series- serial number]. The numbers here correspond to the image numbers used in the Image Viewer in Section 4-3. "REVIEW", and in the search result screen.

4-2-5-2. Saving B mode moving image

The moving image save method of B mode is as follows.

- 1) Method to save a moving image for a designated period of time in real time
- 2) Method to save a moving image for a designated heart rate in real time
- 3) Method to save a moving image for a voluntary time period in real time
- 4) Method to save the designated section after confirming it with Loop after freeze

The moving image of this function can be saved with the Line data. If the Line which contains flow rate, brightness, and decentralized information is saved, the display, playback, and analysis, with this instrument are feasible but it is unable to play back with other commercial DICOM Viewers with other external PCs. When a moving image is displayed or played back with external PCs, there are the following two methods:

- Convert Line to an AVI file.
- Convert Line to Multi Image and make it a Dicom Multi Image file.

AVI moving images saved in Line are only for B, B/Flow, B/Power, and B/eFlow mode. The B/M, M, B/PW, PW, B/CW, CW and M/PW modes cannot be saved.

Line moving images are only saved if the display depth is 2cm or more. Display depths of less than 2cm cannot be saved.

1) Method to save a moving image for a designated period of time in real time

- (1) Display a real time image and press the STORE switch.
 - \rightarrow <When the acquire method is Pre Time, and Auto Loop setting of preset is On>

A moving image for the time equivalence set in Time Cycle starting the point which is retrospective from the point that the STORE switch is pressed is played back in loop. During that time, the real time image is interrupted. The moving image for that duration played back in loop is saved, so that confirm it, and then after checking it, press the STORE switch again. When the save is canceled, press the CAN-CEL switch. When the duration played back in loop is wanted to change, the section change can be made while maintaining the time portion that was set in the Time Cycle by turning the rotary encoder 4 to an anti-clock direction.

(It skips every frame which was acquired while maintaining designated time set in Time Cycle)



→ < When the acquire method is on Post Time, or the Auto Loop setting is Off> Finish the acquire operation as step (2).

[Remark]

When interrupting the save during acquire a moving image, press the CANCEL switch. The save is canceled, and a real time image is returned.

[Remark]

When the FREEZE switch is pressed during acquisition of moving images, the acquisition is canceled. In the case of Line, the data saved is canceled, but the past image data in Cine memory is not cleared.

When a moving image is saved with a Line, the graphic displayed on the image is not added to a thumbnail showing the save. When an image is displayed in full-screen with the Review function of this instrument, the graphic is added.

- (2) Finishing the acquire operation.
 - → The time set with the Time Cycle is saved as moving image data. The moving image is saved in the save destination designated with the Store Media, and in the case of HDD in this instrument, a thumbnail is displayed on the right side of the screen.
 - \rightarrow After saving, it automatically returns to a real time image.

2) Method to save a moving image for a designated heart rate in real time

- (1) Display the real time image, and press the STORE switch.
 - \rightarrow <When the acquire method is Pre ECG and Auto Loop setting of a preset is On>

With the retrospective from the point that the STORE switch is pressed, a moving image for the duration equivalent to heart rates which were set with the ECG Cycle is played back in loop. Then, a real time image is interrupted at that time. Because the moving image for the duration which is played back in loop is saved, after checking and confirming the moving image, press the STORE switch again. When the save is canceled, press the CANCEL switch.

When the heart rate played back in loop is wanted to change, the duration change can be performed while maintaining the heart rate section that was set in ECG Cycle by turning the rotary encoder 4 to an anticlock direction.

(It skips every heart rate that was aquired while maintaining heart rate set with the ECG Cycle.)



→ < When the acquire method is Post ECG or Auto Loop setting is Off> Finish the acquire operation as in (2).

[Remark]

When ECG is not displayed on an image, it is automatically switched to a designated acquire time.

When R-wave of ECG is not detected during an acquiring, it is judged that it is abnormal, the acquiring shall be canceled.

[Remark]

When a save is canceled during a moving image acquiring on the way, press the CANCEL switch. The save is canceled, and a real time image is returned.

[Remark]

Even if the FREEZE switch is pressed while acquiring moving images, the acquiring is canceled. In the case with the Line, even if data save is canceled, the past image data in Cine memory is not cleared.

[Remark]

When a moving image is saved with the Line, the graphic displayed on an image is not added to the thumbnail showing the save.

The graphic is added, when an image is displayed in full-screen with the Review function in the main body.

When the frame rate is slow, a situation may occur that prevents saving the image for a designated heart beat precisely.

- (2) Finish the acquiring.
 - → Time set with the ECG Cycle saves it as moving image data. A moving image is saved in a save destination designated by the Store Media, and, in the case of HDD in this instrument, a thumbnail is displayed on the right side of the screen.
 - \rightarrow After the saving is finished, a real time image is automatically returned.

3) Method to save a moving image for a voluntary time period in real time

- (1) Display a real time image, and press the STORE switch.
 - \rightarrow When the Manual is set in Acquire Mode, the moving image data for the voluntary time period are saved. The acquiring is started in the case of the Manual by pressing the STORE switch initially.

[Remark]

When the save is canceled during a moving image acquiring on the way, press the CANCEL switch. The save is canceled, and returns to a real time image.

[Remark]

Even if the FREEZE switch is pressed while acquiring moving images, the acquiring is canceled. In the case of Line, even if data saving is canceled, the past image data in Cine memory is not cleared.

- (2) Press the STORE switch again at the end of the acquiring.
 - \rightarrow The moving image is saved in the save destination designated by the Store Media, and in the case of HDD in this instrument, a thumbnail is displayed on the right side of the screen.

[Remark]

When a moving image is saved with the Line, a graphic displayed on an image is not added to a thumbnail showing the save.

The graphic is added, when an image is displayed in full-screen with the Review function in this instrument.

- (3) Finish the acquiring.
 - \rightarrow The image is automatically returned to real time.

4) Method to save the designated section after confirming it with Loop after freeze

- (1) Display a real time image and press the FREEZE switch.
- (2) Press the SEARCH switch and rotate the trackball, and display the image that is desired of saving.
- (3) Rotate the trackball upward and start a loop playback.
 - \rightarrow Moving images corresponding to the time equivalence set by Time Cycle and ECG Cycle and a heart rate are played back in loop. When the image which is wanted to save is changed, finish the loop playback and repeat it again from (2).

- (4) Press the STORE switch during the play-back-in-loop.
 - \rightarrow A moving image played back in loop is saved in a save destination designated by the Store Media, and in the case of HDD with this instrument, a thumbnail is displayed on the right side of the screen.

When a loop playback section to is change by manual operation, after the operation of (2), settle the start point and the end point with pressing the ENTER switch, and then start a loop playback. But, when the ENTER switch is pressed once, until the freeze is removed, it is necessary to set the loop playback section with manual handling.

[Remark]

When a moving image is saved with the Line, the graphic displayed on an image is not added to a thumbnail to show the save. The graphic is added, when an image is displayed in full-screen with the Review function of this instrument.

- (5) Finish the acquiring.
 - \rightarrow Returns to a loop playback.

4-2-6. STORE(DDU-M01 HDD)

If an optional DDU-M01 has been connected, you must use preset and assign the switch used for storing data to a switch on the operation panel. For detail, refer to Section 7-12. "CUSTOM SW,-FOOT SW,-KEYBOARD".

[Remark]

An image saved to DDU-M01 will not be saved to the save destination specified by Store Media. All data will be saved to the HDD of the DDU-M01.

[Remark]

An image saved to DDU-M01 will not be displayed on the screen in thumbnail form at the time it is acquired. Press the REVIEW switch and verify the image using the Image Viewer.

[Remark]

Press the CANCEL switch when a save is canceled during a moving image acquire operation. The saving of data will be suspended. If you press the FREEZE switch while acquiring anything other than the moving images of manual operations, the data present up the freeze will be automatically saved.

[Remark]

The operation procedures below assume that the DDU-M01 STORE switch has been assigned to the REC switch.

4-2-6-1. Saving still images to the HDD of the DDU-M01

The save format for still images on this instrument is DIOCM JPEG. You can also change to BMP or TIFF format by using the EXPORT function. Even if the settings for the instrument are DIOCM Palette or RGB format, DDU-M01 images are saved with the DIOCM JPEG format. With the DIOCM format, patient information and scale factor information is added.

<Operation method>

- (1) Press the FREEZE switch.
- (2) Search and display the images to record using the SEARCH function from memory.
- (3) Press the REC switch.

4-2-6-2. Saving moving images to the HDD of the DDU-M01

The methods of saving B mode moving images are as follows:

1) saving specified time period of moving images in real time;

- 2) saving specified pulse rates of moving images in real time;
- 3) saving desired time period of moving images in real time;
- 4) saving designated sections of moving images after a freeze after checking and confirming by loop playback.

This instrument's moving image files can be acquired to the HDD as multi-frame JPG and saved as image data. You can also change to AVI format by using the EXPORT function. Even if the instrument settings are DIOCM Palette or RGB format, DDU-M01 images are saved with the DIOCM JPEG format. With the DIOCM format, patient information and scale factor information is added unless the moving images are saved for the desired time period.

1) saving specified time period of moving images in real time

<Operation method>

- (1) Using Acquire Mode, set the acquisition method to Pre Time or Post Time.
- (2) Set acquisition time using Time Cycle.
- (3) Press the REC switch.
- (4) Acquisition is complete.
 - \rightarrow The time set by Time Cycle is saved as moving image data. After saving this data, you are automatically returned to the real time image.

2) saving specified pulse rates of moving images in real time

<Operation method>

- (1) Using Acquire Mode, set the acquisition method to Pre ECG or Post ECG.
- (2) Set acquisition time using ECG Cycle.
- (3) Press the REC switch.

[Remark]

When no ECG is displayed on the image, the system will automatically switch over to specified time period acquiring. If the R wave of the ECG is no longer detected during acquisition, this is considered abnormal and the acquisition is suspended.

- (4) Acquisition is complete.
 - \rightarrow The time set by ECG Cycle is saved as moving image data. After saving this data, you are automatically returned to the real time image.

3) saving desired time period of moving images in real time

- (1) Using Acquire Mode, set the acquisition method to Manual.
- (2) Press the REC switch.
- (3) After completion, press the REC switch again.
- (4) Acquisition is complete.
 - \rightarrow After saving this data, you are automatically returned to the real time image.

[Remark]

The longest recording time possible with the Manual setting is 180 seconds. If you go over 180 seconds, acquisition is automatically terminated.

4-3. Review

The Review function plays back images recorded either inside the instrument or an external device, stores them in an external device, or transfers them to an external device.

[Remark]

When using both the instrument's STORE function and a DDU-M01, and utilizing both functions to save moving pictures and still images, if you press on the REVIEW switch, the Image Viewer will display a summary of the images on the save destination disc for which the STORE switch was pressed last.

4-3-1. Image Viewer

4-3-1-1. Explanations of the route menu on an Image Viewer screen

[Remark]

When using the floppy disk drive, contact our office listed on the back cover.

On the Image Viewer screen, select functions from the root menu at the bottom of the screen, or from the touch panel menu. One root menu may be divided into multiple sub-menus, as seen in this root menu, which has sub-menu 1 and sub-menu 2.



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| 2.2 | Image Viewer | | prosound | 5 | |
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| | All brageo | Single Images | Nuts (Unv) | Malli (V Cla) |] |
| | Seivet All | Unselect Al | Pul Screen | | |
| | DICOM File Type(Line) | DICOM File Typedmagel | | Prev Page | Totat Page |

[Remark]

The functions in the root menu correspond to those on the touch panel menu, so the function is the same, regardless of where it is selected from.

You can select DVD as a save destination only when DDU-100, DDU-200 or DDU-M01 is connected.

| Route menu | Submenu1 | Touch panel menu | Description |
|------------|-------------------------------|------------------|---|
| Export | (Submenu2) Media | Export (Media) | Converts image data into BMP, TIFF, |
| Export | Wiedła | Export (Media) | JPEG, and AVI formats and saves them on |
| | | | Removable Media. |
| | FD | Export (FD) | Converts image data into BMP,TIFF,JPEG, |
| | TD | Export (FD) | and AVI formats, and saves them on |
| | | | Floppy Disk. |
| | CD-R Buffer | Export (CD-R) | Converts image data into BMP, TIFF, |
| | CD-K Dunei | Export (CD-K) | JPEG, and AVI formats and these are saved |
| | | | on a buffer area for saving to CD-R. |
| | DVD | Export(DVD) | Converts image data into BMP, TIFF, |
| | | Export(DVD) | - |
| | | | JPEG, and AVI formats and saves them on DVD. |
| | DDU-M01 CD/DVD Export(DDU-M01 | | Converts image data into BMP, TIFF, |
| | | | JPEG, and AVI formats and saves them on |
| | | | DDU-M01 of DVD or CD-R. |
| DICOM | Media | DICOM (Media) | Converts image data into a DICOM format |
| | | | and these are saved on Removable Media. |
| | FD | DICOM (FD) | Converts image data into DICOM format, |
| | | | and these are saved to Floppy Disk. |
| | CD-R Buffer | DICOM (CD-R) | Converts image data into the DICOM |
| | | | format and these are saved in buffer area |
| | | | for saving to CD-R. |
| | DVD | DICOM(DVD) | Converts image data into the DICOM |
| | | | format and these are saved in buffer area |
| | | | for saving to DVD. |
| | DDU-M01 CD/DVD | DICOM(DDU-M01) | Converts image data into the DICOM |
| | | | format and these are saved in buffer area |
| | | | for saving to DDU-M01 of DVD or CD-R. |
| | Local HD2 | DICOM(Local HD2) | Converts image data into the DICOM |
| | | | format and saves it in the HDD user area. |
| | | | (This is not the same as the Local HD). |
| | Server | DICOM (Server) | An image is transmitted to a DICOM |
| | | | server as the DICOM format. |
| | Local Printer | DICOM (Printer) | An image is transmitted to an ink jet |
| | | | printer and printing is started. |
| | DICOM Printer | DICOM (Printer) | An image is transmitted to a DICOM |
| | | | printer on a network and printing is started. |
| | Printer Property | None | A dialog box of printer setting is displayed. |

| Route menu | Submenu1 (Submenu2) | Touch panel menu | Description |
|-----------------------|------------------------|------------------|--|
| Image | Zoom (Zoom In, | Zoom In | A thumbnail image is enlarged, reduced |
| | Zoom Out, Original) | Zoom Out | and reset. |
| | | Original Size | |
| | Image Rotate | Rotat 180deg | A thumbnail image is displayed in 180 ° or |
| | (Rotate180, Right90, | Rotat L90deg | 90 ° turn. |
| | Left90) | Rotat R90deg | |
| | Image Direction | Direct Up/Down | A thumbnail image is displayed in Flip |
| | (Up Down, | Direct R/L | horizontal. |
| | Right Left) | | |
| | Reset Image | Reset Image | A changed image state is reset. |
| Loop | Loop Start/Stop | Start/Stop | Starts or stops the loop playback of a Multi |
| - | | | Image moving image. |
| | Next Frame | Next Frame | When a Multi Image moving image is |
| | | | displayed, the image of next frame is |
| | | | displayed. |
| | Prev Frame | Prev Frame | When a Multi Image moving image is |
| | | | displayed, the image of previous frame is |
| | | | displayed. |
| | Loop Speed | Speed Up | Set the speed of loop playback. |
| | (Up, Down, Default) | Speed Down | Set the speed of loop playeach. |
| | (Op, Down, Delaun) | Default Speed | |
| | Reverse | Reverse | Carry out loop playback in reverse |
| | Reverse | ite verse | direction. |
| Window | Image Layout | None | The display layout of thumbnail display |
| window | image Layout | None | and the size of image are set. |
| | Next Page | Next Page | When there are saved images more than the |
| | INCAL I age | Next I age | number of the display layout sheet, the |
| | | | following page is displayed. |
| | Prev Page | Prev Page | When there are saved images more than the |
| | Tiev Tage | They Tage | number of display layout sheet, it is |
| | | | returned to the previous page. |
| | Select All | Select All | All thumbnail images are on selecting |
| | Select All | Select All | • • |
| | Unselect All | Unselect All | status. |
| | Unselect All | Unselect All | All thumbnail images are on non-selecting |
| E :1. E | A 11 T | A 11 T | status. |
| File Form | All Images | All Images | Images of all format types are displayed. |
| | Single Images | Single Images | Only still images are displayed. |
| | Multi (Line) | Multi (Line) | Only Line moving images are displayed. |
| | Multi (V Clip) | Multi (V Clip) | Only Multi Image moving images are |
| | | | displayed. |
| | Stress Images | Stress Images | Only Line moving images acquired using |
| | | | the Stress Echo protocol are displayed. |
| Find | | Find | Recorded image data are searched. |
| Delete | | Delete | Selected images are erased from a Disk. |

4.Save of Image

4-3.Review

| Route menu | Submenu1 (Submenu2) | Touch panel menu | Description |
|-------------|------------------------|------------------|--|
| Viewer | | Viewer | Display the Viewer from the search result |
| | | | screen. |
| CD-R | | CD-R | All of images in buffer area for saving to |
| | | | CD-R writes to a CD-R. |
| eTDI | | eTDI | Shifts to TDI analysis screen. |
| eCHE | | eCHE | Shifts to CHE analysis screen. |
| eStressEcho | | eStressEcho | Shifts to Tress Echo analysis screen. |
| Exit | | Exit | Go back to the previous screen. |

4-3-1-2. Basic Operation Procedure

- (1) Press the REVIEW switch after image freeze.
 - → An Image Viewer screen is displayed, and image data in the hard disk is displayed in thumbnail (Images are displayed small).

An image selective state of whether it is in the all-image-select state or the non-image-select state can be set by the Common Preset \rightarrow Auto Select(Review). (Here, examples are in the non-image-select state) In the selective state, green frames are displayed in the thumbnail.



- (2) In the non-image-select state, set an allow mark to the image which is desired to display in full screen with the trackball and press the ENTER switch.
 - \rightarrow A green color frame is displayed in the thumbnail and it turns to a selective state.

[Remark]

When the selection is cancelled, press the ENTER switch again.

[Remark]

When not displaying all images in full-screen under the all-image-select state, set the arrow mark to the image not displayed in full screen with the trackball and press the ENTER switch, then the selected one will be cancelled.

- (3) Select on the left side of screen and press the ENTER switch.
 - \rightarrow A selected image becomes a full-screen display.

Press the ENTER switch twice, a image becomes a full-screen display

[Remark]

When selecting Full Screen on the touch panel menu, a full screen is displayed.

Or when selecting "Window"→ "Image Layout"→ "Full Screen" on the route menu, a full screen is displayed.

(4) When a still image is selected.

 \rightarrow The following icon is displayed.



When a moving image is selected.

 \rightarrow A loop playback is instantaneously started when a full-screen is displayed, and the following icon is displayed.



[Remark]

A Menu is displayed on the touch panel menu as well.



(5) Press the REVIEW switch.

 \rightarrow A review function is finished, and is returned to a freeze state.

[Remark]

When playing back the Line data with full screen is carried out, a message saying "An Image is transferred to cinememory. The image preserved in cinememory is erased." is displayed.

In order to erase the image being saved in the Cine memory currently, select the OK.

4-3-2. Search for image data

When you wish to search previously acquired data, use the find function in the route menu.

[Remark]

When using the floppy disk drive, contact our office listed on the back cover.

- (1) Select the Find button on the route menu.
 - \rightarrow An image search screen is displayed.

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[Remark]

The touch panel displays the Find menu.



(2) Select the search location using Device Name.

| \rightarrow | Local HD : | It is searched from the hard disk in this instrument. |
|---------------|---------------|---|
| | Media : | A removable media is inserted, and it is searched from the Removable Media. |
| | CD Disk name: | A Compact Disc is inserted, and it is searched from the CD(Only when the |
| | | DDU-100 is connected). |
| | CD-R Buffer : | It is searched from a buffer area used when writing in CD-R. |
| | FD : | A floppy-disk is inserted, and it is searched from the FD. |
| | DVD DVD-VS | R |
| | : | A Digital Versatile Disc is inserted, and it is searched from the DVD. (Only when the |

DV-800(B) is connected).

4-3.Review

| CD/DVD disk na | me |
|----------------|---|
| | A Compact Disc or DVD is inserted, and it is searched from the disk. (Only |
| | when the DDU-200 is connected) |
| Local HD2 : | It is searched from the user area of the hard disk inside the instrument. |
| DDU-M01 HD: | |
| | It is searched from the hard disk in the DDU-M01.(Only when the DDU-M01 is con |
| | nected) |
| DDU-M01 CD/D | VD: |
| | A Compact Disc or DVD is inserted, and it is searched from the disk. (Only when the |
| | DDU-M01 is connected) |

[Remark]

If you select the CD name and CD/DVD name when a search has been conducted from DDU-100 or DDU-200, the CD names and volume labels set for each media will be displayed as disc names.

(3) Enter a search key.

 \rightarrow

| • | ID | : | Enter a patient ID. |
|---|-------------|---|---|
| | Name | : | Enter a patient name. |
| | Study ID | : | Enter a examination ID. |
| | Study Date | : | Enter a test day. |
| | | | (Selectable from the following; day to day; or one among Today, Yesterday, Last one |
| | | | week, Last one month, and Data spec. |
| | | | If you want to specify a date, select Data spec and choose the date from the calendar, |
| | | | or enter it from the keyboard. |
| | | | Select a blank space to cancel the Study Date search key. |
| | | | The input format of date can be specified with the Preset, Common Preset \rightarrow Date |
| | | | Type.) |
| | Application | : | Application (the field of diagnosis) (when Device Name is set other than the Local HD, |
| | | | it is not displayed.) |
| | | | |

[Remark]

The Study stands for the number of an examination unit (case) conducted and if the same patient received more than one examination. The StudyID is updated every examination.

For those patients experiencing multiple examinations (except Worklist), perform the SEARCH with the StudyID column.

A record of other search keys

| Referring Phys |
|--------------------|
| Reporting Phys |
| Sonographer |
| Study Description |
| Series Description |

For each item, the character input strings are being memorized up to six strings in maximum and these are displayed on the pull-down menu whenever requested. Either select among them or input newly.

[Remark]

With this instrument, if you press the Find switch when an ID is input, an ID number is automatically input to facilitate a search for the same patient. Press the ENTER switch and keep it depressed momentarily to display the menu. Select Item Clear from the menu to clear the ID and patient name, and then start the search.

In addition, they can be cleared with Item Clear on the touch panel menu. The search screen may also open with no

ID number entered. Make settings in Common Preset \rightarrow Common2 \rightarrow Auto Input(Review).



[Remark]

The instrument stores a history of the last six character strings entered for IDs, names and the like. To make an entry from the history, press the $\mathbf{\nabla}$ on the right end and select from the pull-down menu.

To clear all histories, press the ENTER switch and keep it depressed momentarily to display the menu. Select History Clear from the menu. Pressing History Clear on the touch panel menu also clears the history.

- (4) Select the Search button.
 - \rightarrow A search result screen is displayed.



Fig. search result screen

The touch panel displays the search result screen menu.

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|--------------------------------|------------------------|--|--|--|
| | Copy (CD-R) | | Thereit | |
| | | Serveri | CHOW PHAN | |
| Copy HI (Hedz) | Capy All (CD R) | Casy Al (Server) | Copy HI (DIGOW Prink) | |
| Select Al | Urawled. NJ | | | •TRACKING |
| ITAI | CHE . | eStressEcho | NCTA-SNA | 2D Reconctruction |
| — Thá | Celste | Viewer | - C3-R | Eatt |
| | (Hedz) Select Al | (Heidz) (CD R) Select Virselect All All ettal | (Hediz) (GD 2; (Server) Select Vravient All All eCHE eStrageEcho | (Heida) (CD R) (Server) (DC OV Princ) Select Or select N All All All |

The following five items are displayed on the Patient List.

Select each item name to sort in ascending or descending order.

| ID | Displays ID. |
|-----------------|--|
| Name | Displays Name. |
| Sex | Displays Sex. |
| Last Study Date | Displays the date of the most recent examination. |
| (No item name) | This is used to judge whether all data has been transferred to the server. is displayed if all data have been transferred, is displayed if some data have been transferred. |

When a patient is selected from the Patient list, the stored data for that patient is displayed as a thumbnail. An icon indicating the data type is displayed above each thumbnail.

| | Still image data | Moving image data (Image) | Moving image data (Line) | 3D reconstructio n image | Stress Echo data | ET waveform data | SR data |
|------|---------------------|---------------------------------|--------------------------------|--------------------------------|---------------------|------------------------|---------|
| Icon | Ι | Ē | | | S | e | R |

Images recorded on media such as a USB memory and Images transmitted to a server from the HDD of the instrument are displayed with icons in different colors.

| Green | : Original images recorded on the HDD or media by Store operation. |
|------------|---|
| Light blue | : Images recorded on media such as a USB memory. |
| Blue | : Shows that the image has been sent to a server that conforms to DICOM |
| | Storage Commitment Service Class and response has returned from the server. |
| Orange | : Shows that the image has been sent to a server that does not conform to DICOM |
| | Storage Commitment Service Class. |

[Remark]

All data that has been recorded on the HDD of the DDU-M01 is indicated by green icons.

- (5) Select the data to be processed.
 - \rightarrow A green frame is displayed around the selected thumbnail, and the text in the Patient List for the target patient turns green.

There are four methods for selecting target data:

- To select individual images, select the corresponding thumbnails.
- To select all images in Series, select the Series number.
- To select all images in Study, select the date and Study number.
- To select all images for the patient, select Select All.

[Remark]

Images for multiple patients can be selected individually. In that case, select the next patient from the Patient List on the search result screen and select the target data in the same way as (5) above. This procedure can be repeated for multiple target patients.

There are five methods for canceling selections:

- To cancel the selections of individual images, re-select the corresponding thumbnails.
- To cancel selections of all images in Series, re-select the Series number.
- To cancel selections of all images in Study, re-select the date and Study number.
- To cancel selections of all patients, select UnSelect, then UnSelect All Patients.
- To cancel selections of individual patients, select UnSelect, then UnSelect This Patient.
- (6) Select the **Detail** button to change a detailed display screen.
 - \rightarrow A detailed display screen is displayed.



- (7) Select the Viewer button.
 - \rightarrow The selected image is displayed as a thumbnail on the Image Viewer screen.

Each function of Unselect All Patients, Unselect This Patient, Select All, Detail and Viewer in (5) to (7) can be selected from the screen or from the touch panel menu.

[Remark]

The touch panel can be set as required for the search result screen and the Image Viewer screen. However, the Find screen and Full screen have fixed menus, so their settings cannot be changed.

4-3-2-1. Saving images as a single batch

Saving all of the search results

- (1) Display the search result screen using the search function.
 - \rightarrow Thumbnail images appear on the screen.



- (2) Move the arrow to the near center of the monitor screen, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (3) Using the track ball, select the storage destination from Copy all Patients in the menu.
 - \rightarrow Data transfer starts.

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[Remark]

If Copy All Patients was selected, all images for all patients returned by the search are copied.

Storing all of the images of the selected patient

- (1) Display the search result screen using the search function.
 - \rightarrow Thumbnail images are displayed on the screen.



- (2) Select the patient whose images are to be stored.
- (3) Using the cursor, select the patient whose images are to be stored, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (4) Select the storage destination from Copy This Patient in the menu.
 - \rightarrow Data transfer starts.



[Remark]

When you select Copy This Patient, all of the images of the selected patient are copied.

To save only selected images

- (1) Display the search result screen using the search function.
 - \rightarrow Thumbnail images are displayed on the screen.



- Using the cursor, select the images which you wish to store, then press the ENTER switch.
 → The image data is selected.
- (3) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (4) Select the storage destination from Copy Selected Images in the menu.
 - \rightarrow Data transfer starts.

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[Remark]

Images for multiple patients can be copied even if they are selected individually.

4.Save of Image

4-3-2-2. Batch deletion of images

To delete all images displayed on the search screen

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.

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- (2) Move the arrow to the near center of the monitor screen, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (3) Select the Delete All Patients in the menu.
 - \rightarrow The message dialog is displayed.



- (4) Select the **Delete** from the dialog.
 - \rightarrow All images of all searched patients are deleted.

[Remark]

Select Cancel to close the dialog box without deleting images.

The dialog will be closed after a short time even if you select neither Delete nor Cancel.

[Remark]

All images for all patients returned by the search are deleted, regardless of the selection status of the patients or the images.

To delete all images for the selected patient

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



- (2) Select the patient whom you wish to delete.
 - \rightarrow The patient data is selected.
- (3) Move the arrow to the near center of the monitor screen, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (4) Select the Delete This Patient in the menu.
 - \rightarrow The message dialog is displayed.

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- (5) Select the **Delete** from the dialog.
 - \rightarrow The chosen images is deleted.

[Remark]

Select Cancel to close the dialog box without deleting images.

The dialog will be closed after a short time even if you select neither Delete nor Cancel.

[Remark]

All images for all patients selected are deleted, regardless of the selection status of the patients or the images.

To delete only selected images

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



(2) Using the cursor, select the image which you wish to delete, then press the ENTER switch.

[Remark]

To select individual images, move the arrow to the thumbnail images, and then select the ENTER switch. To select all, move the arrow to the date or to the StudyID, and then select the ENTER switch.

- (3) Select the **Delete** on the touch panel menu.
 - \rightarrow The message dialog is displayed.



- (4) Select the **Delete** from the dialog.
 - \rightarrow The chosen images is deleted.

[Remark]

Select Cancel to close the dialog box without deleting images.

The dialog will be closed after a short time even if you select neither Delete nor Cancel.

[Remark]

All images selected when the image has been selected across two or more patients are deleted.

To delete all images displayed in the CD-R Buffer

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



- (2) Move the arrow to the near center of the monitor screen, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (3) Select Delete CD-R Buffer in the menu.
 - \rightarrow The message dialog is displayed.



[Remark]

If Delete CD-R Buffer does not function, it means that there is no data in the buffer.

- (4) Select the **Delete** from the dialog.
 - \rightarrow The chosen images is deleted.

[Remark]

Select the **Cancel** to close the dialog box without deleting images.

The dialog will be closed after a short time even if you select neither Delete nor Cancel.

4-3-2-3. Formatting a DVD

- (1) Display the search result screen with the search function.
 - \rightarrow A thumbnail is displayed.



- (2) Move the arrow to the middle of the screen and press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.

[Remark]

DVD-RAM is the only media type that this instrument can format. The Format function does no work for other media types. Check that there is a DVD-RAM in the drive.

[Remark]

If a disc is loaded when a DDU-M01 is connected, formatting will begin automatically. Format discs before use only when connecting to a DDU-200.

- (3) Select Format DVD from the menu.
 - \rightarrow A format dialog box is displayed.

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- (4) From the format dialog box, select the format type and options, then select Start.
 - \rightarrow A confirmation dialog box is displayed.



Start cannot be selected if the disk in the drive is not DVD-RAM. Start can be selected once there is a DVD-RAM in the drive.

[Remark]

Select Close to close the dialog box without formatting a disk.

(5) Select Yes.

 \rightarrow Formatting starts.

[Remark]

Select No to go back to the format dialog box.

- 4-3-2-4. The remaining capacity of each media is displayed.
 - (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



- (2) Move the arrow to the near center of the monitor screen, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.
- (3) Select the Disk Remain from the menu.
 - \rightarrow The free space of each media is displayed on the dialog box.

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- (4) Select the OK.
 - \rightarrow The dialog is closed.

If the media is changed while the dialog box is displayed, the remaining capacity of each media is updated and displayed when Reload is selected.

4-3-2-5. Analysis

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



- Using the cursor, select the image which are to be analyzed, then press the ENTER switch.
 → The image is selected.
- (3) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.



[Remark]

When you select the individual image, move the arrow to the thumbnail, and press the ENTER switch. When you select all of the image, move the arrow to the date or Study ID, and press the ENTER switch.

- (4) Select the Analysis which is objective in the menu.
 - \rightarrow The analysis screen is displayed.

[Remark]

Each type of analysis can be selected from the menu at the bottom of the screen, or from the touch panel menu.

4-3-2-6. 3D Reconstruction

- (1) Display the Search result screen with a search function.
 - \rightarrow A thumbnail is displayed.



- (2) Using the cursor, select the image which are to be reconstructed, then press the ENTER switch. \rightarrow The image is selected.
- (3) Press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.



[Remark]

When you select the individual image, move the arrow to the thumbnail, and press the ENTER switch. When you select all of the image, move the arrow to the date or Study ID, and press the ENTER switch.

- (4) Select the 3D Reconstruction from the menu.
 - \rightarrow Reconstruction is started.

[Remark]

Each analysis can be selected on the touch panel menu. But it can not be selected from the menu at the bottom of the screen.

4-3-2-7. Conducting Arterial Stiffness, FMD, WI analysis

- (1) Display the Search result screen with a search function.
 - \rightarrow The thumbnails are displayed.



- (2) Using the cursor, select the waveform data which is to be analyzed, then press the ENTER switch and keep it depressed momentarily.
 - \rightarrow The menu is displayed.

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- (3) Select the eTRACKING of the menu.
 - \rightarrow The analysis screen corresponding to the selected waveform data is displayed.

[Remark]

You cannot select multiple sets of waveform data to analyze them at the same time. Make sure to select a single set of waveform data.

[Remark]

Each analysis can be selected on the touch panel menu.

But it can not be selected in the root menu on the lower part of the screen.

4-3-3. Saving method of images

4-3-3-1. In the case of Export (an example to save in Removable Media)

<Operation method>

- (1) Select the Export button on the route menu.
 - \rightarrow Sub-menu is displayed.
- (2) Select the Media on the sub-menu.
 - \rightarrow The following pop-up menu is displayed.

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- (3) Specify the file format of the image to save.
 - → Using the trackball, move the arrow to the radio button, and press the ENTER switch. In Single Frame, the file format of a still image can be specified. The format that is initially selected is the one that you specified in the previous session. In Multi Frame, the file of moving image is saved as AVI format. Use a preset to select Codec.
- (4) To delete the ID and Name on the image and save, move the arrow to the Teaching File check box and press the ENTER switch.
 - → A check mark is added to Teaching File. For details of Teaching File settings, refer to Section 4-3-3-2. "DELETE PATIENT INFORMATION AND SAVE".

[Remark]

To save the ID and Name on the image without deleting, omit step(4).

- (5) Select the Save button.
 - \rightarrow It is saved to a Removable Media. If the **Cancel** button is selected, it is not saved.

[Remark]

The file name is provided automatically. The file name cannot be changed.

[Remark]

With FD, CD-R Buffer, DVDor DDU-M01 CD/DVD, it can be set and saved with the same procedure.

When using the floppy disk drive, contact our office listed on the back cover.

4-3-3-2. Delete patient information and save

Teaching File is a function for creating anonymous image data when it is output from the instrument, by masking the patient information, such as ID and NAME on the monitor. Personal information such as ID and NAME is masked from the stored data before the image data is saved.

Deleted area : ID, NAME

Area where deletion can be selected : Age, Sex, Hospital Name



The still image saved in HDD

[Remark]

If the Teaching File setting is switched On when the image is saved, the ID and NAME areas are always masked. Make individual settings to mask other areas (Age, Sex, and Hospital Name).

[Remark]

Masking patient information can be set when the output data is in PC format (BMP, JPEG, TIFF or AVI). It cannot be masked from DICOM output.

[Remark]

Masking of patient information can be applied to ultrasound image files stored on this instrument. In some cases, patient information displayed in locations such as the Report screen and Analysis screen may not be masked even if the Teaching File setting is On.

<Operation method>

- (1) Move the arrow to the check box of the Teaching File, then press the ENTER switch.
 - A check mark is added to Teaching File, so the function can be set. \rightarrow

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- Move the arrow to the Additional Mask Item check box for the area to mask, out of Age, Sex and Hospital (2) Name, and press the ENTER switch.
 - \rightarrow The area to delete is added.



To delete only the ID and NAME on the image, omit step (2).

- Check the message. (3)
 - \rightarrow The displayed message differs depending on the selected screen.



The mask position of all files were detected.



The mask position of some files were not detected. Please set the mask position manually.

Go on to step (5)

If the instrument was able to automatically recognize the positions of ID and NAME on the selected ultrasound image file, figure A on the left is displayed. There is no need to specify positions that are deleted manually. If the selected image is an image file stored on the Local HD, figure A on the left is displayed.

However, if there is even one image file that could not be recognized automatically, figure B on the right is displayed. Specify positions to delete manually. If the selected images include types other than the above (DICOM files etc.), figure B on the right is displayed.

- (4) Select the Save.
 - \rightarrow Saving starts, with patient information masked. If message A is displayed, saving is completed at step (4).

If the Teaching File setting is turned On and the Report or Analysis screen is saved, incorrect areas are masked. Do not make that setting for the Report or Analysis screen etc.

[Remark]

Before saving, use the preview function to check whether the information was actually deleted. Select 1 by 1 setting/ Preview and check the preview.

If message B is displayed, perform steps (5) to (8) below.

- Select the 1 by 1 setting / Preview. (5)
 - The Mask Position Manual Setting dialog is displayed. \rightarrow



- On the Mask Position Manual Setting dialog box, select the size of the image to save from the image size (6) options.
 - The patient information is masked. \rightarrow



Display the previous screen.

4.Save of Image

[Remark]

If there are multiple images, use **Next** and **Prev** to run forward and back through the images and make settings for all images. For each image, set the ID and NAME area.

[Remark]

Specify an option suitable for the image format size of each.

[Remark]

Select No Mask for images with no ID area (such as line moving images). When you select No Mask, the entire image is displayed. (i.e., no non-display area is created.)

- Single / 3D Export Image File / DDU-M01 File
 - : Selects if the image is a still image. Still images restored from Video Clip moving images cannot be selected.
- No mask : Do not make masked areas. Select this for an image with no ID area (a Line animation etc.).

(7) Make settings for all images, then select Exit.

 \rightarrow Settings are reflected for all images and the display returns to the Export dialog box.

[Remark]

If Cancel is selected, settings are not reflected, and the display returns to the Export dialog box.

- (8) Select the Save.
 - \rightarrow Saving starts, with patient information masked.

[Remark]

If settings are made as a batch for all images, rather than individual settings for each image, select the image size from the option of "Apply to all files" in step (5), and select Save.

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If 1 by 1 setting/Preview is set under steps (5) to (7), "Apply to all files" is not available for selection. If "Apply to all files" is selected, first close the Export dialog box, then go back to step (1) of Section 4-3-3-1. "IN THE CASE OF EXPORT (AN EXAMPLE TO SAVE IN REMOVABLE MEDIA)".

4-3-3-3. In the case of DICOM (an example to save in Removable Media)

- (1) Select the DICOM button on the route menu.
 - \rightarrow A sub-menu is displayed.
- (2) Select Media from the sub-menu.
 - \rightarrow The following pop-up menu is displayed.

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- (3) Specify the file format of the image to save.
 - \rightarrow Using the trackball, move the arrow to the radio button, and press the ENTER switch.

[Remark]

If the images to save is moving image, you can not select the file format of color.

- (4) Enter a comment.
 - \rightarrow Enter a comment in the Series Description.
- (5) Select the **Store** button.
 - \rightarrow It is saved to a Removable Media.
 - If the **Cancel** button is selected, it is not saved.

[Remark]

With FD, CD-R Buffer, Local HD2, and Server, it can be set and saved with the same procedure. However, when it is saved to a server, SOP-ALPHA6-10 of the option is necessary.

When using the floppy disk drive, contact our office listed on the back cover.

[Remark]

When saving DICOM, the data can be converted from Line Format to Multi Image Format. On the touch panel to operate the Image Viewer function, assign DICOM File Type (Line) and DICOM File Type (Image) in advance.

1. To convert to Multi Image, press DICOM File Type (Image) on the touch panel menu, then select DICOM from the root menu.

2. To leave the data in Line format, press DICOM File Type (Line) on the touch panel menu, then select DICOM from the root menu.

Switching between DICOM File Type (Line) and DICOM File Type (Image) can also be set under Common Preset.

4-3-3-4. When it is saved in CD-R

[Remark]

You need to have at least one of the combinations of optional devices shown below.

- DDU-100 and PM-A6-H005
- DDU-200 and PM-A6-H005
- (1) Select the DICOM or the Export button on the route menu.
 - \rightarrow A sub-menu is displayed.
- (2) Select the CD-R Buffer on the sub-menu.
 - \rightarrow The following pop-up menu is displayed.

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| | | · w· | <u></u> |

- (3) Specify the file format of the image to save.
 - → Using the trackball, move the arrow to the radio button, and press the ENTER switch. In Single Frame, the file format of a still image can be specified.
 The format that is initially selected is the one that you specified in the previous session. In Multi Frame, the file format of a moving image can be specified. Use a preset to select Codec.
- (4) To delete patient information such as ID and NAME from the image to be saved, move the arrow to the Teaching File check box and press the ENTER switch.
 - → A check mark is added to Teaching File. For details of Teaching File settings, refer to Section 4-3-3-2. "DELETE PATIENT INFORMATION AND SAVE".

[Remark]

If you do not delete the patient information such as ID and NAME on the image to be saved, omit step (4).

- (5) Select the Save button.
 - \rightarrow It is saved in the CD-R Buffer.
 - If a Cancel button is selected, it is not saved.

[Remark]

The file name is provided automatically. The file name cannot be changed.

[Remark]

The capacity of CD-R Buffer is 640 megabytes at the maximum.

When the image file is larger than the capacity of the buffer, divide it and adjust to 640 megabytes or less.

- (6) Select CD-R from the route menu and insert a blank media to the CD-R drive.
 - \rightarrow A saved image in the CD-R Buffer is written into the CD-R.
 - The following pop-up menu is displayed.

| | CD-R Writing | |
|--------------|--------------|--|
| Capacity | 640M/640M | |
| CD Name | | |
| Buffer Erase | «On eoπ | |
| Ster | 1 Cancel | |

[Remark]

With the Buffer Erase On, the data in the buffer are erased after writing the image to the CD-R. When copying multiple sheets to CD-R, select Off always.

[Remark]

You must use 32 write and 640MB CD-R or more.

Recommended media makers are Ricoh, Maxell, Taiyo Yuden, Verbatim/Mitsubishi Chemical. DVD and CD-RW are not supported.

[Remark]

When you write a DICOM image to the CD-R media, you can not write any image data to the same CD-R. In that case, insert a blank CD-R.

(7) Press the **Start** button on a pop-up menu.

 \rightarrow A saved image in the CD-R Buffer is written into the CD-R.

A progress bar is displayed with the start of writing.

A pop-up menu indicating the end is displayed at the end of the writing.

[Remark]

Do not turn off the power supply to this instrument while an image is being written into the CD-R.

It may cause damage to or deterioration of the CD-R drive of this instrument. During the writing, no examination is allowed.

4-3-3-5. Restoring images

If data saved on the Local HD and DICOM data saved to Local HD2 or to media has been played with full screen, its format can be changed again to save to Local HD, HD2 or media. The save destination for image data can be changed using the Store Media setting.

[Remark]

During full screen play, the touch panel can be used for the Full Screen menu and Store Set Up.



[Remark]

The image number for a restored image is the same as that of the original image.

[Remark]

The DICOM data cannot be stored in Local HD. It is automatically stored in Local HD2.

To store a still image from a playing Line moving image

<Operation method>

Press Start/Stop during loop play.

 \rightarrow Loop play stops.

Use the SEARCH function to search for the image to record from the memory, and display it. Press the STORE switch.

 \rightarrow The still image is stored in the storage destination specified under Store Media.

[Remark]

Data appended to the measurement is stored with it.

[Remark]

The same operation method as above can be used for a DICOM Multi Image to restore a still image. (DICOM Multi Image is data of the DICOM format composed of two or more Image data.)

To store a image as moving image(Line) while the Line moving image is playing

<Operation method>

- (1) Press Other menu tab on the touch panel menu.
 - \rightarrow Store Set Up is displayed.

[Remark]

Assign Store Set Up to Other group menu in advance.

- (2) Press the Store switch.
 - \rightarrow It is stored in the specified storage destination. However, the line moving images are always restored on the Local HD.

[Remark]

The moving image within the range of loop play is stored.

To store a selected portion as moving image while the Line moving image is playing

<Operation method>

- (1) Press Other menu tab on the touch panel menu.
 - \rightarrow Store Set Up is displayed.

[Remark]

Assign Store Set Up to Other group menu in advance.

- (2) Use the SEARCH function to specify the loop start frame and loop end frame.
- (3) Use the trackball to rotate the arrow up.
 - \rightarrow The specified section of image is played as a loop.

(4) Press the Store switch.

 \rightarrow Type line moving images whitch is specified section are always stored on the HDD.

[Remark]

The moving image within the range of loop play is stored.

Save a still image again as a still image

<Operation method>

- (1) Press Store during still image play.
 - \rightarrow The still image is stored in the storage destination specified under Store Media.

[Remark]

Data appended to the measurement is stored with it.

4-3-3-6. Converting data from Line format to Multi Image format

When outputting Line data in the DICOM format, you can convert data from the Line format to the Multi Image format to output it as a DICOM Multi Image. By converting data to the Multi Image format, you can play back the data using DICOM Viewer on a PC or other devices. You can also choose to keep the format in Line and output the data.

• How to output Line data in the DICOM format

Line format \rightarrow Multi Image format (Change the format to output the data) Line format \rightarrow Line format (Output the data in the format of the state as it is.) Set the output method you want with the preset or the menu in advance.

• Menu selection switch

DICOM File Type(Image) : If you want to change the format to Multi Image and output the data in that format, turn this switch on beforehand.

[Remark]

Graphic added to the Multi Image format is an Active mark, Scale mark, Frame rate, ECG waveform, and a flow area.



<Operation method>Line \rightarrow Multi Image conversion

(1) Select a Line image to convert on the Image Viewer screen.



DICOM File Type(Line) : If you want to keep the Line format and output the data in that format, turn this switch on beforehand.

- (2) Press the DICOM File Type(Image) on the touch panel menu.
 - \rightarrow The DICOM File Type(Image) lights orange.



If you want to keep the Line format and output the data in that format, leave DICOM File Type (Line) selected.

- (3) Select the DICOM of the root menu.
 - \rightarrow The sub menu is displayed.
- (4) Select the output media from the sub-menu.
 - \rightarrow The pop-up menu is displayed.

[Remark]

In this case, Media has been selected.

- (5) Enter a comment, and press the Store switch on the operation panel.
 - \rightarrow The data is saved to Media as a DICOM Multi Image.

[Remark]

Use the same procedure as above to configure settings and save data to other media, server, or Local HD2.

[Remark]

Data that can be converted is Line data that is stored on the Local HDD. The Line data that are stored in an external media or Local HD2 cannot be converted to the Multi Image format.

[Remark]

Switching between DICOM File Type (Line) and DICOM File Type (Image) can be set in advance by selecting Preset \rightarrow Common Preset \rightarrow Common2.

4-3-3-7. Expanding the functionality of the DDU-M01 (Saving data from the HDD of the DDU-M01 to DVDs, CD-Rs and the network)

Images stored on the HDD of the DDU-M01 can be saved to USB memory, and sent to a server on the network as DICOM images. Furthermore, images saved to an internal drive can also be converted into files that can be displayed using PCs and saved as DICOM images.

DDU-M01 can write to DVD-RAM, DVD+R and CD-R without the use of a buffer.

Disc media that can be used on the internal drive are DVD-RAM, DVD+R and CD-R.



[Remark]

Even if the EJECT button below the disc tray is pressed, finalization will not be carried out.

[Remark]

Files and images exported from the DDU-M01 drive cannot be displayed on this instrument. Use a PC or other device to run the file.

[Remark]

When finalization is carried out, the data that has been saved in the disc can be read out using PCs and other devices, but the write-once function is no longer available.

▲ Note

When a DVD+R or CD-R is loaded, press the EJECT/FINALIZE button on the lower right side of the front panel. The finalization will start. Note that after finalization starts, it is impossible to writing to the disc. When saving a DICOM file, finalization will start after DICOM DIR is written, so it may take a short amount of time before the tray ejects.

<u>∧</u> Note

Do not turn off the power during finalization, as the disc may become unreadable.

\land Note

Images cannot be written to DVD+R or CD-R after they have been finalized.

\land Note

There is a function for automatically deleting images in the HD of the DDU-M01 after a fixed amount of time has passed. This duration can be set with Holding Time, which can be found within the IHE of Common Preset. Change this setting when you want to delete images manually.

<Operation method>Saving the data to the DVD/CD-R(JPG, BMP, TIFF, AVI, M-JPG file)

- (1) Select the Export of the root menu.
 - \rightarrow The sub menu is displayed.
- (2) Select the DDU-M01 CD/DVD from the sub-menu.
 - \rightarrow The pop-up menu is displayed.

[Remark]

Place the disc in the drive in advance. When a blank disc is loaded, formatting will start automatically. Writing to the disc is possible after the flashing display of the drive is extinguished.

(3) Using the trackball, move the arrow to the radio button, and press the ENTER switch. Specify the file image to be saved.

[Remark]

With Single Frame, you can specify file formats for still images. The format initially selected is the same as the previous selection. With Multi Frame, the moving image file is saved in AVI or M-JPEG formats. Codec is selected with the preset.

[Remark]

To delete the ID and Name on the image before you save it, move the arrow to the Teaching File checkbox and press the ENTER switch. A check mark is added to Teaching File, so set the function. For details of the Teaching File setting, refer to Section 4-3-2. "SEARCH FOR IMAGE DATA". Delete patient information and save. This procedure is not necessary if you save the image without deleting its ID and Name.

- (4) Select the Save.
 - \rightarrow The data is saved to the disk in the DDU-M01. When Cancel is selected, it is not saved.

[Remark]

The file name is assigned automatically. It cannot be changed.

- (5) Press the EJECT button and carry out finalization.
 - → Press the DDU-M01 EJECT button on the lower right part of the front panel. After finalization, the file can be played on PCs and other devices.

<Operation method>DVD/CD-R disc production (DICOM files)

- (1) Select the DICOM of the root menu.
 - \rightarrow The sub menu is displayed.
- (2) Select the DDU-M01 CD/DVD from the sub-menu.
 - \rightarrow The data is saved to the disk in the DDU-M01. When Cancel is selected, it is not saved.

[Remark]

Place the disc in the drive in advance. When a blank disc is loaded, formatting will start automatically. Writing to the disc is possible after the flashing display of the drive is extinguished.

- (3) Press the EJECT button and carry out finalization.
 - \rightarrow Press the DDU-M01 EJECT button on the lower right part of the front panel.Files that have been copied can be run on PCs that have had DICOM viewer software installed.

4-3-4. Adjusting images

Data stored in Line format can be played back in full screen. After stopping the loop playback, you can set the image adjustment function.

<Operation method>

(1) Select the Line data to adjust on the Image Viewer screen.



- (2) Press the Full Screen switch on the touch panel menu.
 - \rightarrow The Line data is played back in loop in full screen.
- (3) Press the Start/Stop switch on the touch panel menu.
 - \rightarrow The loop playback stops and the configurable items of the image adjustment function becomes available.
- (4) Press the menu tag on the touch panel menu to which the image adjustment function item to configure is assigned, and change the parameter for the item.
 - \rightarrow The change you made is reflected in the image.

The menu assignment of the image adjustment function is same as in real time.

[Remark]

The image adjustment functions that can be changed are as follows:

Gain, Contrast, Post Processing, View Gamma, B/M and ExPHD C.H.E. in Color Map (B/M/D), color modes (Flow, Power Flow, eFlow, Power CHE)(display On/Off), Flow Gain, B.L.S.(Flow), Rejection (Flow), Color Polarity, Color Map (Flow), Display Priority (Flow), Priority Level, B Image Erase

(5) Press the **Start/Stop** switch on the touch panel menu.

 \rightarrow The data is played back in loop, reflecting the change you made.

[Remark]

To revert the image to the original state, press Line Image Reset on the touch panel menu while the loop playback is stopped.

(6) Press the STORE switch.

 \rightarrow The image whose loop range is changed is restored.

[Remark]

For details, refer to Section 4-3-3-5. "RESTORING IMAGES".

Note that some images may not be restored in the Line format depending on the function item you adjusted.

(7) Press the Full Screen switch on the touch panel menu.

 \rightarrow Returns you to the Image Viewer screen.

4-3-5. Printing an image

You can print an image displayed on the Image Viewer screen, using a DICOM printer or a PC printer specified by Aloka.

4-3-5-1. Printing data on a DICOM printer

(1) Using the trackball, move the arrow to the image to be printed on Image Viewer, and press the ENTER switch.

 \rightarrow The selected image is displayed with a green border.

- (2) Select the DICOM button from the route menu, and select the DICOM Printer from the sub-menu.
 - \rightarrow The selected image is printed on the DICOM printer in the network.

4-3-5-2. Printing on a local printer

- (1) Using the trackball, move the arrow to the image to be printed on the Image Viewer, and press the ENTER switch.
 - \rightarrow The selected image is displayed with a green border.
- (2) Select the DICOM button from the route menu, and select a Local Printer from the Sub-menu.
 - \rightarrow The selected image is printed on the Local printer.

4-3-5-3. Setting of Printing condition

- (1) Select the DICOM button from the route menu, and select the Print Property from the sub-menu.
 - \rightarrow The following pop-up menu is displayed.

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Fig. Print Property

Local Printer

| Printer Name | A Local printer printing an image is selected. |
|---------------|--|
| Num of Copies | The number of print sheets at the time of print setting is from 1 to 9. |
| Paper Size | It sets the size of paper to be printed. |
| N-up | The number of images to be printed on one piece of paper is set. |
| Orientation | A direction of print is selected from the LANDSCAPE (the side) and PORTRAIT (a vertical span). |
| Trim | When plural images are printed on one piece of paper, the presence of blanks between images are set. |

• DICOM Printer

| Model Name | A DICOM printer is selected in printing of an image. |
|--------------------|---|
| Appl. Entity | It can not be edited from Print Property page. |
| Num of Copies | The number of print copies for DICOM printer is set from 1 to 99. |
| Medium type | Media for printing are selected. |
| Film size | The size of printing paper with DICOM printer is set. |
| Orientation | The direction of print is selected from LANDSCAPE (the side) and PORTRAIT (a vertical span). |
| Display format | A display format when plural images are printed on one piece of paper is set. |
| Magnification | A type of enlarged process is set. |
| Smoothing | It can not be edited from Print Property page. |
| Trim | When plural images are printed on one piece of paper, presence of blanks between images is set. |
| Print priority | Priority of print processing is set. |
| Destination | The printing device is set. |
| Min density | A number of the minimum brightness in printing is input. |
| Max density | A number of the best brightness in printing is input. |
| Border density | The brightness between images is set. |
| Empty density | The brightness of no image portion is set. |
| Image polarity | The polarity of a printed image is set. |
| Configuration info | The comment is filled in. |

4-4. Video recording/Playing back with DVD

4-4-1. Setting for DVD

The recording devices connectable with this instrument are described in the following. The media and recording systems to be used may differ by type.

Before using them, devices should be selected in accordance with the use applications and the media.

| DVO-1000MD (SONY) | DVD+RW ^{*1} | DVDVideo format | Displayable with commercial DVD |
|-----------------------|---|-------------------------------|--|
| BD-X201ME (Victor) | DVD-R ^{*2} DVD-RW ^{*3} DVD+RW | DVDVideo format | Displayable with commercial DVD |
| DV-800(B) (TEAC) | DVD-RAM DVD+R | ASF Video File by MS-MEPG4 | Microsoft WindowsMediaPlayerTM of Microsoft is required. |

- *1: The DVD is corresponding to $4 \times$ devices.
- *2: The only usable disk is the DVD-R specification 2.0 (video mode) adaptable
- *3: The disk, version 1.1 or above, is usable.
- DVD-R : Recording is one time allowed for one sheet of disk. It is suitable as a permanent recording disk.
- DVD-RW: After recording once, it can be recorded again after erasing the whole past data.After Finalizing process, it can be played back with other corresponding DVD devices.Additional recordings can be performed after canceling the Finalize.

[Remark]

To connect DVO-1000MD and BD-X201M with analog signals, an optional analog video unit is required. To connect DVO-1000MD and BD-X201M with digital signals, an optional DV interface is necessary in addition to the optional analog video unit.

The following tables show the combination of equipment necessary for each connection.

| Record model | Recording mode | Necessary option equipment | | |
|-------------------|-----------------------|----------------------------|------------|-------------|
| DVO-1000MD (SONY) | DV(IN) Y/C(OUT) | EU-9119B | PM-A6-H003 | PM-A6-H001B |
| | Y/C(IN/OUT) | EU-9119B | PM-A6-H003 | - |
| BD-X201M (Victor) | DV(IN/OUT) | EU-9119B | PM-A6-H002 | PM-A6-H001B |
| | Y/C(IN/OUT) | EU-9119B | PM-A6-H002 | - |
| DV-800(B) (TEAC) | DVI-D(IN) USB(OUT) | - | PM-A6-H004 | - |

\land Caution

- 1) About the handling notes and care of recording/playing-back disks, refer to the DVD maker's instruction manual.
- 2)As for the setting-up and preparation for a DVD, refer to the DVD maker's instruction manual.
- 3) The images recorded on a DVD cannot be erased partially.
- 4) In some cases, Disk Finalize may be required when playing back images which were recorded with this instrument with other corresponding DVD devices.

About the Finalize, refer to the DVD maker's instruction manual.

- 5) In erasing or additional recording of images, rewritable disks (DVD-RW, DVD+RW, and DVD-RAM) are used.
- 6) In the operating illustrations of DVD in this chapter, explanations are made assuming that the DVD has been set up in the Aloka specifications.
- 7) When recording an image during examination, input the patient data (ID and Name) in advance. After the patient data (ID and Name) is input with pressing the New Patient switch or the ID switch, images are recordable.

\land Note

1) When installing a recording device and connecting it with the instrument, call our service personnel without fail.

Depending on the installation procedure, the safety of instrument may be deteriorated.

If installing other devices than the specified ones, it may cause a degrading in safety and a malfunction of the instrument, so you are not allowed to do so.

2) When connecting any of the above 4 types with this instrument, the name setting of the connected device is requested in this instrument by the Preset.

Connecting or operating more than one device simultaneously is prohibited.

4-4-2. Recording Images

The basic operating procedures of record, pause and stop using this instrument are explained. When operating from a recording device, the manuals of the respective device are referenced. The operating procedure is common to the DVD (BD-X201ME, DVO-1000MD, and DV-800(B)).

🕂 Caution

1)Do not turn off the power to the recording media during recording process. If the power is turned off, there is a possibility that all files may be destroyed. Before turning off the power, be sure to retrieve the disk always.

2)When recording an image during an examination, ensure to input the patient data (ID and Name) beforehand.After the patient data (ID and Name) is inputted by pressing the New Patient switch or the ID switch, start recording the image.

4-4-3. Starting and Pausing a Recording

An image is recorded during an examination.

<Operation method>

(1) Load a DVD into the recording device.

When loading a DVD, follow the instructions in the manual of the recording device.

<u>∧</u> Note

When a DVD recorder is connected, recording cannot be started unless the disk is properly inserted in the tray. In such a case, the REC switch on the front panel does not turn to in blue lighting. With reinserting the disk and after checking the REC switch has been turned to in blue lighting, then start the operation of recording.

- (2) Press the REC switch.
 - → The recording is started. During recording, the blinking mark is displayed on the viewing monitor and it shows to stand for a recording state.

When the DV-800(B) is connected, the REC switch does not operate before inputting the patient data (ID and Name). Input the patient data (ID and Name) in advance.

(3) Press the REC switch.

 \rightarrow The recording is suspended.

If the REC switch is pressed once again, the recording is resumed.

The time counter number is displayed on the upper left of the monitor during recording.

When not displaying the counter number, turn to Off the VCR Counter Display which is located at the lower side of the Other group Image Function on the touch panel menu.

4-4-4. Remaining DVD capacity display

When recording data by using a DVD recorder, the DVD Remain function can be used to display the remaining disk capacity on the screen. When the DVD Remain function is operating, the time counter display on the upper left of the monitor screen is replaced with the remaining capacity display.

| Status | Screen display |
|-------------------------------------|----------------|
| No media or DVD recorder power off | No Disk |
| Recording disabled | Disk NA |
| The free space is being calculated. | CALC. |
| Remaining capacity 0-9% | [] |
| Remaining capacity 10-19% | [>] |
| Remaining capacity 20-39% | [>>] |
| Remaining capacity 40-59% | [>>>] |
| Remaining capacity 60-79% | [>>>>] |
| Remaining capacity 80-100% | [>>>>] |

Remaining capacity display for DVO-1000MD, BD-X201M

Remaining capacity display for DV-800(B)

| Status | Screen display |
|------------------------------------|----------------|
| No media or DVD recorder power off | No Disk |
| Remaining capacity ****MB | ****MB |

<Operation method>

- (1) Insert a recordable disk into the DVD recorder.
- (2) Turn On DVD Remain under Image Function in the Other group of the touch panel menu.
 - \rightarrow The time counter display on the upper left of the monitor screen is replaced with the remaining capacity display.
- (3) Turn to Off the DVD Remain
 - \rightarrow Close the remaining capacity display and switch to the time counter display.

4-4-5. Title Menu, Chapter Menu

In operations for recording with a DVD recorder, a title menu and a chapter menu are generated automatically and recorded on a disk.

The title menu and the chapter menu are used as the index for selecting a playback image.

The title is an interval from the pressing of the REC switch (starting a record) to the pressing of the New patient switch or the EXT switch (stopping).

By repeating to press the REC switch (REC Pause) and press the REC switch (resuming record) again, you can divide one title interval into multiple chapters.



[Remark]

In the case of the BD-X201ME, the first image recorded in the Title menu or the Chapter menu can be displayed in the thumbnail.

The thumbnail of the title menu becomes the first thumbnail of the chapter menu.

4-4-6. Playing back

Images recorded during the current examination or the recorded images in the past examinations can be viewed.

4-4-6-1. BD-X201ME(Victor)

<Operation method>

- (1) Press the EXT on the touch panel menu.
 - \rightarrow Signals (An image from DVD recorder as an example) from the outside can be converted to the state (EXT state) to display on the monitor.
- (2) Press the Chapter Menu on the touch panel menu
 - \rightarrow The thumbnail of the title menu recorded on the DVD is displayed.



When playing back the images recorded during an examination, perform the selection of <the case of playing back with specifying a chapter image>.

[Remark]

The thumbnail of Title menu is the head thumbnail of Chapter menu in the title.

- (3) Select the image file of a patient who is examined with the trackball.
- (4) Press the ENETR switch.
 - \rightarrow The images (Chapters 1, 2, and 3 as an example) recorded in the image file (Title 1 as an example) of a patient who is selected are played back one by one.

[Remark]

When skipping those images played back sequentially and displaying an image in the following chapter, rotate the Rotary encoder to the right at the right side of the Chapter Search on the touch panel menu.

<When displaying images by playback with specifying the chapter of the images>

When specifying the image chapter in a patient's image file (title menu) and displaying it by playback, the following operation is carried out after performing the procedures of (4).

- (1) Press the Chapter Menu on the touch panel menu.
 - ® The thumbnail of all images (chapters 1, 2, and 3) recorded in the patient image file is displayed.
- (2) After selecting the image (chapter) to observe, press the ENTER switch.
 - ® The selected image will be displayed.

Other Functions

- Playback and Pause
 If the Play is pressed, the playback of the DVD recorder starts.
 If the Stop is pressed, the playback stops.
- Fast Forward and Rewinding
 If the FF is pressed, images are played back by 10× playback.

 If the REW is pressed, images are played back by 10× reverse
 playback.
- Changing Play-Back speed If the rotary encoder is rotated on the Play Speed menu item, the



playback speed can be changed from one fifteenth to ten times of the speed.

- Frame forward play-back In the Pause or Stop state, if the Frame Back or Frame Forward is pressed, a playback with frame-advancing back and forth is feasible.
- Eject&Finalize and Finalize Cancel

If the Eject&Finalize is pressed, a disk is finalized and retrievable. The disk which was finalized is played back by a commercially available DVD player. In the case of rewritable media, if the Finalize Cancel is pressed, it returns to the status that is recordable of images.

[Remark]

If a DVD-RW disk is used and the Auto Finalize item on the BD-X201ME side is set On, the disk is finalized at the Eject & Finalize stage.

[Remark]

When a DVD-R is used, and Eject & Finalize is pressed to eject the disk, a dialog box appears to ask whether or not to finalize the disk, regardless of the Auto Finalize setting on the BD-X201ME. Select the desired option and eject the disk.



Eject without finalize : Eject without finalizing.

Finalize, then eject : Eject after finalizing.

Cancel : Close the dialog box without ejecting the disk.

• Search by Patient Search and Chapter Search

After pressing the NEW PATIENT switch, the PATIENT index is recorded at the first recording time.

With turning the rotary encoder of the Patient Search menu for playing back, you can fix the order position of the patient unit with detecting indexes before and after.

Also, if the rotary encoder of the Chapter Search menu is rotated, fixing the order position of the chapters before and after can be performed.

4-4-7. DVO-1000MD(SONY)

<Operation method>

- (1) Press the EXT on the touch panel menu.
 - \rightarrow Signals (An image from DVD recorder as an example) from the outside can be converted to the state (EXT state) to display on the monitor.
- (2) Press the List on the touch panel menu.
 - \rightarrow The image files of all patients recorded on the DVD are displayed in the list form.
- (3) Select the ID of the patient who is examined with the trackball.



[Remark]

If the ENTER switch is pressed with a patient ID name selected, the images of the selected patient are played from the first chapter.

- (4) Rotate the trackball rightward.
 - \rightarrow The Sub Title List screen is displayed.
- (5) Rotate the trackball rightward further on the condition that the Play is being selected.
 - \rightarrow The Chapter List screen is displayed.
- (6) Select the chapter number to play back and press the ENTER switch.
 - \rightarrow The selected chapter image is played back.

[Remark]

When displaying the image, rotate the rotary encoder to the right located at the right side of the Chapter Search on the touch panel menu.

Other Functions

- Playback and Pause
 If the Play is pressed, the playback of the DVD recorder starts.
 If the Stop is pressed, the playback stops.
- Fast Forward and Rewinding

If the FF is pressed, images are played back by $10 \times$ playback. If the REW is pressed, images are played back by $10 \times$ reverse playback.

- Changing Play-Back speed If the rotary encoder is rotated on the Play Speed menu item, the playback speed can be changed from one sixteenth to ten times of the speed.
- Frame forward play-back In the Pause or Stop state, if the Frame Back or Frame Forward is pressed, a playback with frame-advancing back and forth is feasible.
- Search by Title Search and Index Search If the rotary encoder of the Title Search is rotated in playback time, fixing the order positions of titles before and after can be performed. Also, if the rotary encoder of Index Search is turned, fixing the order position of chapters before and after can be performed.
- Erase(Format)

It is used when erasing all the images currently recorded on a DVD+RW or formatting the disk.

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4-4-8. Playback (DV-800(B))

<Operation method>

- (1) Press the REVIEW switch.
 - \rightarrow The screen is changed to a Review screen.
- (2) Select the Find on the rote menu.
 - \rightarrow An image search screen is displayed.

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- (3) Move the arrow mark to the <u>Device Name</u> \checkmark and select DVD or DVD-VSR from the pull-down menu. Input the search condition such as ID and select the **Search**.
 - \rightarrow The search-results screen is displayed.



- (4) Select an image to play back and select a Viewer from the root menu.
 - → The selected image is displayed on Full Screen. If the icon of Full Screen on the lower left of the monitor is selected, it will return to a search-results screen.



You can hide the DV-800(B) menu at the bottom of the screen. To hide the menu, remove the active pointer from the menu. To display the menu again, move the active pointer to the bottom of the screen.

Other Functions

• Full Screen

The objective image is displayed on Full Screen. During displaying on Full Screen, if the Full Screen is pressed, it will return to a search-results screen.

• Prev Image

The image file which is one before is displayed if you have selected multiple image files.

• Next Image

The image file which is one after is displayed if you have selected multiple image files.

Loop Start/Stop

The playback image is paused. To resume the playback, press the button again while the playback is paused.

- A playback image is fast-forwarded.
- REW

• FF

A playback image is re-winded.

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4.Save of Image4-4.Video recording/Playing back with DVD

Seek bar

The slider moves from left to right, indicating the playback position of the data.

Press the ENTER switch at any point on the Seek bar to skip the playback position to the point. However, you cannot drag the slider.

• Time elapsed

Shows the time elapsed since the start of the image currently played back. If you display the previous (next) image, the time resets to zero. [Hour: Minute: Second] format is used.

• Duration

Shows the duration from the start to the end of the recording of the image currently played back. [Hour: Minute: Second] format is used.

[Remark]

The Seek bar, Time elapsed, and Duration are not displayed on the touch panel menu.

[Remark]

During displaying a Full Screen, all switches other than Trackball, ENTER, and REVIEW are incapacitated.

5. Physiological signals

Follow the procedures in "3. Installation Method" of the Safety Instruction to install a physiological signal unit.

<u>∧</u> Caution

Do not use a defibrillator when using a physiological signal unit because this may cause this instrument to break down.

5-1. Electrode setting

(1) Connect ECG electrodes to the patient.

[Remark]

The ECG lead method is the second limb lead method, so connect the cords as shown below.

| ECG cable | Red (R) | Green (F) | Black (RF) |
|--------------|------------|-----------|------------|
| Joint region | Right hand | Left foot | Right foot |

5-2. Display of physiological signals

<Operation method>

- (1) Press the Physio of the group menu on the touch panel menu.
 - \rightarrow The menu concerning physiological signals is displayed.



[Remark]

The Physio menu that is displayed on the touch panel screen is a fixed menu. To set it to an easy-to-use format, assign it to the Image Func Other2 menu or give it some other similar menu assignment.

As for the menu assignment on the touch panel menu, refer to "6. Touch panel".

[Remark]

As for details of physiological signals, refer to "6.Touch panel".

This section consists of 6 pages.

(2) Press the ECG Display.

- \rightarrow An ECG waveform is displayed on an image.
- (3) Set the position of an ECG waveform with the ECG Posi on the touch panel menu.
 - \rightarrow It is adjusted with the rotary encoder located beside the ECG Posi.



[Remark]

The position of ECG waveform can be set independently for each Sweep mode, such as B mode, M mode and D mode.

- (4) Adjust the sensitivity with the ECG sens.
 - \rightarrow Establish the setting using the rotary encoder that is next to the ECG Sens.

[Remark]

The position and sensitivity of other physiological signal waveforms are set by procedure (3) and (4) above.

[Remark]

If the M mode image and ECG image overlap each other, making them difficult to see, you can erase part of the M mode image by using the Echo Erase.

[Remark]

When an ECG waveform is displayed, this instrument detects R-wave, and heart rate is calculated, and the value of heart rate is displayed with HR *** on the screen. (Display range; between HR 30 and HR 500)

If the heart rate exceeds the display range, it is displayed in the form HR***. Also, if the R-wave is not detected for at least 5 seconds, an assist message is displayed.

Detection Error:

R-wave of ECG is not detected

Check to see whether or not the ECG electrodes are correctly attached to the patient.

[Remark]

When using ECG, the setting of the filter differs depending whether the frequency of the supply mains is 50 Hz or 60 Hz. Check the filter setting by observing the hum filter switch on the physiological signal connector panel on the side panel.
5-3. Electrocardiosynclonization display

ECG sync display (SYNC function) is a function that displays the part of an image through which the ECG sync mark passes.

You can obtain an image of any desired time phase while observing the time phase of the ECG waveform. When you use the SYNC function, please assign ECG SYNC to a menu with the preset function beforehand.

- (1) When an ECG waveform is displayed, select the ECG Sync on the touch panel menu.
 - → With ECG Sync, a SYNC mark is displayed on an ECG waveform on B mode and the DELAY time from the R-wave is displayed on the screen. You can set the delay time in 10 ms steps.

[Remark]

In order to set the delay time, you must assign R-Delay Time to the menu.



(2) Select the R-Delay Time on the touch panel menu and set a sync time.

[Remark]

Note that when setting the synchronization time with the rotary encoder, if you exceed the synchronization time setting limits, the following message will blink in the lower left-hand side of the screen. If the sync period exceeds the set limit, the following assistance message will flash at bottom left of the screen.

Range Limit ; Selection is not available

(3) Set the ECG SYNC on the touch panel menu to Off.

 \rightarrow The ECG sync display is finished.

[Remark]

If the R-wave is not detected for at least 5 seconds, the following assistance message will flash at bottom left of the screen.

Detection Error ; R-wave of ECG is not detected

Check to see whether or not the ECG electrodes are connected correctly to the patient.

B/Sync Mode

In this mode, a normal B mode image is displayed on the left side of the screen, and a SYNC image is displayed on the right side.

[Remark]

In order to use the B/SYNC Mode, it is necessary to assign it to the touch panel.

5-4. Heart Rate Stability Display

Heart Rate Stability Display is a function that automatically determines if the heart rate is stable enough for Tei Index measurement.



<Operation method>

(1) Turn on HR Stability Display in the menu or the preset.

[Remark]

The default setting of HR Stability Display is Off.

- (2) From HR Stability Disp (Avg.) in the menu or the preset, set the allowable range of the difference between heart rates (possible values:0 to 50%).
 - \rightarrow The heart rates of [Latest heart rate] and [Average of previous five heart rates] are compared. The heart rates of [Previous heart rate] and [Average of previous five heart rates] are also compared.

[Remark]

Both comparisons use the same allowable range of the difference between heart rates.

- (3) From HR Stability Disp (Conti) in the menu or the preset, set the value (possible values:0 to 50%).
 - \rightarrow The heart rates of [Latest heart rate] and [Previous heart rate] are compared.
- (4) If all of the comparison results in (2) and (3) are within the allowable range, the heart rate of [Latest heart rate] is determined as stable and the HR indicator at the upper right of the screen is displayed with black and white reversed.





For example, when HR Stability Disp (Avg.) is set to 10%, HR Stability Disp (Conti) is set to 20%, [Average of previous five heart rates] is 100, [Previous heart rate] is 110, and [Latest heart rate] is 105, the determination of stability will be performed as follows:



Since the value of HR Stability Disp (Avg.) is 10% and [Average of previous five heart rates] is 100, allowable range of the heart rate for both [Latest heart rate] and [Previous heart rate] is between 90 and 110. Both heart rates are within that range, so both meet the condition set in HR Stability Disp (Avg.).

Next, since the value of HR Stability Disp (Conti) is 20% and [Previous heart rate] is 110, allowable range of the heart rate for [Latest heart rate] is between 88 and 132. The heart rate of [Latest heart rate] is within that range so it meets the condition set in HR Stability Disp (Conti).

Because all conditions are met, the latest heart rate is determined as stable and the HR indicator on the screen is displayed with black and white reversed.

6. Touch panel

The functions that cannot operate directly on the control panel are displayed with a menu pattern on the touch panel menu, and with the touch panel, necessary settings for condition can be made.



Touch panel: It is used for the selection of set items.

Rotary encoder 1:It is used for changing set values.

Rotary encoder 2:It is used for changing set values.

Rotary encoder 3:It is used for changing set values.

MENU switch: The menu is displayed.

[Remark]

For touch panel menu of optional function, refer to volume "Option".

Menu is displayed on the touch panel menu when this instrument is turned power on.



(1) Menu tag

A menu of each mode is displayed as the menu title on the left side on the touch panel menu.

It can be displayed up to three pages for every mode.

By selecting a menu tag, you can switch the menu page.

[Remark]

On the menu tag, a menu tag each mode and a menu tag of Other are usually displayed.

· User's switch area

Switches related to a mode or custom switches that are assignable to the operation panel can be arranged for up to three pages, with four items per row on the first page and five items per row on the second and third pages. A page can be changed with " \rightarrow (NEXT)" at the left side of the page.

The ACOUSTIC POWER that is displayed in the touch panel when this device is started up cannot be deleted from the user switch registration.

• Group area (group menu)

A function is classified for every mode, and the menu which is grouped is displayed. You can arrange the switches up to 5 items in one page and up to 3 pages.

• Menu function area

When you select the button in the group area, the sub-menu registered with the button are displayed in the menu function area.

6-1. Operation on touch panel



[Remark]

The items assigned with the Up-down switch or the rotary encoder 1 to 3 can be selected with a preset. (some functions can be set only with the rotary encoder.)

In this manual, the operation procedures are described using the Up-down button.

6-1-1. Registration / Change of touch panel

Registration / Change of an item to display on the touch panel menu are performed with a preset.

<Operation method>

- (1) Press the PRESET switch.
 - \rightarrow A preset list is displayed.

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Fig. Preset List

- (2) Using the trackball, move an arrow to the Set-Up, and press the ENTER switch.
 - \rightarrow The preset selecting list is displayed.



Fig. Preset setting selection list

- (3) Using the trackball, move the arrow to an application, and press the ENETR switch.
 - \rightarrow A setting screen as the following is displayed.

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| | Fig. Pre | set Set-Up Menu | | |

- (4) Using the trackball, move the arrow to the Menu-USER SW Assign, and press the ENTER switch.
 - → The registration screen of a user switch area is displayed.
 You can register 5 items in one page and up to 3 pages.

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Functions registered with a user switch area are displayed.

The functional items which can be registered with a user switch area are displayed. The page is changed with Prev. or Next.

Fig. MENU-USER SW Assign

- (5) Using the trackball, move the arrow to a location that is desired for registering on Page 1 to 3, and press the ENTER switch.
- (6) Using the trackball, move the arrow to the function that is desired for registering from the Select Items and press the ENTER switch.
 - \rightarrow It is registered at a location selected in step (5).

[Remark]

When a function is to be erased, the Delete button is selected after step (5).

The ACOUSTIC POWER that is displayed in the touch panel when this device is started up cannot be deleted from the user switch registration.

- (7) Using the trackball, move the arrow to the MENU-Group Assign, and press the ENTER switch.
 - \rightarrow The registration screen of a user switch area is displayed.

You can register 5 items in one page and up to 3 pages every mode.



- (8) To select a mode, register with Mode.
 - \rightarrow It is registered with the same procedure as step (5) to step (6).

- (9) Using the trackball, move the arrow to the MENU-Function Assign, and press the ENTER switch.
 - → A registration screen of the menu area is displayed.
 There are three menu groups which users can register every mode.
 A menu group is displayed from Image Func B1 to Image Func B3, and a function can be registered with every group.

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Fig. MENU-Function Assign

(10) Select a mode and a group to register.

 \rightarrow It is registered with the same procedure as step (5) to step (6).

[Remark]

You can change the group name (Image Func B1 and other name).

Enter the group name with the keyboard.

6-2. User switch area

6-2-1. ACOUSTIC POWER

Use this function to configure the output value for acoustic power manually, as opposed to automatically.

- (1) Press the ACOUSTIC POWER on the touch panel menu.
 - \rightarrow An image inverts.
- (2) Using rotary encoder 4, adjust the output to the optimum value.
 - \rightarrow Turning rotary encoder 4 clockwise causes the output to increase, and vice versa. At the same time, the output value on the image changes.

6-2-2. Invert

This function reverses the left and right sides of the image when a B mode image and a D mode image are displayed. When an image is inverted, marks accompanying the image (an active mark, a cursor) are inverted at the same time.

- (1) Press the Invert switch on the touch panel menu.
 - \rightarrow An image inverts.

[Remark]

The center of reversal of the image is the center of the image.

When a D mode image is displayed, the image is reversed about the baseline vertically.

This makes the data of the blood flowing toward the probe and the data of the blood flowing away from the probe be displayed reversibly.

[Remark]

When conducting a measurement with an inverted image saved with the DICOM type, set the Private Tag to the Put into Both in DICOM Store/Send of the Common Preset and then save the image.

6-2-3. FAM

A menu concerning FAM (Free Angular M mode) is displayed.

| Active FAM Off | :When plural cursors are displayed, the current active cursors are erased. |
|----------------|--|
| Contrast (FAM) | The contrast of M mode image is set. It is set of 16 phases with 1 to 16. |
| Gamma (FAM) | :This function is for correcting the expres- sion of information pertaining to diagnos- tic part effectively, changing brightness characteristics of M mode image. It is set with five phases with Off and 4 steps of 1 to 4. |



[Remark]

Trace Fit operates on Off state.

| MAG (FAM) | :The amplification of the M mode image is set with a reference to the display size of the B mode image as a base. The setting values can be; $\times 0.5$, $\times 0.75$, $\times 1$, $\times 1.5$, and $\times 2$. |
|--------------------------------|---|
| Multi FAM | :Sets the number of cursor displayed. It is possible to display two or three cursors maximum. |
| PSAX | :This function is for displaying multiple cursors simultaneously, in order to display the M mode image of the left Parasternal Shot Axis View. Off: Finishes displaying the M cursor for the left ventricle minor axis. On: Displays the M cursor for the left ventricle minor axis. |
| Sweep Speed (M) | :A sweep speed is set when the M mode image is displayed. A sweep time from the right edge of an image to the left edge can be set with 25, 33.3, 50, 66.7, 100, 150, 200mm/s. With a B/M mode display, the sweep time is set at about 2/3 of the M mode. |
| [Remark] | |
| When changing the s of freeze. | et value after freeze, there is no way to change to a higher value than the set value at the time |

Trace Fit:scroll range at the time of multiple cursors display is adjusted to the B mode image.Off: A scroll range is not adjusted to a B mode image.On: A scroll range is adjusted to a B mode image.

6-2-4. Active(B1 - B4)

At the time of a 4B mode, buttons-B1 to B4 are displayed on the touch panel menu.

An image can be directly selected without using the SELECT switch.

[Remark]

Use the Preset to assign B1, B2, B3 and B4 to the touch panel menu or user switch in advance.

6-2-5. Body Mark

It can display and change a body mark.

- (1) Press the BODY MARK switch on the touch panel menu.
 - \rightarrow The body mark is displayed on the touch panel menu.
- (2) Change the body mark.
 - \rightarrow When an illustration of a body mark on the touch panel menu is select, the display is changed.

[Remark]

A body mark displayed on the touch panel menu is set with a preset of Body Mark.

[Remark]

Up to 15 body marks can be displayed on a single page. To see the subsequent pages, press the menu tag.

- (3) Set the Position of a probe mark.
 - \rightarrow Using the trackball, move the probe mark, and rotate the probe mark with rotary encoder 4.

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(4) Press the BODY MARK switch on the touch panel menu.

 \rightarrow The body mark is disappear.

[Remark]

You can change the display position of the body mark.

- a. Press the Locate on the touch panel menu.
 - \rightarrow The frame is displayed.
- b. Using the trackball, move the frame and press the ENTER switch.
 - \rightarrow The body mark moves. Press Locate again and the frame disappears and the migration ends.
- c. Press the Locate on the touch panel menu. And press the Reset on the touch panel menu.
 - \rightarrow The body mark returns to its starting position.

[Remark]

The fetus mark has a rotation function for examining a reverse fetus.

- a. Display the fetus mark, then press the ENTER switch.
- b. Rotate the fetus mark with the rotary encoder 4.
- c. Press the ENTER switch.
 - \rightarrow The rotary encoder 4 returns to the rotation function facing the probe mark.

6-2-6. Archive Group1 - 3

The print function which is assigned with the Print(Freeze) or the Print(Realtime) of a preset is carried out. For details, refer to "1-4-15.PRINT(Archive Group)".

6-2-7. EXT

This function switches between the normal display of ultrasound images (INT state) and the display of external signals such as DVD images (EXT state).

Normally, it is set to the INT state.

If you press the FREEZE switch when a video image is displayed on the screen in the EXT condition, the image at that point in time will be stored in the VCR MEMORY.

You can enter comments on this screen, or print out the contents of the screen.

- (1) Press the EXT switch.
 - \rightarrow The switch lights orange, indicating that the instrument is in an EXT state.
- (2) Press the EXT switch once again.
 - \rightarrow The switch lights up in green and the image display returns to the ordinary INT state.

6-2-8. Imaging Information

Displays or hides the information of automatic display area 1.

6-2-9. M1 - M4 (Measurement1 to 4)

Performs the measurement which is registered with the Measurement SW Assignment of Measurement preset.

6-2-10. End Study

Enables you to end examinations one at a time when performing multiple examinations of the same patient.

6-3. Group area

6-3-1. Image Func B1 - B3

A sub-menu for adjusting an image quality of the B mode is displayed. The sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-2. Puncture

This function enables you to display a needle guide line on the screen, in order to puncture a part of the body while observing a B mode image.

For details, refer to "6-4-1-20.Puncture G.Line", "6-4-1-21.Puncture Measure", "6-4-1-24.Angle Sel(Punc)".

6-3-3. Focus(B)

This function focuses the ultrasound beam, resulting in a clearer image. It enables you to change the focus points used when the ultrasound beam is emitted.

A B mode image has 16 transmission points when an electronic sector probe is used. You can set the focus at up to 4 of these points.

| Auto 1P | : | Sets 1 focus point near the center of |
|-------------|---|--|
| | | the image. |
| Auto 2P (@) | : | Sets 1 fixed point at the top of the image and |
| | | 1 movable point at the center of the image. |
| Auto 2P | : | Sets 2 average focus points for the entire |
| | | image. |
| Auto 3P | : | Sets the focus at 3 points on the image. |
| Manual | : | You can set arbitrary focus points. |



[Remark]

You cannot set all focal points to OFF. One points is always set as a focal point.

As for the focus of a B mode image, the setting is independent by the On/Off of ExPHD.

The setting of Focus(ExPHD) is active when ExPHD=On, while the setting of Focus(B) is active when ExPHD=Off. However, the touch panel menu shares the same Focus(B).

\land Note

If you set multiple focus points, that results in obtaining an image with high resolution, but decreasing the frame rate.

Select the optimum setting so as to suit the desired body part while checking the acoustic power index.

6-3-4. Angle Gain

This function corrects the gain at an arbitrary position in the direction of the scanning lines.



| Reset | : When changing the gain of a selected Pattern, it returns to the initial state. |
|-----------|--|
| Slide bar | : It can be changed with 31 steps. |
| Pattern | : It selects a gain correction being set beforehand. |
| Linear | : It displays a straight line at the bottom side. |
| V1 - V3 | : A gain is corrected by V character pattern. |
| | There are three patterns from 1 to 3. |
| User | : It is corrected with the pattern produced by user. |
| | The correction method can be registered with the Preset. |
| | |

[Remark]

Only a sector probe can operate.

6-3-5. IP Regist (B)

Used settings can be registered on a menu.

Registration : When settings of used IP Select (B) are changed (refer to "6-4-1-17.IP Select(B)"), these conditions are registered collectively. Factory Default : It returns to default setting.



6-3-6. STC Memory

You can register the position of the STC knob that you adjusted.



Registration : Registers the position of STC knobs that has been set on the operation panel.

- STC Curve : Specifies whether or not to use the registered position of the STC knob.
 - Normal : The registered position of the STC knob is not used. The position of the STC knob that is currently set on the operation panel is reflected on the image.
 - Custom : The registered position of the STC knob is used. The registered position of the STC knob is reflected on the image.

Initialize : Initializes the position of the STC knob.

[Remark]

If you select Preset \rightarrow ImageB, M1 \rightarrow Adaptive STC and set the parameter to Adaptive during adjusting the preset, STC Memory does not function. Set it to Normal with the preset.

[Remark]

If you use Custom, align the STC knob on the operation panel to the center.

[Remark]

The position of a STC knob can be registered for each preset. However, the registered position of the STC knob cannot be copied by copying the preset in Preset Control.

<Operation method>

- (1) Assign STC Memory to the group menu and start a preset.
- (2) Adjust the STC knob on the operation panel.
 - \rightarrow The position of the STC knob that is set on the operation panel is reflected in the image.
- (3) Press the **Registration** on the touch panel menu.
 - \rightarrow The position of the STC knob that is set on the operation panel is registered.

[Remark]

Registration only works when STC Curve is Normal.

- (4) Align the STC knob on the operation panel to the center (reference) position.
- (5) Switch the STC Curve to Custom.
 - \rightarrow The registered position of the STC knob is reflected in the image.

[Remark]

To register a new position, switch STC Curve to Normal and then perform this procedure from (2). When STC Curve is switched to Normal, the STC that is currently set by the STC knob on the operation panel is reflected in the image.

<Initialization method>

- (1) Switch the STC Curve to Normal.
 - \rightarrow The STC currently set on the operation panel is reflected in the image.
- (2) Press the Initialize on the touch panel menu.
 - \rightarrow The registered position of the STC knob returns to the default setting.

[Remark]

Initialize only works when STC Curve is Normal.

6-3-7. Image Func M1 - M3

A sub-menu concerning an image quality of the M mode is displayed. A sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-8. Focus(M)

This function focuses the ultrasound beam, resulting in a clearer image. It enables you to change the focus points used when the ultrasound beam is emitted.

An M mode image has 8 focus points when an electronic probe is used. You can set the focus at only 1 of these points.

When selecting the Manual, you can select one focus point among these points.

Auto : Sets 1 focus point near the center of the image.

Manual : Sets 1 focus point with F1 to F8. You can set arbitrary focus point, however, the focus point is not automatically corrected if they move outside the display range.



6-3-9. IP Regist(M)

An active setting can be registered on a menu.

| Registration | : | When the | settings of | of use | d IP Select(M) | are |
|-----------------|---|--------------|-------------|--------|----------------|-----|
| | | changed | (refer | to | "6-4-2-5.IP | Se- |
| lect(M)")these | | | | | | |
| | | conditions | are regis | stered | collectively. | |
| Factory Default | : | It returns t | to Factor | y defa | ult setting. | |



6-3-10. Image Func D1 - D3

A sub-menu concerning the image quality of D mode is displayed.

A sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-11. Focus(D)

This function focuses the ultrasound beam, resulting in a clearer image. It enables you to change the focus points used when the ultrasound beam is emitted.

A D mode image has 8 focus points when an electronic probe is used. You can set the focus at only 1 of these points. When selecting the Manual, you can select one focus point among these points.

| Auto | : Sets the focus at only 1 point near the center of |
|--------|---|
| | the sample volume. |
| Manual | : Sets 1 focus point with F1 to F8. |
| | |

You can set arbitrary focus point, however, the focus point is not automatically corrected if they move outside the sample volume.



6-3-12. IP Regist(D)

An active setting can be registered on a menu.

Registration : When the settings of used IP Select(D) are changed (refer to "6-4-3-12.IP Select(D)"), these conditions are registered collectively.

Factory Default : Returns to the Factory default setting.



6-3-13. Image Func F1 - F3

A sub-menu concerning image quality in Flow is displayed.

A sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-14. Image Func PF1 - PF3

A sub-menu concerning image quality in Power Flow is displayed.

A sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-15. Image Func eF1 - eF3

A sub-menu for adjusting an image of the eFlow mode is displayed.

6-3-16. Color Map(Flow)

Abdom

Cardio

This function is used when displaying flow, to convert the color information (flow velocity, dispersion) in an image into color, or to change the method of enhancement. It also operates after the image is frozen.

: Changes the color distribution for the

: Changes the color distribution for the cardiac

abdominal region.

| 5 | 2.8 | -43% | 1.02.4. | 200 | 12.00 |
|------|-------------|--------------|------------------|-----------------|-------|
| - | ON No. Pint | | presourid | | |
| E 10 | | 194 - | (## | Con o | C |
| 22 | | 1 | Read and 1984 | Next onl HBZ | lher |
| | | e an | 24.4 | ing an | |

1000

| | region. |
|---------------|--|
| Vascular | : Changes the color distribution for the peripheral |
| | vessels. |
| Power | : Changes the color distribution to one that is |
| | suitable for Power Flow. |
| eFlow | : Changes the colors distribution to one that is suitable eFlow. |
| Directional I | Power |
| | : Changes the colors distribution to one that is suitable Directional Power. |
| Directional e | eFlow |
| | : Changes the colors distribution to one that is suitable Directional eFlow. |
| User | : Changes the color distribution for the customized settings, configured for each of the items User A to |

After the application mentioned above is selected, chromatic taste can be identified with the touch panel.

6-3-17. Display Priority(Flow)

E.

This function sets the information to be displayed preferentially if a black and white slice image coincides with a color flow display.

[Remark]

In order to display a Display Priority (Flow) menu at TDI Flow, set the TDI Display Type of Tissue Flow of a preset to B.

| Color | : Displays only color information when both black |
|-----------|---|
| | and white information and color information |
| | exists. This function is suitable for displaying |
| | fine blood flow such as that in the heart |
| | chambers or the abdominal region. |
| Color TDI | : In the TDI Flow mode, only color information is |
| | displayed. |
| | This function is suitable for the TDI Flow mode |
| | used to observe high speed data such as the |
| | motion of the cardiac muscle. |
| Both | : When both black and white and color |
| | information are present, both information |
| | are displayed. |
| Roth TDI | · When there are much low flow rate information of co |



Both TDI : When there are much low flow rate information of colors available, if the low velocity components of the color data are large, the color data is cut off and black and white data displayed preferentially.

Brightness levels of displaying black and white information and color information are set with the rotary encoder.

- Level B&W : Sets the brightness level for displaying black and white information. If the echo is stronger that the specified brightness, the black and white echo is displayed directly. Reducing the set value enables clutter signals to be removed, but also reduces the blood flow signal. You can set the level between 0 and 127.
- Level Color : Sets the flow velocity level for displaying color information. If the flow velocity is higher than the set value, color is displayed directly. Increasing the set value enables clutter signals to be re moved, but also reduces the blood flow signal. You can set the level between 0 and 127.

[Remark]

The Level Color setting is set in the range 1 to 127 in Flow and TDI Flow mode.

6-3-18. IP Regist(Flow)

An active setting can be registered on a menu.

| Registration | : | When the settings of used IP Select(Flow) |
|-----------------|---|---|
| | | are changed (refer to |
| | | "6-4-4-18.IP Select(Flow)"), |
| | | these conditions are registered collectively. |
| Factory Default | : | Returns to Factory default setting. |



6-3-19. Image Function Other1 - 3

A sub-menu concerning the image quality as a whole and physi-

ological signals is displayed. A sub-menu can be set with a preset. For details, refer to "6-1-1.Registration / Change of touch panel".

6-3-20. Post Processing

This function changes the display brightness characteristics of the B mode image to be displayed on the viewing monitor, according to the echo intensity.

You can change a black and white image displayed in 64 graduations to an arbitrary gray scale, in order to reduce echo noise, and so on.

Four kinds of correction curves are available. It is possible to change the display brightness characteristics by selecting a curve and setting each level.

Linear : The level cannot be changed.

- Slope1 : Echoes of a lower intensity than the region in which the brightness is expanded are displayed at the minimum brightness, and echoes of a higher intensity are displayed at the maximum brightness.
- Slope2 : Echoes of a lower or higher intensity than the region in which the brightness is expanded are displayed at the minimum brightness.
- Slope3 : Changes in echoes of a lower or higher intensity than the region in which the brightness is expanded are compressed to 1/4 before being displayed.



Reject : Echoes that are lower than the set level are displayed at the minimum brightness.

[Remark]

The correction curve characteristics are as follows.

Linear

This is the condition in which the levels are fully expanded, that is, the condition in which all 64 gradations are used. All echoes are displayed at a brightness corresponding their intensity.



Slope 1

Echoes of a lower intensity than the region in which the brightness is to be expanded are displayed at the minimum brightness, and echoes of a higher intensity are displayed at the maximum brightness.



Echoes of a lower or higher intensity than the region in which the brightness is to be expanded are displayed at the minimum brightness.

Slope 3

Changes in echoes of a lower or higher intensity than the region in which the brightness is to be expanded are compressed to 1/4 before being displayed.







6.Touch panel 6-3.Group area

Reject

Echoes that are lower than the set level are displayed at minimum brightness.



6-3-21. Graphic Editor

This function is used to edit, process or store the display colors of characters and graphic displays. The display colors edited here can be displayed by selecting User of Graphic Color.

- Plane1 7, Physio Plane: Selects and displays each plane for setting a color.
- R,G,B : Processes the display color of each plane. Set values between 0 and 255.



6-3-22. Physio

This function displays a menu for physiological signals and the synchronization of the ECG waveforms.

For details, refer to "6-4-5-9.ECG Display" to "6-4-5-17.B/Sync Mode".

[Remark]

The optional PEU-ALPHA6 is necessary.

6-3-23. ECG Sync

A synchronization of ECG waveforms menu is displayed. For details, refer to "6-4-5-15.R-Delay Time" to "6-4-5-17.B/Sync Mode".

6-3-24. DVD Control

A operation of DVD menu is displayed. For details, refer to "4-4-1.Setting for DVD".

6-3-25. Color Map(B/M/D)

Tint the image to make it easier to understand. This function can be used in B mode, M mode, ExPHD mode for use with contrast agent, and D mode.

6.Touch panel

6-3.Group area

| Gray | : Normal brightness characteristics | Ð |
|---------|--|---------------|
| А | : Blue and orange brightness characteristics | 2 2.5 |
| В | : Blue brightness characteristics | · (1, 1, 144) |
| С | : Blue brightness characteristics that are weaker | 2 |
| | than B | # 2 |
| D | : Orange brightness characteristics | |
| Е | : Brown brightness characteristics | |
| F | : Brown brightness characteristics that are weaker | |
| | than E | |
| G | : Blue and yellow brightness characteristics | 3 |
| [Remark | k] | |
| _ | | |

B mode and M mode are a common setting.

6-3-26. Store Set Up

A sub-menu for capture an image is displayed.

For details, refer to "6-4-5-23.Store Media", "6-4-5-20.Acquire Mode", "6-4-5-21.ECG Cycle", "6-4-5-22.Time Cycle".



6-4. Menu Function Area

6-4-1. B mode

6-4-1-1. AGC(B)

Boundaries between tissues can be emphasized.

| Off | : The AGC(B) function is not used. |
|--------|--|
| 1 - 15 | : You can change the AGC in 15 steps from 1 to 15. |

6-4-1-2. Beam Processing

This function switches over the number of beams received in order to improve the frame rate.

Multi : Scanning takes place using multiple received beams.

Single : Scanning takes place using the standard number of scanning lines.

6-4-1-3. Beam Steer(B)

Beam steering is a function that electronically tilts the ultrasound beam so that it is transmitted and received at an oblique angle with respect to the blood flow direction, thus enabling information concerning the part being examined to be obtained.

Using the rotary encoder, set a value in 5° steps, between -30 and $+30^{\circ}$.

[Remark]

The angle through which the beam can be steered differs depending upon the probe.

6-4-1-4. Contrast(B)

The contrast of B mode image is adjusted. It can be changed in 23 steps. There are two pattern display methods. Make settings under Common Preset.

6-4-1-5. Edge Optimizer

Apply image processing to the received ultrasound signal, then optimize speckle and emphasize border areas.

- Off : Edge Optimizer function is not usable.
- On : Edge Optimizer function is usable

6-4-1-6. Edge Optimizer Level

Change the level of image processing when Edge Optimizer is On.

1 - 8 : You can change the Edge Optimizer Level in 8 steps from 1 to 8.

6-4-1-7. ExPHD(T.H.E.)

Receiving a receiving frequency of ultrasound in double, and furthermore removing redundant secondary higher harmonics, you can display B mode and M mode images more clearly.

| Off | : The ExPHD function of T.H.E. is not usable. |
|-----|---|
| On | : The ExPHD function of T.H.E. is usable. |

Extended F-View(Extended Field of View) 6-4-1-8.

This function changes a B mode image or a B color image to a compound display. By this function, wide area that is not for one screen in a normal B mode can be observed.

| Off | : The Extend F-View function is not usable. |
|-----|---|
| On | : The Extend F-View function is usable. |

6-4-1-9. FTC(B)

It accentuates edges in B mode and makes the contours highlighted and lined.

| Off | : It does not accentuate edges in B mode and makes the contours blurred. |
|-----|--|
| | |

On : It accentuates edges in B mode and makes the contours enhanced.

6-4-1-10. Frame Corre Type

Selects the operation mode of the frame correlation function.

| Auto | : The correlation is set according to the frame rate. |
|--------|---|
| Manual | : Fixes the number of images to which frame correlation is applied. |
| | The degree of correlation changes with the frame rate. |

6-4-1-11. Frame Corre(B)

This function correlates adjacent frames in order to obtain a smooth image. When observing fast motion, such as that of the heart, set the correlation on the low side.

| Off | : The Frame CORRE(B) function is not usable. |
|---------|--|
| 1 to 15 | : You can set Frame CORRE to one of 15 steps between 1 and 15. |

6-4-1-12. Frame Rate(B)

It selects either an image (scanning line density low) with frame rate emphasis or an image (scanning line density high) with image quality emphasis.

| Low | : An image (scanning line density low) with priority in frame rate. |
|------|---|
| Med | : An image in the middle of High and Low. |
| High | : An image (scanning line density high) with priority in image quality. |

6-4-1-13. Image Direction(LR)

B mode image is displayed with left and right reversed.

Normal : The image is displayed in the ormal orientation.

Invert : The image is displayed with left and right reversed.

[Remark]

The inverse center of image is the center of an image.

6-4-1-14. Image Direction(UL)

B mode image is displayed with top and bottom inverted.

6-4-1-15. Image Freq(B/M)

This function switches the transmitting frequencies of the probe.

| Penet | : A probe is set to a low frequency. |
|-------|--|
| Std | : A probe is set to a slightly low frequency. |
| Reso | : A probe is set to a slightly high frequency. |
| High | : A probe is set to a high frequency. |

▲ Note

If you select the low frequency, that results in making an image with the higher sensitivity and the lower resolution.

If you select the high frequency, that results in obtaining an image with high resolution, but reducing the sensitivity.

Select the optimum setting so as to suit the desired body part while checking the acoustic power index.

6-4-1-16. Image Rotation(B)

This function rotates a displayed B mode image through 90°. The marks associated with the image (direction marks, cursor, etc.) rotate together with the image.

You can rotate an image through 0°, 90°, 180° or 270°.

6-4-1-17. IP Select(B)

The patterns with settings of Frame CORRE, Contrast, AGC, Relief, Smoothing, Image Enhance and View Gamma in B mode are selected.

1 - 8 : It is selected among different eight patterns.

6-4-1-18. OMNI Angle

This function moves the angle of the transducer in the probe to enable a slice image to be displayed at any desired angle. You can set the angle in 5° steps within the range $-45^\circ \sim 0^\circ \sim 45^\circ$.

[Remark]

The ASU-1012 trans vaginal electronic convex sector scanner and the optional EU-9131 and SOP-ALPHA6-4 are necessary.

6-4-1-19. PRF Limit

When the examination range is narrow, the frame rate is automatically limited to prevent multiple echoes from appearing. This PRF Limit function removes this limit. It is particularly useful for when examining the circulatory organs.

Off : The PRF scans at the highest frame rate for the display depth used.

On : Maintains the PRF constant even if the display depth is increased, in order to prevent multiple echoes.

6-4-1-20. Puncture G.Line

This function enables you to display a needle guide line on the screen, in order to puncture a part of the body while observing a B mode image.

The needle guide line is displayed using dots. The dot separation is either 0.5cm or 1.0cm depending upon the display depth.

The 0.5cm or 1.0cm separation also changes depending upon the display depth and the zoom magnification. If the display direction of the image is reversed, the puncture guide line is also reversed.

Off : A needle guide line is not displayed.

On : A needle guide line is displayed.

[Remark]

This function operates regardless of whether the freeze function is ON or OFF.

6-4-1-21. Puncture Measure

This function displays an arrow alongside the needle guide line to enable the depth to the target to be measured, and also changes the angle of the needle guide line.

Off : Turns Off the depth display.

On : Enables the depth to the target to be measured and displayed with the trackball.

[Remark]

The needle guide line will not disappear even if the trackball is used for another function (focusing, for example) while the depth is displayed. Also, the position of the arrow indicating the depth display will not change. (This does not apply when the mode is changed, however.)

The depth display arrow is retained until you select Guide Line Setting from the menu once again and set Measure to Off.

[Remark]

The depth display numbers are rough values for reference. Use them after first checking the error with respect to the distance to the tip of the puncture needle in a water tank, for example.

6-4-1-22. Biopsy Select

When a puncture is performed with an attached probe that is compatible with multiple puncture adapters, use the dialog box to specify which adapter to use.

Press Puncture on the touch panel menu to display the puncture guide line on the screen. Press Biopsy Select on the touch panel menu to display the following dialog box. Specify the adapter to use.



[Remark]

When a probe that is compatible with multiple puncture adapters is first connected and the puncture guide line are displayed, the dialog box is automatically displayed.

6-4-1-23. Relief(B)

This function enhances the contours of a B mode image.

- Off : The contours are not enhanced.
- Low : The contours are enhanced to a low degree.
- MED : The contours are enhanced to a medium degree.
- High : The contours are enhanced to a high degree.

6-4-1-24. Angle Sel(Punc)

Selects the needle guide line to be displayed if there are a number of puncture guide lines.

6-4-1-25. Smoothing(B)

In the same depth, a correlation is established in scanning direction so that images turn out smooth. When strengthening linkages, set the setting rather high.

| Off | : The Smoothing(B) function is not usable. |
|--------|--|
| 1 - 15 | : You can change the Smoothing (B) in 15 steps from 1 to 15. |

6-4-1-26. T.H.E.(Tissue Harmonic Echo)

It is switched to Tissue Harmonic Echo.

Off : The T.H.E. function is not usable.

On : The T.H.E. function is usable.

6-4-1-27. Spatial Compound

When a linear or convex probe is used to examine the region for observation, scanning from many different directions decreases the number of blind spots. The function also decreases the number of artifacts that are dependent on beam direction, with a truer description rendered.

- Off : Spatial Compound function is not usable.
- On : Spatial Compound function is usable

[Remark]

To operate the Spatial Compound, SOP-ALPHA6-22(option) is necessary.

Probes enabled for this function are UST-5413, UST-568, UST-9123, UST-9127 and ASU-1010.

[Remark]

The angles provided by the multi-directional scan vary depending on the probe.

[Remark]

At the time of B/M or B/D synchronization operations, the functions of Trapezoidal Scan, FAM, RT3D, 3D Scan, EFV, ET, FMD and WI and the SpatialCompound function cannot be operated simultaneously.

6-4-1-28. Compound Angle

When Spatial Compound is operating, the angle that transmits the ultrasound beam can be set. Set in 1° steps in the range 5° to 20° .

[Remark]

The angle that can be set is different with each probe.

6-4-1-29. Trapezoidal Scan

An ultrasound image is displayed in a trapezoid shape to provide the wider field of view in the orientation direction when the linear probe is used, by combining images produced from ultrasound beams that are sent to and received from electronically different directions.

[Remark]

Probes enabled for this function is UST-5413 and UST-568.

Off : Trapezoidal Scan function is not usable.

On : Trapezoidal Scan function is usable.

[Remark]

When operating in B/M or B/D mode, the SpatialCompound, FAM, RT3D, 3D Scan, EFV, ET, FMD and WI functions can not be used in conjunction with Trapezoidal Scan.

6-4-1-30. AIP(Adaptive Image Processing)

If a process to judge and emphasize the subsistent of border areas between different characteristics and a process to remove speckle noise are combined, the tissue structure and changes in characteristic are presented more clearly.

[Remark]

To operate the AIP, SOP-ALPHA6-24(option) is necessary. Convex Sector Probe UST-9130 Linear Probe UST-567, UST-5411, UST-5412, UST-5548 Phased Array Sector Probe UST-52101, UST-52105.

Off : AIP function is not usable.

On : AIP function is usable.

6-4-1-31. AIP Edge Sens

Set the sensitivity level of detection for border areas between different characteristics when AIP operates. To increase the detection sensitivity level of border areas, set to a higher value.

1 - 8 : You can change the AIP Edge Sens in 8 steps from 1 to 8.

6-4-1-32. AIP Resolution

Set whether to emphasize spatial resolution or speckle noise removal when the AIP function operates. Set a higher value to emphasize spatial resolution.

1 - 8 : You can change the AIP Resolution in 8 steps from 1 to 8.

6-4-1-33. AIP Level

The pattern that is combined with the settings of Edge Sens, AIP, and Resolution on the AIP mode is selected.

1 - 6 : It is selected among six patterns.

6-4-1-34. Image Optimizer

Set the optimal gain value by obtaining the information of the average brightness of the entire B mode image in real time.

[Remark]

To obtain an optimal gain value, set a target value for average brightness in Brightness Level. The target value is not the gain value.

6-4-1-35. Brightness Level

Set the target value for the average brightness that should be attained in the entire image after the correction in Image Optimizer.

- Auto : The target value for the average brightness is automatically set by calculating the average brightness each time freezing occurs, and storing the moving average value of a certain number of times for each combination of probes and the presets.
- 40 80 : You can set a target value for the average brightness.

6-4-1-36. Brightness Reset

The average brightness that is stored when Brightness Level is set to Auto is reset.

6-4-2. M mode

6-4-2-1. AGC(M)

This item enables you to enhance the boundary between tissues.

| Off | : An AGC(M) function is not usable. |
|--------|--|
| 1 - 15 | : You can change the AGC in 15 steps from 1 to 15. |

6-4-2-2. Echo Erase

The M mode image and physiological image are displayed in the same area, so the physiological signal is sometimes difficult to see.

The function that progressively erases the M mode image from the bottom so as to make the physiological signal easy to see is called Echo Erase.

| Off | : The Echo Erase function is not usable. |
|--------|--|
| 1 - 19 | : Echo Erase can be changed through 19 steps, between 1 and 19 |

6-4-2-3. Contrast(M)

The contrast of an M mode image is adjusted.

It can be changed in 23 steps.

There are two pattern display methods. Make settings under Common Preset.

6-4-2-4. FTC(M)

It accentuates edges in M mode and makes the contours highlighted and lined.

| Off | : It does not accentuate edges in M mode and makes the contours blurred. |
|-----|--|
|-----|--|

On : It accentuates edges in M mode and makes the contours enhanced.

6-4-2-5. IP Select(M)

The patterns that combine the settings of the Contrast, the AGC, and the Relief on M mode are selected.

1 - 8 : It is selected among eight patterns.

6-4-2-6. Relief(M)

This function enhances the contours of an M mode image.

- Off : The contours are not enhanced.
- Low : The contours are enhanced to a low degree.
- Med : The contours are enhanced to a medium degree.
- High : The contours are enhanced to a high degree.

[Remark]

You can change the Relief (M) setting in the M mode when FTC is applied to an M mode image, however in this case the image does not change.

When FTC is canceled, an image that corresponds to the set level is displayed.

6-4-2-7. Sweep Speed(M)

For the M mode image, M should be 25, 33.3, 50, 66.7, 100, 150 and 200mm/s. The marks are displayed on M mode image every 0.5 seconds.

However, in the case of a real-time display, this mark is displayed only at the top and bottom ends of the image. When the image is frozen, the mark is displayed at fixed intervals from the top end to the bottom end.

6-4-3. D mode/TDI-D menu

6-4-3-1. Angle Correct

The ANGLE function corrects the flow velocity value according to the angle of incidence of the Doppler beam. Use it when you wish to calculate the correct flow velocity. The setting is between 0 and 80 degrees.

[Remark]

You cannot perform angle correction when the angle is 80 degrees or more because the error is too large.

6-4-3-2. Auto Angle Correct

The function automatically corrects the flow velocity value according to the angle of incidence of the Doppler beam. The setting is between 0 and 80 degrees.

[Remark]

This function operates when the display is in the B color/D mode. The colors correspond to Flow, Power Flow, and eFlow. In addition, it operates when Cursor is displayed in the 1B color mode.

6-4-3-3. Base Line Shift(D)

This is used to move or set the base line of the doppler pattern. By shifting the baseline, the Doppler pattern can be displayed without the aliasing. With the Up-down button on the touch panel menu, it is set between -16 and +16.

6-4-3-4. Beam Steer(F/D)

The steered beam function steers the ultrasound electronically to obtain the data on the study part.

This is used when information is hard to obtain where an ultrasound beam and a bloodstream direction cross perpendicularly.

With a rotary encoder, it can be set every 5 degrees between -30 and +30 degrees.

[Remark]

The angles used for beam steering are different with each probe.

6-4-3-5. Comp Curve(D)

This function switches over the brightness characteristics of the Doppler pattern. Weak signal levels are suppressed, resulting in a clear Doppler pattern.

- Off : A Compression Curve (D) function is not usable.
- 1 7 : You can set this function to one of 7 steps between 1 and 7.

6-4-3-6. Contrast(D)

The contrast of an image is adjusted.

With the Up-down button on the touch panel menu, the contrast level is changed.

It can be changed with 16 steps.

6-4-3-7. Filter Control(D)

This function removes low frequency, high level noise that is generated by the motion of the heart wall, for example.

It is used when high frequency components of blood flow are suppressed, preventing a clear image from being displayed.

Auto: Controls noise using a filter value that corresponds to the flow velocity range.Manual: Controls noise using a fixed filter value.

6-4-3-8. Filter(D)

A setting value is selected with the Up-down button of Filter(D) after having selected Auto or Manual with the Filter Control.

Auto : It can be changed from 1 to 12 steps.

Manual : It can be changed at 6 steps of 50Hz, 100Hz, 200Hz, 400Hz, 800Hz, or 1600Hz.

6-4-3-9. Freeze Trigger

This function selects whether or not to display a trace line at the freeze timing.

- Off : A trace line is not displayed at the freeze timing.
- On : A trace line is displayed at the freeze timing.

6-4-3-10. Image Polarity(D)

This function displays a D mode image with black and white reversed. Even in the case of a B/D display, only the display of the D mode image is reversed.

Nega : Displays a negative image.

Posi : Displays a positive image.

6-4-3-11. Image Select(D)

This function enables you to select whether to set a Doppler spectrum image with priority on image quality, or with priority on sensitivity.

Reso : Displays an image with priority on resolution.

Std : Standard setting

Penet : Displays an image with priority on sensitivity.

\land Note

When Reso (resolution priority) is selected, the resolution improves, but the sensitivity is reduced. When Penet (sensitivity priority) is selected, the sensitivity improves but the resolution is reduced. Select the optimum setting for the part to be examined, while observing the acoustic power index.

6-4-3-12. IP Select(D)

The pattern that is combined with the settings of Contrast, Compression Curve (D), Resolution, and Image Select(D) on the D mode is selected.

1 - 8 : It is selected among eight patterns.

6-4-3-13. M/PW(M/PW Mode)

M mode and D mode are displayed on one screen.

[Remark]

M/PW Mode operates with a electronic sector probe.

6-4-3-14. Resolution Select(D)

This function enables you to set the Doppler spectrum either so that the resolution is improved in the frequency direction, or so that it is improved in the time direction.

Time: The time resolution improves.Frequency: The frequency resolution improves.

6-4-3-15. Sample Volume

The sample volume is the volume of the sample gate that extracts the signals from the B mode image in the PW Doppler mode.

The dimension of a sample gate is from 0.5mm to 20mm.

0.5-20 : Using the rotary encoder or paddle switch, set the value in the range of 0.5 mm - 20 mm.

[Remark]

Number of steps is different by depth.

6-4-3-16. Image Freq(D)

This function switches the transmitting frequencies of the probe.

| Penet | : A probe is set to a low frequency. |
|-------|--|
| Std | : A probe is set to a slightly low frequency. |
| Reso | : A probe is set to a slightly high frequency. |
| High | : A probe is set to a high frequency. |

6-4-3-17. Spectrum Invert

When a D mode image is displayed, the image is reversed about the baseline vertically. This makes the data of the blood flowing toward the probe and the data of the blood flowing away from the probe be displayed reversibly.

Normal : the image is not reversed about the baseline vertically.

Invert : The image is reversed about the baseline vertically.

6-4-3-18. Sweep Speed(D)

For the D mode image, D should be 25, 33.3, 50, 66.7, 100, 150 and 200mm/s.

The marks are displayed on D mode image every 0.5 seconds.

However, in the case of a real-time display, this mark is displayed only at the top and bottom ends of the image.

When the image is frozen, the mark is displayed at fixed intervals from the top end to the bottom end.
6-4-3-19. Transfer List

When results of Real Time Doppler Auto Trace are desired to transfer to built-in application measurements, a menu of measurement transfer is displayed.

6-4-3-20. D.Trace Direction

This function decides and sets the tracing range of Real Time Doppler Auto Trace with the position around the baseline, in such a way that the upper side from the base line is (Toward); downside is (Away); both sides are (Both); and Auto is (Baseline)(larger side against the Baseline).

6-4-3-21. D.Trace Smooth

A trace line of Real Time Doppler Auto Trace is smoothed.

Low : A trace line is smoothed.

High : A trace line is smoothed more than the Low.

6-4-3-22. D.Trace

ON/OFF of Real Time Doppler Auto Trace is performed. When it is pressed in real time, a trace line and measured values are displayed.

Off : A trace line and measured values are not displayed.

On : A trace line and measured values are displayed.

[Remark]

During freeze, ON/OFF of a trace line can be performed.

6-4-3-23. D.Trace Locate

This is selected when the result display of Real Time Doppler Auto Trace is moved.

6-4-3-24. D.Trace Level

A detection level of a trace line of Real Time Doppler Auto Trace is adjusted. It can be adjusted between 0 and -22 d B.

6-4-4. Flow/Power Flow/eFlow/TDI Flow/TDI Power Flow

6-4-4-1. Average(Flow)

This function sets the number of transmissions used to display blood flow. If the number of transmissions is large, the sensitivity is improved, however the frame rate falls.

| Low | : The number of transmissions is set to a low value. |
|-----|---|
| Med | : The number of transmissions is set to a medium value. |

High : The number of transmissions is set to a high value.

6-4-4-2. Baseline Shift(Flow)

This function shifts the level that constitutes the baseline for forward and reverse flows. When color is displayed in reverse, you can remove the reverse display by shifting the baseline.

You can set this function within the range from -64 to +64.

[Remark]

This function operates only in the Flow mode. It can also be used after an image is frozen.

6-4-4-3. Beam Steer(Flow)

The steered beam function steers the ultrasound electronically to obtain the data on the study part. This is used when information is hard to obtain where an ultrasound beam and a bloodstream direction cross perpendicularly.

With a rotary encoder, it can set every 5 degrees between -30 and +30 degrees.

[Remark]

The angles used for beam steering are different with each probe.

6-4-4-4. Capture Mode(Flow)

This function continues to display color pixels for a fixed period of time. It enables you to obtain an image in which there is continuity between the color pixels.

Off : Capture Mode is not activated.

On : The color pixels remain displayed for a fixed period of time.

6-4-4-5. Capture Time(Flow)

This function(Flow) sets the time during which the color pixels remain displayed. If this time is long, a smooth image is obtained. If it is short, the resolution is improved.

1sec : The color pixels remain displayed for 1 sec.

2sec : The color pixels remain displayed for 2 sec.

3sec : The color pixels remain displayed for 3 sec.

Continuous : The color pixels remain displayed until the image is frozen.

6-4-4-6. Color Line Correlation

This function performs line correlation of the color pixel data and unifies it, resulting in a color flow display that has

black dropout.

Off : Color line correlation is not performed.

Low : A low degree of color line correlation is performed.

High : A high degree of color line correlation is performed.

[Remark]

The setting range changes depending on the Flow Area setting.

6-4-4-7. Color Polarity

Reverses the colors for forward /reverse flows (forward flow: Red, Reverse flow: Blow) when flow is displayed. Also, the top and bottom of the color bar is reversed.

[Remark]

It operates in the Flow mode, Directional Power Flow mode, Directional eFlow mode or Directional TDI Power mode. Also operates after the image is frozen.

Normal : Indicates forward direction flow in red.

Invert : Indicates forward direction flow in blue.

6-4-4-8. Frame Rate Accelerator

This function creates an image in which the steps between frames are smoothed. It is suitable for images that have a small frame rate, such as the blood flow in the abdominal region. Set it to Off when time resolution is important, such as in the case of the heart.

- Off : The flow image does not have continuity between frames.
- On : An image in which there is continuity between frames is created.

6-4-4-9. DDD

This function enables you to observe a B mode (black and white) image and a Flow mode image side by side in realtime. In this case, the B + Flow mode image is displayed on the right half of the screen, and the B mode image on the left half.

After freezing the images, you can switch the display to the 1B mode, and use the search function to display previous images.

[Remark]

This function can be used in the Power mode as well.

You cannot perform separate search operations on the left and right images after freezing them.

Off : The B mode and Flow mode images are not displayed side by side.

On : The B mode and Flow mode images are displayed side by side.

6-4-4-10. Directional(Flow)

A +(plus) direction and a -(minus) direction are displayed with different colors in Power Flow mode, eFlow mode or TDI Power Flow mode.

[Remark]

The settings are performed in Power Flow mode, eFlow mode or TDI Power Flow mode separately.

| Off | : A +(plus) direction and a -(minus) direction are displayed with the same color. |
|-----|---|
| On | : A +(plus) direction and a -(minus) direction are displayed with different color respectively. |

6-4-4-11. Edge Smooth

It makes a color flow easy to read with smoothing of the color boarders.

| Off | : The Edge Smoothing function is Off. |
|-----|--|
| On | : Color borders are smoothed down and displayed. |

6-4-4-12. Flow Edge

With the after-treatment of color pixel information, the color flow is prevented from protruding over tissues.

| Off | : The Flow Edge function is Off. | |
|-----|----------------------------------|--|
| ~ | | |

On : A color flow does not extend over tissues.

6-4-4-13. Filter(Flow)

This is a filter than removes low flow velocity components when displaying a signal that contains a lot of clutter (wall motion noise) due to the effect of the heart wall, for example.

Select a value from 1, 2, 3, 4, 5 and 6.

The higher the set value, the greater is the degree to which wall motion noise is removed.

[Remark]

In the case of TDI Flow, you can make a selection from 1 and 2.

6-4-4-14. Frame Corre(Flow)

This function correlates adjacent frames. Increase the correlation when the frame rate is low, such as in the case of the blood flow in the abdominal region, or when you wish to smoothen the image. Reduce the correlation when it is necessary to observe the blood flow in real-time, such as in the case of the heart.

Off : The Frame Correlation function is Off.

1 - 15 : Set a value between 1 and 15.

6-4-4-15. Frame Rate(Flow)

This function adjusts the frame rate between -4 and 4 by setting a combination of Line Density (scanning density) for both black and white images and color images in the Flow mode and the Power Flow mode.

The relation between the Frame Rate value and the Line Density for black and white and color images is shown below.

| Frame Rate | -4 | -3 | -2 | -1 | 0 | +1 | +2 | +3 | +4 |
|--------------------------------|------|------|------|------|-----|-----|------|-----|-----|
| Line Density (black and white) | High | High | High | MED | MED | MED | Low | Low | Low |
| Line Density (Color) | High | MED | Low | High | MED | Low | High | MED | Low |

6-4-4-16. Image Freq(Flow)

Transmit frequencies of a probe is switched.

Penet : It is set to low a frequency of a probe.

| Std | : It is set to a slightly low frequency of a probe. |
|------|--|
| Reso | : It is set to a slightly high frequency of a probe. |
| High | : It is set to a high frequency of a probe. |

The number of switching steps is different with each probe.

6-4-4-17. Image Select(Flow)

This function enables you to select whether to set a color image with priority on image quality, or with priority on sensitivity.

Reso : Displays an image with priority on resolution.

Std : Standard setting.

Penet : Displays an image with priority on sensitivity.

A Note

When Reso (resolution priority) is selected, the resolution improves, but the sensitivity is reduced. When Penet (sensitivity priority) is selected, the sensitivity improves but the resolution is reduced. Select the optimum setting for the part to be examined, while observing the acoustic power index.

6-4-4-18. IP Select(Flow)

The pattern that is combined with the settings of Frame Correlation, Smoothing, Image Select(Flow) and Filter(Flow) on the Flow mode is selected.

1 - 8 : It is selected among eight patterns.

6-4-4-19. PFD Range

Adjust power (dynamic range: dB value) around the display gradation sequence in Power Flow mode and eFlow mode, to acquire data with the high dynamic range necessary for analysis purposes, and adjust the image to be suitable for real-time image diagnosis.

Low : Set a low dB value per 1 gradation sequence.

Med : Set a mid dB value per 1 gradation sequence.

High : Set a high dB value per 1 gradation sequence.

[Remark]

Settings cannot be changed in TDI Power Flow mode.

6-4-4-20. Priority Level

This function enables you to simultaneously change the black & white and color levels based on the black & white level and color level set using Display Priority.

When it is set in the direction of +, the level value of black and white and color become high. When it is set in the direction of -, the level value of black and white and color become low.

-8 - +8 : It is set between -8 and +8.

6-4-4-21. Rejection(Flow)

This function removes low flow velocity components from the color information.

Use it to remove noticeable wall motion noise. (Note that in this case low velocity blood flow will also be removed.) This function can also be used after the image is frozen.

Set one of 32 values between 0 and 31.

6-4-4-22. Smoothing(Flow)

This function processes the color pixel information to smooth the color and unifies the color pixel information so as to make the color flow easier to see.

Off: The Smoothing function is Off.1 - 15: A correlative rate is raised from 1 to 15 steps.

6-4-4-23. Wall Motion Reduction

This function reduces noise when clutter signals (wall motion noise) are prominent.

| Off : | The Wall Motion | Reduction | function is Off. |
|-------|-----------------|-----------|------------------|
|-------|-----------------|-----------|------------------|

1 - 15 : It is set between 1 and 15.

[Remark]

Wall motion noises are removed as the setting is raised, but information of bloodstream disappears if it is applied too high.

6-4-5. Other

6-4-5-1. Graphic Color

This function sets the display colors for text and graphics on the screen.

| A - E | : Used to select | colors from five | e predetermined | display colors. |
|-------|------------------|------------------|-----------------|-----------------|
|-------|------------------|------------------|-----------------|-----------------|

User : The display colors set using Graphic Editor are selected.

6-4-5-2. Imaging Information

Displays or hides the information such as Contrast and cine memory on an image.

- Off : Hides the information.
- On : Displays the information.

6-4-5-3. Invert Link

This function automatically changes the color polarity when a D mode image is inverted.

- Off : The color polarity is not changed when a D mode image is inverted.
- On : The color polarity is changed when a D mode image is inverted.

6-4-5-4. Steering Link

This function is used to automatically invert a D mode image when the polarity of the steering angle is changed by beam steering.

- Off : The D mode image is not inverted when the polarity of the beam steering angle is changed.
- On : The D mode image is inverted when the polarity of the beam steering angle is changed.

6-4-5-5. Thermal Index

This function switches over the acoustic power index.

- TIS : Switches to the thermal index for soft tissue.
- TIB : Switches to the thermal index for bone.
- TIC : Switches to the thermal index for the cranial bones.

▲ Note

Ultrasound energy is converted into heat in the body while being attenuated. Particularly, there is a possibility of heat being generated in bone and the cranium compared to soft tissue.

Select the optimum setting for the region to be examined while observing the acoustic power index.

6-4-5-6. Print Queue

When the Print Queue switch is pressed, a dialog box which inquires whether to print, not to print, or cancel is displayed.

6-4-5-7. View Gamma

This function corrects the brightness characteristics of the image, to match the brightness characteristics of the viewing monitor, or to enable the information for each part of the body being examined to be expressed effectively. View Gamma enables you to select one of five correction curves.

Linear : The brightness characteristics do not change.

A - D : Four different curves of brightness characteristics are selectable.

[Remark]

You can also set a correction curve after freezing the image.

6-4-5-8. Zoom Lock

This function is used to enlarge a B mode image centered about a Doppler sample.

Off : An enlarged image is displayed regardless of the display position of the Doppler sample.

On : An enlarged image is displayed centered on the Doppler sample.

6-4-5-9. ECG Display

Off : An ECG waveform is not displayed on the screen.

On : An ECG waveform is displayed on the screen.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-10. ECG Posi

1 - 32 : Sets the display position of the ECG waveform between 1 and 32.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-11. ECG Sens

1 - 32 : Sets the sensitivity of the ECG waveform between 1 and 32.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-12. ECG Invert

Off : An ECG waveform is not reversed.

On : An ECG waveform is displayed in reverse.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-13. Drift Filter

| Off | : The Drift Filter function is not performed. |
|-----|---|
| On | : The base line of an ECG waveform is stabilized. |

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-14. R Wave Beep

Off : A beep tone is not emitted when the R wave is detected in the ECG waveform display.

On : A beep tone is emitted when the R wave is detected in the ECG waveform display.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-15. R-Delay Time

This function sets the time phase for performing ECG SYNC, as the delay time from the R-wave.

Set a time between 0.00 and 2.55 sec in steps of 0.05 sec.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-16. ECG Sync

This function displays only the part of B mode image indicated by the ECG sync mark on the ECG waveform. You can acquire B mode image of an arbitrary time phase while observing the time phase of the ECG waveform.

Off : A normal B mode image without ECG sync is displayed.

On : Only the part of the B mode image indicated by the ECG sync mark is displayed.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-17. B/Sync Mode

A normal B mode and an electro-cardio synchronization B mode are displayed side by side, and are viewed in real time.

Off : A normal B mode and B mode of electro-cardio synchronization are not displayed side by side.

On : A normal B mode and B mode of electro-cardio synchronization are displayed side by side.

[Remark]

To display the ECG waveform, PEU-ALPHA6(option) is necessary.

6-4-5-18. DVD Remain

When the DVD recorder is connected, the remainder capacity of the disk is displayed.

- Off : The remainder capacity of the disk is not displayed.
- On : The remainder capacity of the disk is displayed on the left of the monitor screen.

6-4-5-19. Counter

An elapsed time is displayed on the screen.

- Off : Timer counting is started.
- On : Timer counting is finished.

6-4-5-20. Acquire Mode

This function sets the mode to acquire a moving image.

| Pre Time | : Acquires moving images displayed just before pressing the STORE switch within a time |
|-----------|--|
| | (1-16 seconds) set beforehand. |
| Pre ECG | : A moving image is acquired for the set number (1 to 10 heartbeat) of R-waves prior to when the |
| | STORE switch was pressed. |
| Post Time | : Acquires moving images displayed just after pressing the STORE switch within a time |
| | (1-16 seconds) set beforehand. |
| Post ECG | : A moving image is acquired for the set number (1 to 10 heartbeat) of R-waves after the STORE |
| | switch was pressed. |
| Manual | : Acquires images from immediately after the STORE switch was pressed until the STORE switch is |
| | pressed again. |
| | |

6-4-5-21. ECG Cycle

When the Acquire Mode is set in Pre ECG or Post ECG, the number of heartbeats can be set. It can be set with a preset or a menu.

1 - 10 (cycle) : It is set between one and ten heartbeats.(integer value)

6-4-5-22. Time Cycle

When Acquire Mode is set either in Pre Time or Post Time, it sets the acquire time. It can be set with a preset or a menu.

1 - 16sec : Acquire time is set for 1 and 16 seconds (integer value).

6-4-5-23. Store Media

When a still image and a moving image are acquired, you can set the destination to save. You can save with the Format Type(single or multi). It can be set with a preset or a menu.

| HDD | : | An image is saved in HDD. A moving image of Line is always saved in HDD. |
|-------------|---|---|
| Media | : | Save still and moving images to Removable Media. |
| CD-R Buffer | : | Save still and moving images to CD-R Buffer. |
| DVD | : | Save still and moving images to DVD. |
| NET(DICOM) | : | An image is saved to a network server. The images are always saved with the DICOM type. |

6-4-5-24. Loop Mode

| Long | : It is adjusted to the B mode which has the greatest number of playback images. A B mode with a small number of the playback images will stop the loop playback until the playback of B mode with the |
|-------|--|
| Short | greatest number of the playback images is completed.It is adjusted to the B mode which has the smallest number of playback images. A B mode with a |
| | great number of the playback images will stop the loop playback until the playback of B mode with the smallest number of the playback images is completed. |

Align : As a base for playing back time for the greatest number of the B mode images, the playback time for

other B mode images are adjusted to the time all the playback images are completed.

Free Run : The loop playbacks are carried out among B modes independently without synchronizing them.

6-4-5-25. Thumbnail Display

The thumbnail is displayed on the screen.

- Off : The thumbnail is not displayed.
- On : The thumbnail is displayed.

6-4-5-26. Thumbnail Page

When the thumbnail display on the screen spans two or more pages, use this function to select the page that you wish to display.

6-4-5-27. Print Area

When the image is printed with a digital printer, sets the size of the image.

- Auto : Automatically sets the size of an image according to the display format and the measurement result.
- Full : Always prints a full screen.
- Small : Enlarges and prints only the image, not the measurement results position.

[Remark]

When the display format is set to "Wide", the full screen is always printed.

6-4-5-28. Auto Clipping

It can save the images without deterioration to clip out the images when the Video is output.

Full Size : These are always output with full screen.

Auto : The area including ID and NAME is automatically output, according to the image display format.

Non ID Size: The area which does not include ID and NAME is automatically output, according to the image dis play format.

6-4-5-29. Audio Volume

This function adjusts the Doppler and audio volume.

0 - 10 : Sets the volume between 0 - 10.

6-4-5-30. Touch PNL Brightness

This function adjusts the backlight intensity of the touch panel.

0 - 15 : Sets the light volume between 0 - 15.

6-4-5-31. Panel LED Brightness

This function adjusts the brightness of the switches on the operation panel.

Low, Mid, High : Three levels of brightness can be set.

6-4-5-32. Monitor Brightness

This function adjusts the brightness qualities of the LCD viewing monitor.

0 - 10 : Sets the light volume between 0 - 10.

[Remark]

When the monitor is EU-9129 of the option, this function cannot be used.

6-4-5-33. Monitor Contrast

This function adjusts the contrast property of the LCD viewing monitor.

0 - 10 : Sets the contrast property between 0 - 10.

[Remark]

When the monitor is EU-9129 of the option, this function cannot be used.

6-4-5-34. Monitor Backlight

This function adjusts the backlight quantities of the LCD viewing monitor.

0 - 10 : Sets the light volume between 0 - 10.

6-4-5-35. Log Off

End the period of usage for the logged-in user.

6-4-5-36. Fixed MI

This function automatically changes the setting of Acoustic Power so that the MI value remains fixed if other settings such as focus are changed. Set the MI value to be fixed by selecting Preset \rightarrow Image-B,M1 \rightarrow Fixed MI Level.

Off : Operates using DVA specified by the preset.

The MI value can change according to conditions such as focus.

On : The MI value is fixed. DVA automatically changes according to conditions such as focus.

[Remark]

If the MI value specified in Fixed MI Level of the preset cannot be attained, an approximate value is set.

[Remark]

If you change Acoustic Power while Fixed MI is On, the MI value will be changed. After changing, the modified MI value is maintained.

6-4-5-37. HR Stability Display

This function automatically determines if the latest heart rate is stable. For details, refer to Section 5-4. "Heart Rate Stability Display".

- Off : Displays the HR value at the upper right of the screen without black and white reversed, regardless of the stability of the heart rate.
- On : Shows the HR value display at the upper right of the screen with black and white reversed, when the latest heart rate is stable.

6-4-5-38. HR Stability Display(Avg.)

In HR Stability Display, specify the allowable range of the difference between the average of previous five heart rates and the latest heart rate or previous heart rate. The setting is between 0 and 50 percent.

6-4-5-39. HR Stability Display(Conti)

In HR Stability Display, specify the allowable difference between the latest heart rate and the previous heart rate. The setting is between 0 and 50 percent.

6-4-5-40. Power Limit Override

When used for fetal examination applications, this instrument limits transmission power in accordance with IEC 60601-2-37 Amd.2 2005. However, these power limitations can be temporarily rescinded when the Power Limit Override is turned on. As an operational condition, when the examination category (application) is OBST, the Power Limit Override function is executed.

Off : Places restrictions on transmission power.

On : Temporarily rescinds the limitations placed on transmission power.

[Remark]

Even if Power Limit Override assigned to the custom switch is pressed, it becomes On.

[Remark]

When this setting is On, the following dialogue box will appear. Move the pointer to OK and press the ENTER switch to temporarily cancel the restrictions on transmission power. If you select Cancel, this instrument will not carry out the operation.



[Remark]

Transmission power can be increased manually by using the ACOUSTICK POWER on the touch panel and other means. The DVA value is displayed on the monitor in hghlightened in white when manaul overdriven. This function can be automatically canceled by pressing the NEW PATIENT switch.

\land Note

Cancel this function immediately, after obtaining the necessary diagnostic information.

\land Caution

Use the lowest suitable output for any examination.

Scan the body for only as long as is necessary to make a diagnosis. Excessive use can cause physical harm.

6-4-5-41. Area Lock

This function causes the flow area to move up, down, left or right when the Doppler cursor is moved, so that the sample volume remains roughly at the center of the flow area.

When a B/M mode flow image is displayed, the flow area moves according to the motion of the M mode cursor.

- Off : The flow area does not move according to the M mode cursor or the Doppler cursor.
- On : The flow area moves according to the motion of the M mode cursor or the Doppler cursor.

6-4-5-42. B Refresh

This function sets the time interval for rewriting a B mode image when BFlow/MFlow, B/PW or BFlow/PW operate on the refreshing operation simultaneously.

- 1 : The B mode image is rewritten every 1 second.
- 2 : The B mode image is rewritten every 2 seconds.
- 4 : The B mode image is rewritten every 4 seconds.
- 6 : The B mode image is rewritten every 6 seconds.
- 8 : The B mode image is rewritten every 8 seconds.

6-4-5-43. B/* Format

Sets the display format when B/M or B/D mode images are displayed.

- L/R : They are displayed from side to side.
- U/L : They are displayed up and down.

7. Preset

7-1. PRESET function

This function can store set conditions, and recall them as necessary. By using a preset, you can adjust and set the system using simple procedures, thus reducing the examination time. The set values can be switched over according to the purpose of use, diagnostic region and differences between individual operators, or conversely can be unified. In addition, by storing settings in the system, you can avoid troublesome condition setting work and eliminate the risk of making incorrect condition settings.

This system has a total of 45 user-definable settings for an image quality adjustment and display modes. With Common Preset, users can set common items to each preset by one operation.

The system has a standard settings that are suitable for various diagnostic fields. These settings consist of the abdominal region, the obstetrical applications, the gynecological applications, the cardiac region, the peripheral vessels, the superficial organs, the urethral organs, and other regions.

The system is set at the factory so that when it is switched ON the General preset is automatically activated.

A preset is called when one of the following operations is performed.

- (1) When the PRESET switch is pressed
- (2) When the PRESET switch is not pressed, and
 - a. NEW PATIENT is switched over
 - b. The system is switched ON

7-2. Procedure for Changing the Set Contents

<Explanation with an example of the Preset Set-Up Menu>

- (1) Press the PRESET switch.
 - \rightarrow The preset list is displayed.

| Fast A Fast A Fast A Fast A Gardian Funt Caloridan Funt |
|--|
| Fasic Energy Conduct Fuitz Conduct Fuitz Conduct Fuitz Conduct Fuitz Conduct Fuitz |
| Ennie Gereile Cardiau Fuitz Gardiau Fuitz Cardiau Fuitz Gardiau Fuitz |
| Constant Fund Constant Fund Constant Fund Constant Fund Constant Fund |
| Cambrid Funt Cambrid Funt Cambrid Funt Cambrid Funt Cambrid Funt |
| Candidor Huns Constant Funz Candidor Huns |
| Candido Huns Condias Funz Candido Huns |
| Cambrid Fund Ounded Fund |
| Oundrive Huma |
| |
| Canada Almany |
| |
| _ |
| Loner Dol Veinc |
| F25.6 |
| Cost |
| Fromlet ac |
| Kidney . |
| Prost Keed |
| · · · |
| Cancel |
| |

- (2) Using the trackball, move the arrow to Set-Up, and press the ENTER switch.
 - \rightarrow The preset selection list is displayed.



- (3) Using the trackball, move the pointer to the name of the preset to change the parameters, and press the EN-TER switch. Select the Next or the Prev. when other select lists are desired to display.
 - \rightarrow The following setting screen is displayed.

| Tree-view: Set screen selection menu | Provid Suinak 2 Proping Elaping Elaping Uthers M Elabers File Bornerman Grandon Nenn-Uther Nenn-Grand Nenn-Grand Nenn-Grand Nenn-Grand Nenn-Grand Carton Soc Carton Soc Carton Soc | Freen No 2 - Free Varie Abderter Anne Varie - Souge for Nacionament Care Probe Aniect Free Varie | List box: Display a list of candidates (pull-down menu), and select a candidate. |
|--|--|---|--|
| | Insurt: V2 Fool Process Exact | Swinning processing of the sum | Text box: Enter a name directly from the keyboard. |

When you wish to switch over to another setting screen, use the trackball to move the arrow to the screen in the setting screen selection menu on the left side of the screen that you wish to display, and press the ENTER switch.

- Exit Returns the display to the preset selection list after finalizing the changed set conditions.
- Cancel Returns the display to the preset selection list after returning the changed set conditions to the previous conditions
- (4) Using the trackball, move the arrow to \checkmark , and press the ENTER switch.



 \rightarrow A list of selection items is displayed.

- (5) Using the trackball, move the arrow to the application whose contents you wish to change, and press the EN-TER switch.
 - \rightarrow The selected item is displayed.

- (6) Using the trackball, move the pointer to Initialize all Presets, and press the ENTER switch.
 - \rightarrow The settings of the preset changes.



- (7) Using the trackball, move the arrow to the probe name that you wish to register, and press the ENTER switch.
 - \rightarrow The probe name is registered in the Probe List.

When you switch over to a probe registered in the Probe List, the corresponding preset is automatically executed.

[Remark]

If you register probes in the Probe List, selectable preset will be displayed when you select a probe after pressing the PROBE switch. For details, refer to "1-4-16.PROBE".

Probe Select

- On : When you execute a preset, the probe registered in it is automatically activated. If a number of probes are registered in a preset, the probe will be selected preferentially from the probe in the top connection position.
- Off : The probe is not switched over to another one, even if a preset containing that probe is executed.

7-3. Common Preset

Register the set items that are common to each preset.

7-3-1. Common Preset1 - 2

 \rightarrow

- (1) Press the PRESET switch and move the arrow cursor to the Set-Up with the trackball, and press the ENTER switch.
 - \rightarrow The preset selecting list is displayed.

The Common1 screen is displayed.

- (2) Using the trackball, move the arrow cursor to the Common Preset and press the ENTER switch.
- State of Control of Control





Common2

[Remark]

l a

If you want to change over to Common 2 or Common 3, use the trackball to move the pointer to Common 2 or Common 3 on the setting screen menu located on the left-hand side of the screen, and press the ENTER switch.

[Remark]

Exit

All of the setting screens have the following three buttons.

Common3

: Returns to the preset selecting list after finalizing the changed set conditions.

Cancel : Returns to the preset selecting list after returning the changed set conditions to the previous conditions.

Initialize : Returns the registered contents of the displayed items to the initial values.

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| Name | Function | Setting |
|------------------------------|---|--|
| | Common1 | |
| Hospital Name | Hospital name is set. | 20 characters $\times 2$ lines |
| Date | The date is set. | |
| Time | The time of day is set. | |
| Unit(Height) | The time of day is set. | cm, m, feet/inch |
| Unit(Weight) | The unit of weight with an ID input screen is set. | kg, pound |
| Date Format | The format of the date with an ID input screen is set. | YY/MM/DD, MMM.DD,YY, MM.DD,'YY, DD-MMM-YY, DD-MM-'YY |
| Resume | Memorizing the state of the unit just before turning off the power, it does not return the same state when the power is turned on. | Off |
| | Memorizing the state of the unit just before turning off the power, it does return the same state when the power is turned on. | On |
| Direct to B | Configures how long the B switch should be kept depressed. | Immediate, 0.3sec, 0.5sec, Off |
| Direct Send | Configures how long the ENTER switch should be kept depressed. | 0.5 to 2.0(0.5 Step) |
| Timer Freeze | Automatic freeze of a safety function is not performed. | Off |
| | It freezes automatically unless it is operated before the set time. | On |
| Timer Freeze, Time | When Timer Freeze is set On, the time is set. | 1 to 20min (1min Step) |
| Screen Saver | The screensaver is not displayed. | Off |
| | The screensaver is displayed. | On |
| Screen Saver Display Type | When Screen Saver is On, the kind of screensaver is set. | All Season, HANABI, Fallen Leaves, Snow, Ribbon, ALOKA LOGO, Hospital Name |
| T.B. Speed | The reaction rate of the trackball is set. | -5 to 5 (1 Step) |
| JPEG Q Factor | The compressibility of an image is set when Syntax is set with JPEG. The smaller the number is, the higher the compressibility becomes. | 50 to 99 |
| Hum Filter | In conformity with the commercial alternating current frequency of the power supply in use, a filter value is set. | 50Hz, 60Hz |
| PF PRF Display | In Power Flow, PRF value is not displayed on a screen. | Off |
| | In Power Flow, PRF value is displayed on a screen. | On |
| Frequency Information | Displays the transmission frequency in harmonic transmission/reception mode. | Transmit |
| | Displays the reception frequency in harmonic transmission/reception mode. | Receive |
| Contrast/ | The contrast setting value is displayed in the range 1 to 23. | Contrast |
| Dynamic Range | The contrast setting value is displayed as the Dynamic Range value. | Dynamic Range |

| Name | Function | Setting |
|---------------------------|---|---|
| | Common2 | |
| Video In | Set the Video image input terminal. | DV, S(Y/C) |
| Recorder Select | VCR/DVD Recorder is set. | BD-X201 DVO-1000MD DV-800, DDU-M01 BD-X201 + DDU-M01 DVO-1000MD + DDU-M01 |
| DVD Remain | The remaining capacity of the DVD Recorder media is not displayed. | Off |
| | The remaining capacity of the DVD Recorder media is displayed. | On |
| Sound Select | When a panel switch was pressed, a tone is not | Off |
| (Panel) | sounded.(Excluding the ArchiveGroup switch) | |
| | A sound is selected from A to C when a panel switch is pressed.(Excluding the ArchiveGroup switch) | A, B, C |
| Sound Select (Menu) | When the switch on the touch panel menu is pressed, it is not sounded. | Off |
| | A sound is selected out of A to C when a switch on the touch panel menu is pressed. | A, B, C |
| Sound Select (Archive) | When the ArchiveGroup switch is pressed, a sound does not sound. | Off |
| | As for the sound when the ArchiveGroup switch is pressed, it selects from A to C. | A, B, C |
| Menu Color Select | A chromatic pattern on the touch panel menu is selected from A, B, C, CV. | A, B, C, CV |
| Alarm | When a message is displayed, a beep sound does not sound. | Off |
| | When a message is displayed, a beep sound is sounded. | On |
| Auto Select (Review) | When the image Viewer is displayed, an image is not displayed in the state of all selected. | Off |
| | When the image Viewer is displayed, an image is displayed in the state of all selected. | On |
| Auto Input(Review) | When the Review search screen is displayed, the data is displayed with no ID information entered. | Off |
| | When the Review search screen is displayed, the data is displayed with ID information entered. | On |
| DICOM File Type | If a Line moving image is saved as a DICOM file in Review, it is saved in Line format. | Line |
| | If a Line moving image is saved as a DICOM file in Review, it is saved in Multi Image format. | Image |
| Compression Quality | The image compression rate is set when a Line moving image is converted to Multi Image or AVI. The smaller the value, the higher the compressibility. | 30 - 100%(10%Step) |

| Name | Function | Setting |
|--------------|---|---------------------------|
| AVI CODEC | When saving data in the AVI format, Codec MPEG4 is | MPEG4 |
| | used. | |
| | When saving data in the AVI format, Codec Motion | MJPEG |
| | JPEG is used. | |
| Comment Menu | A keyboard is not displayed on the Annotation menu. | Annotation |
| | A keyboard is displayed on the Annotation menu. | Annotat+Kyeboard |
| | When Comment is pressed the Virtual keyboard is | Virtual keyboard |
| | displayed. | |
| Comment | The position of X coordinate of the character cursor is | X: from 1 to 79 |
| Position(X) | set to display on the comment area. | (coordinate setting) |
| Comment | The position of Y coordinate of the character cursor is | Y: from 4 to 40 |
| Position(Y) | set to display on the comment area. | (coordinate setting) |
| Annotation | Learning Function: It is set whether the word used in the | Dic1 to Dic6: Off,On |
| Dictionary | last is displayed at the beginning of a dictionary. | |
| | System Dictionary: It is set whether the dictionaries of | Dic1 to Dic6: Not Use,Use |
| | Dic1 to 6 are used. | |

| Name | Function | Setting | | | |
|--------------------------|---|----------------------------|--|--|--|
| | Common3 | | | | |
| LCD/Panel Setup | Sets the brightness of the LCD monitor, touch panel and operation panel LCD. You can set parameters of Monitor Brightness, Monitor Contrast, Monitor Backlght, Touch Panel Brightness, and Panel LED Brightness, and save the settings as three combinations of Type A, Type B and Type C. | Type A Type B Type C | | | |
| DDU-M01(Video Clip Unit) | | | | | |
| Frame Rate | Sets the skip rate of video clip frames in the direction of frames to 60 Hz (or 75 Hz). | Full | | | |
| | Sets the skip rate of video clip frames in the direction of frames to 30 Hz (or 38 Hz). | 1/2 | | | |
| | Sets the skip rate of video clip frames in the direction of frames to 15 Hz (or 19 Hz). | 1/4 | | | |
| JPEG Q Factor | Decreases the file size. | Low | | | |
| | Increases the file size. | High | | | |

7-3-2. Probe Select

In the Probe Menu, a probe to be selected with the PROBE switch is registered.

- (1) Press the PRESET switch, and move the arrow cursor with the trackball to the Set-Up of Preset, then press the ENTER switch.
 - \rightarrow The Preset Setting Selection list is displayed.
- (2) Move an arrow cursor to the Probe Select under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The Probe Menu screen is displayed.

| Convert Convert Convert Convert Convert Convert Convert Convert | and the | | |
|---|----------|--|--|
| Frid Searth an Frid Select CKOV (Serve) CKOV Adams CKOV (SK IKOV (SK IKOV (SK IKOV (SK | | | |
| économité" (e | Ed: Cana | | |

- (3) Move an arrow cursor to with the trackball and press the ENTER switch.
 - \rightarrow The list of probes which can be registered are displayed.

| Privaté my | |
|------------|---------|
| JE1-5255 | |
| E555-15L | |
| | |
| | |
| | |
| | |
| | |
| | |
| | Car sul |

- (4) Move an arrow cursor to the probe which is wanted to register, and press the ENTER switch.
 - \rightarrow The probe is registered.

| Convent Convent Convent Freed Scient Head Freed Scient Print Select CiCOM Science CiCOM Science CiCO | |
|---|----------|
| à | Dd: Cexz |

The contents set in the Probe Menu corresponding to the following probe menu.



7-3-3. Print (Freeze)

Print (Freeze) is set if printing is performed after freezing.

This function enables you to assign three functions to the PRINT switch on the operation panel at the maximum. After freezing, you can perform three operations related to the storage of images by means of a single switch operation.

[Remark]

If you assign the functions here, assign the Archive Group1 to 3 switches to the touch panel using the Menu-USER SW in the Preset Set-Up Menu.

- (1) Move an arrow cursor to the Print (Freeze) under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

| Contract2 | in Baller | | |
|--|------------------------------|----------------------|----------------------|
| Carrier? | P fm (Pressel | | |
| Front Soluti | Archive Smith | | |
| Frink/Realfilme | Print ISU) | Printi Zakari | Fr nb(Aubo) |
| Frink Suke. El007-Erore : | DICOM Pd 1 | Loca 2 tr | Each to Hel |
| EICOV Addree | Storw ar HDD | Slore on Media | Slore on CD-R Suffer |
| EICOV-Frank- | Store or EVD | Store on DOC-Y21 HDD | |
| 1000art: Delet | Anonive Group2 | | |
| | Por USA VI | Frink Colory | Presidentel |
| | CICOV Frink | Local Print | S-and bo het |
| | Store on -ICD | Ero wich Nedia | Store of CD-P RUMer |
| | Store on YaB | Story of COULEON HED | |
| | -Austike Stoar9 PrintReet | FriedColory | P fm (Auns) |
| | E1007 From | Local Port | Bond to Net |
| | Store on IED | Sbare of Nedla | Stone of CELIX BUMer |
| | Store on 740 | Story of COURMON HED | |
| | | _ | Coll Centrel |

- (2) Move the arrow with the trackball to the function which is intended to assign Archive Group 1 switch and press the ENTER switch.
 - \rightarrow The function selected is set to the Archive Group 1 switch.

[Remark]

You cannot select B/W Printer and Color Printer when Printer(Auto) is selected.

[Remark]

Only three functions can be assigned at the maximum.

(3) For Archive Group 2 and Archive Group 3 switches, the functions are set in the same procedure as step (2).

[Remark]

If the **Initialize** button on the upper left is selected, it is returned to the default setting.

7-3-4. Print (Realtime)

Print (Realtime) is set if printing is performed in real time. Assign one of the functions to the PRINT switch on the operation panel. In real time, one press of the switch can perform operations relating to the saving of one image.

[Remark]

If you assign the functions here, assign the Archive Group1 to 3 switches to the touch panel using the Menu-USER SW in the Preset Set-Up Menu.

- (1) Move an arrow cursor to the Print (Realtime)) under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

| Fret, Selat | P tr Real rul | | |
|---------------------------------|------------------------------|----------------------|-----------------------|
| Fr on Freeter | And the Brough | | |
| Frink/RealMine | 7*8mISA() | Print-III Selar: | Er nb(Aubo) |
| Frink Suke. Dioblijk im rejs | DICOM Pri 1 | Loca Pitr | Send to Hel |
| CICCIV Addres | Errows: HDD | Store on Media | Store on CD-R Parifer |
| cicov-Franker Cicov-SR | Store St DVD | Store on DOC-Y21 HDD | |
| HCMarte Delet Streap being | And we Group2 | | |
| | Per USAVI | Frink Colory | Presidentel |
| | CICCY Frink | Lassi Pri-i | S-and bo heb |
| | Store on -ED | Ero wich Neda | Emmed: CD-F RUMer |
| | Store on YaB | Ero wie 100.1-M01ICD | |
| | -Austike Stour6 PrintRAwi | FreeColory | P fim (fump) |
| | E1007 Frink | Local Port | Bend to Net |
| | | Sbare of Nedla | Store of CD IN BUPPer |
| | Store on ED | | |

- (2) Move the arrow with the trackball to the function which is intended to assign Archive Group 1 switch and press the ENTER switch.
 - \rightarrow The function selected is set to the Archive Group 1 switch.

[Remark]

One function can be assigned.

(3) For Archive Group 2 and Archive Group 3 switches, the functions are set in the same procedure as step (2).

[Remark]

If the Initialize button on the upper left is selected, it is returned to the default setting.

7-3-5. Print Select

| Connent Conner? | In Ballon | | |
|---|---------------------------------|-------------------------------------|-----------------|
| Common2 *Friend Soluci EngeEnerger | P tr Select | Format Type Orichite D | irauti I |
| Frink S. Ky. | Frink Area Auto | Heda CICOV · | CE N DICEM |
| EICOV Addree EICOV-Frinker EICOV-FR | | | D CEM - |
| IICOurse Entert • Stress Extro | Printer SelectIn//) 987-03-0 | Printer Selectificator: 292-0209 | Sumber of Print |
| | _ | _ | |
| | | | |
| | | | |
| | | | |
| | | | |
| 1 <u> </u> | | - | Coll Centrel |

| Name | Function | Setting |
|-----------------------|--|--------------------------|
| | Print Select | |
| Print Area | Sets the size of the image when the image is printed | Auto, Full, Small |
| | with a digital printer. | |
| | Format Type (Archive Group) | |
| Media | Sets the Format Type of Store on Media in an | JPEG, DICOM, BMP, TIFF |
| | Archive Group. | |
| CD-R | Sets the Format Type of Store on CD-R Buffer in an | JPEG, DICOM, BMP, TIFF |
| | Archive Group. | |
| DVD | Sets the Format Type of Store on DVD Buffer in an | JPEG, DICOM, BMP, TIFF |
| | Archive Group. | |
| Printer Select(B/W) | Sets a black and white printer. | SSZ-D310, UP-D897, P93D, |
| | | P95D |
| Printer Select(Color) | Sets a color printer. | SSZ-D709, SSZ-D710, UP- |
| | | D23MD, UP-D25MD, CP30D |
| Number of Print | Sets the number of continuous prints with a digital | 1, 2, 3 |
| | black and white printer. | |

7-3-6. DICOM Store/Send, Address, Printer

The DICOM Store/Send, Address, Printer function performs settings related to DICOM NETWORK and DICOM STORAGE.

- (1) Move an arrow cursor to the DICOM Store/Send, Address, Printer under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- DICOM Store/Send

| FrinkReamme Frink Suky, Glob Veinewe DICD Vi Addree | Send to Scorage | | | 700 | - | Jenu | ing image | |
|--|---|--|------|---------|---|-------|--------------------|-----|
| El00V-Frinker DicoV-ER | Line Data Not Send Local Cing | - <u>Capr</u> | • [: | | • | Com | munication check |] |
| 1 a la 1 a la 1 a la 1 a 1 | Console Pres Console Local Local Console Conso | Hernste OnbOHU LV Sation Of- Houter 2 | | Approva | 0-60+0 For III IM IM IM IM IM IM IM IM IM | Setti | ng the Network ser | ver |

| Name | Function | Setting |
|-------------|--|-----------------------------------|
| | DICOMStore/Send | · |
| Private Tag | A private tag is not provided at the time of DICOM data | None |
| | output. | |
| | A private tag is provided in the case of saving DICOM | Put into File |
| | data to a USB memory. | |
| | A private tag is provided in the case of saving DICOM | Put into Network |
| | data to a server. | |
| | A private tag is provided in the case of saving DICOM | Put into Both |
| | data to a USB memory or server. | |
| | To save DICOM data to a USB memory, also put a | Put into File+DICOMDIR. |
| | private tag into DICOMIR. | |
| | To save DICOM data to a USB memory or server, also | Put into All. |
| | put a private tag into DICOMIR. | |
| | Store on Disk | |
| Color | A color image is saved in a disk with the Palette Color. | Palette Color |
| | A color image is saved to a disk with RGB. | RGB |
| Syntax | Transfer syntax is set when an image is saved in a disk. | Implicit Little, Explicit Little, |
| | | RLE Lossless, JPEG |

| Name | Function | Setting |
|------------------|---|---------------|
| Send to Storage | | |
| Line Data | When you send images to the server by using Review, | Not Send |
| | Line moving images are removed and the remaining are | |
| | sent. | |
| | When you send images to the server by using Review, | Send |
| | all images selected are sent even if the selection includes | |
| | Line moving images. This setting can be set when you | |
| | send Line moving images to a server that is capable of | |
| | receiving them. | |
| Color | A color image is transmitted to a network with the | Palette Color |
| | Palette Color. | |
| | A color image is transmitted to a network in RGB. | RGB |
| | A color image is transmitted to a network with | Monochrome2 |
| | Monochrome2. | |
| JPEG Q Factor | When sending DICOM data to a server, it will not be | 50 to 99 |
| - | received if the syntax is set to anything other than JPEG, | |
| | due to association with the server. Data must be | |
| | converted to JPEG before it can be sent to the server. Set | |
| | the image compressibility to use at the conversion stage. | |
| | The smaller the value, the higher the compressibility. | |
| Local Ping | It is a function to inspect whether TCP/IP of this | |
| C | instrument is operated properly. | |
| Remote Ping | It is a function to inspect whether TCP/ IP of a network | *Remark |
| | server selected on the Connect is operated normally on | |
| | the network. | |
| Remote C-ECHO | It is a function to inspect whether functions | |
| | corresponding to DICOM of the network server selected | |
| | on the Connect are possessed and started properly. | |
| Work list Ping | It is a function to inspect whether TCP/IP of a Worklist | |
| | server is possessed and operated normally on the | |
| | network. | |
| Work list C-ECHO | It is a function to inspect whether functions | |
| | corresponding to DICOM of the Worklist server are | |
| | possessed and started properly. | |
| Connect | The destination network server is switched. | Local |
| | Local: Prosound $\alpha 6$ main unit. | Remote1 to 5 |
| | Remote from 1 to 5: Network server | Worklist |
| | Worklist: Worklist server | |
| | * When a worklist service and an image save service are | |
| | conducted by independent Appli. Entities, a Worklist | |
| | server can be registered only the Worklist. | |
| | However, when one Appl. Entity covers both the work | |
| | list and the image save, registration is made to one | |
| | of the Remote1 to 5 and is treated as an Active. | |

| Name | Function | Setting |
|--------------|---|-----------|
| Appl. Entity | A program name which is given to this instrument or a | key input |
| | network server from the DICOM standard is input. | |
| Station Name | The name of computer which is given to the unit itself or | key input |
| | a network server is input. | |
| IP Address | The network address number which is given to this | key input |
| | instrument or a network server is input. | |
| Port# | The port number of the TCP/IP which is given to the | key input |
| | unit or a network server and is used by DICOM is input. | |
| | The Normal setting of DICOM is 104. | |
| Router1,2 | The router address of TCP/IP is designated. When a | key input |
| | router is not used, it is left blank. | |
| Subnet Mask | It is the network mask of TCP/IP, and it is usually | key input |
| | 255.255.254.0. | |
| Time Out | The time-out of communication is set with the unit of | 1 to 1000 |
| | second. | |

Remote Ping and Remote C-ECHO are usable only When all of the "Appl. Entity", "Station Name" and "IP Address" are input among No.1 to 5.

In addition, when Remote Ping and Remote C-ECHO are started, then an examination is commenced. After that, follow the instruction of the dialog.

DICOM Address

| Connect | In Buller |
|-----------------------------------|-------------|
| Converse 12 | |
| Carmer2 | |
| From Sylud | |
| Er on Ereenen | Eventeert |
| Er nb/Reaffirme | |
| Front Suley. | |
| El007-Emme | |
| CICCY Addres | |
| EIG97/Fraker | |
| Electro and | |
| ICOurte Celei | |
| SUrvay Extern | |
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| 1 N N | Coli Dentel |
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| Name | Function | Setting | | |
|--------------|--|-----------|--|--|
| DICOMAddress | | | | |
| Department | The name of department of a hospital is input. | key input | | |
| Address | The address of the hospital is input. | key input | | |

• DICOM Printer



| Name | Function | Setting |
|---------------|--|--------------|
| | DICOMPrinter | |
| DICOM Printer | The setting for a DICOM printer is made. | |
| Ping | It is a function to inspect whether TCP/IP of a DICOM | *Remark |
| | printer of the No. designated is operated on the network | |
| | properly. | |
| C-ECHO | It is a function to inspect whether the feature | *Remark |
| | corresponding to the DICOM of the selected DICOM | |
| | printer with the specified No. is possessed and activated. | |
| Model name | The printer name is selected. | NP-1600/1660 |
| Appl. Entity | The program name on the printer server is input. | key input |
| Station Name | The Printer server name is input. | key input |
| IP Address | The address of the network circuit is input | key input |
| Port # | The port number used by DICOM communication is | key input |
| | input. The normal setting of DICOM is 104. | |

[Remark]

Ping and C-ECHO are usable only When all of the "Model name", "Appl. Entity", "Station Name" and "IP Address" are input among No.1 to 5.

In addition, when Ping and C-ECHO are started, then an examination is commenced. After that, follow the instruction of the dialog.

7-3-7. DICOM SR

In DICOM SR, make settings of automatic generation for DICOM SR files and server-related settings on network.

- (1) Move an arrow cursor to the DICOM SR under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- DICOM SR

| Common! Converse 12 | Indultor | | | | |
|--------------------------------|-------------|-------------|---------------|-----------|---------|
| Carrier2 | | | | | |
| From Setup | 684 A. 10 C | acu, on | | | |
| Er ne Erenner | 017 | • | | | |
| Frink/RealTime Think Suke. | | | | | |
| Elco'/- im wa | ССИ ВН В. | | 1 | | |
| DICOV Addree | | C-ECHO | | | |
| E1007-Franker | Gasay. | Anna Latais | Stution Hanks | P Address | -forter |
| DIOD'U-ER | Verobel | | | | 104 |
| 110 Martin Cellel | Ferringen | | i | | 104 |
| Stresp Echo | | | 1 | | lise. |
| | | | | | |
| | | | | | |
| | | | | | |

| Name | Function | Setting |
|------------------|---|------------|
| | DICOM SR | |
| SR Auto Creation | When New Patient operation is performed after the end of | Off, On |
| | an examination, the DICOM SR file is generated | |
| | automatically and sent to the server. | |
| Ping | It is a function to inspect whether TCP/IP of the DICOM | *Remark |
| | SR server of the No. designated is operated on the network properly. | |
| C-ECHO | It is a function to inspect whether the feature corresponding to the DICOM SR of the selected DICOM SR server with the specified No. is possessed and activated. | *Remark |
| Connect | Switch between destination network servers. Remote1, 2 : DICOM SR server | Remote1, 2 |
| Appl. Entity | The program name on the DICOM SR server is input. | key input |
| Station Name | The DICOM SR server computer name is input. | key input |
| IP Address | Enter the network address number assigned to the DICOM | key input |
| | SR server. | |
| Port# | Enter the TCP/IP port number used by the DICOM SR | key input |
| | server. | |

[Remark]

Ping and C-ECHO are usable only When all of the "Appl. Entity", "Station Name" and "IP Address" are input among Remote 1 to 2.

In addition, when Ping and C-ECHO are started, then an examination is commenced. After that, follow the instruction of the dialog.

7-3-8. IHE/Auto Delete

The IHE/Auto Delete is used to make network-related settings for the MPPS server and the Storage Commitment server.

- (1) Move an arrow cursor to the IHE/Auto Delete under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- IHE

| Common! Concrete 12 | In Maller | | | | |
|---|--------------|------------|----------------------|--------------|-----------|
| Carrier2 | | - | | | |
| Prote School | Features | | | | |
| Fr on Freeter | a | | | | |
| Fr nbRealTime | | | | | |
| "Frink Suley, | Reiny now | 521 Tra | rvection i i nil | Ho ding Time | |
| El007-Em wa | 1 | · nn · 1 | - 11 - | · · · > | • |
| EICOV Addree | | | | | |
| EICOV-Franker EICOV-FR | CRES Server | | | | |
| IICMar: Color | Fing | C DOND | | | |
| Stress kein | Conserv. | Ann childe | Stul on Hanks | P Address | - Norther |
| | Ferrorel | | | | 104 |
| | Verobe2 | | | | 104 |
| | Storage Comm | dicu-1 | | | |
| | Eina | C DONG | 1 | | |
| | | | 1 | | |
| | Oasse. | Anal Br. W | Stution Harner | P Address | Part# |
| | son oter | | | | 104 |
| | Verrobe2 | | | | 104 |
| | Auto Insue: | U.Ic., De | the Orace. | | |
| | 01 | | t ed or Sett Image " | 7 | |
| | | | | | |
| | | | | | |
| S | | | - | Codi | Cancel |
| | | | | | |

| Name | Function | Setting | | |
|-------------------|---|---------------------------------|--|--|
| IHE | | | | |
| Retries | Sets the number of retry operations for the Storage | 0 to 99 | | |
| | Commitment server. | Unlimited | | |
| Retry Interval | Sets the retry time intervals for the Storage Commitment | 1 to 60, Power On | | |
| | server. | [H: hour], [min: minute] | | |
| Transaction Limit | Sets the time during which the instrument waits for a | 1 to 60, Unlimited | | |
| | reply when a reply is not obtained from the Storage | [H: hour], [D: day], [W: week] | | |
| | Commitment server after images are sent to it. | | | |
| Holding Time | Sets the period of storing images on the instrument after | 0 to 60 | | |
| | the images were sent to an external media or the server | [D: day], [W: week], [M: month] | | |
| | from the Local HDD, or temporarily stored on the Local | | | |
| | HDD. The date when an image is stored on the Local | | | |
| | HDD is set as zero to manage the storing period. | | | |
| | MPPS Server | | | |
| Ping | Examines whether or not the TCP/IP protocol of the | *Remark | | |
| | MPPS server for the number that was selected is being | | | |
| | operated normally on the server. | | | |
| C-ECHO | Examines whether or not the functions supporting the | *Remark | | |
| | MPPS of the MPPS server for the number that was | | | |
| | selected are being maintained/started up. | | | |
| Connect | The destination network server is switched. | Remote1 to 2 | | |
| | Remote1—2: MPPS server | | | |

| Name | Function | Setting | | |
|--------------|---|--------------|--|--|
| Appl. Entity | The program name on the MPPS server is input. | key input | | |
| Station Name | The MPPS server name is input. | key input | | |
| IP Address | The network address number which is given to MPPS | key input | | |
| | server is input. | | | |
| Port# | Inputs the port number of the TCP/IP which is used by key input | | | |
| | MPPS server. | | | |
| | Storage Commitment | • | | |
| Ping | Examines whether or not the TCP/IP protocol of the | *Remark | | |
| | MPPS server for the number that was selected is being | | | |
| | operated normally on the server. | | | |
| C-ECHO | Examines whether or not the functions supporting the | *Remark | | |
| | MPPS of the MPPS server for the number that was | | | |
| | selected are being maintained/started up. | | | |
| Connect | The Storage Commitment server is switched. | Remote1 to 2 | | |
| | Remote1 to 2: Storage Commitment server | Worklist | | |
| Appl. Entity | The program name on the Storage Commitment server is | key input | | |
| | input. | | | |
| Station Name | The name of computer which is given to the Storage | key input | | |
| | Commitment server is input. | | | |
| IP Address | The network address number which is given to Storage | key input | | |
| | Commitment server is input. | | | |
| Port# | Inputs the port number of the TCP/IP which is used by | key input | | |
| | Storage Commitment server. | | | |

Ping and C-ECHO are usable only When all of the "Appl. Entity", "Station Name" and "IP Address" are input among Remote 1 to 2.

In addition, when Ping and C-ECHO are started, then an examination is commenced. After that, follow the instruction of the dialog.

Auto Delete Function

This function sets whether or not the instrument automatically deletes images that are stored on the Local HDD or that temporarily stored on the Local HDD after having been sent to an external media or a server, at a fixed period. The function descriptions of the preset options are as follows.

<Preset options>

| Name | Function | Setting | | | | |
|-------------------|--|-----------------------|--|--|--|--|
| Auto Delete | | | | | | |
| Auto Image Delete | Stored images are not automatically deleted. | Off | | | | |
| | When a Storage Commitment is received for an image | Storage Commitment | | | | |
| | that is sent to a server, the image temporarily stored on | | | | | |
| | the Local HDD is automatically deleted ^{*2} at a fixed | | | | | |
| | period. | | | | | |
| | Automatically deletes the images on the Local HDD that | Time | | | | |
| | are specified in Delete Object after the set period ^{*1} of | | | | | |
| | time has elapsed. | | | | | |
| Delete Object | Automatically deletes*2 the images stored on the Local | All Images | | | | |
| | HDD after the set period*1 of time has elapsed. | | | | | |
| | Automatically deletes ^{*2} the images on the Local HDD | Copied or Sent Images | | | | |
| | that have been sent to an external media or the server | | | | | |
| | after the set $period^{*1}$ of time has elapsed. | | | | | |

*1 : A time period is set in Holding Time at the upper part of the same screen.

*2 : Images are deleted when the power is turned on after the set period of time has elapsed.

<Images to be deleted by combining settings of Auto Image Delete and Delete Object>

Images to be deleted from the Local HDD vary depending on the preset settings. Automatically deletes when the time period set in Holding Time has elapsed.

| Auto Image Delete | Delete Object | Deleted image | |
|--------------------|---------------|---|--|
| Off | - | Images on the Local HDD are not automatically deleted. | |
| Storage Commitment | - | Images on the Local HDD that have been sent to a server and for which | |
| | | a commitment is returned ^{*1} | |
| Time | All Images | Images stored on the Local HDD | |
| | Copied or | Images on the Local HDD that have been sent to an external media or a | |
| | Sent Images | server ^{*2} | |

*1:Images displayed with blue icons, as described in Section 4-3-2. "Search for image data".

*2:Images displayed with light blue, orange, or blue icons,

as described in Section 4-3-2. "Search for image data".

[Remark]

Deletion of images is executed when the power turned on after the time period specified in Holding Time has elapsed. The time period starts from the date when an image is stored on the Local HDD, and the stored date/time is set as zero. The date/time when an image is sent to an external media or a server is not set as zero.

7-3-9. Stress Echo

The Stress Echo is a screen used to make a protocol for Stress Echo

- (1) Move an arrow cursor to the Stress Echo under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Stress Echo

| Connort Connor2 Connor2 | Trebaca Name | | | | Acquire Time | | |
|-----------------------------------|----------------------|--------|--------------|------------|--------------|---------------|--------|
| From Sciul | | | 5 6 2 | R | VON Centrel | Martin | - |
| Fr nb Raam me | Puero se En ves Echo | | | | | CHENCY . | |
| Front Sulkey. | Stag | n sta. | el 🛛 📓 stara | 2 🔡 V en 2 | 🔡 Vand 🐰 | Acquire La | |
| El007-Em wa | I DASI | - PL | ex 💿 rea | X · A40 | - 632 I - | 1 mp - 6 | |
| EICOV Addres • EICOV-Frinker | 2 9848 | - PI | 12 - P24 | | - 4204 - | log-till -1 o | т т |
| Eleat-an | 3 3000 | | _ | _ | - 622.1 | | |
| ICMarte Celel | | | | | | 1.16 | |
| SUSSA BATM | - | - | - | - | <u> </u> | TR 10 - 1 | |
| | 5 | - | • | • | | Tang 1 C | : • |
| | 0 | - | - | <u>•</u> | - 1 | Tene - C | |
| | 7 | - | • | • | | 1 mp - 1 | |
| | 8 | - | - | | | Trine - C | |
| | 3 | | | | 1 1 | 1 m 1 | |
| | - | | | | | | |
| | 10 | - | - | <u> </u> | <u> </u> | TRIP - | |
| | 11 | -1 | • | • | | Тапр - С | : • |
| | 12 | - | - | - | - 1 | Tane 🔄 🤇 | |
| | Á2 | : Vies | 2.₩ | - | Pres. | Acol. | |
| . <u> </u> | | | | | | :ai | Cancal |

[Remark]

Details about protocol, refer to "16.Stress Echo" in the volume "Option".
7-4. Preset Control

Preset Control is a function that copies, rearranges and copies (to USB memory, etc.) setting data (settings related to images and measurement) for each preset No.

It is also used to copy Annotation Dictionary, Body Mark Library, Common Preset, Color Map, Measurement data to USB memory, etc.

[Remark]

The following operating procedures explain the case where the floppy disk drive is used. When using the floppy disk drive as external media, contact Aloka's sales offices or agents listed on the back cover.

- (1) Press the PRESET switch.
 - \rightarrow The preset list is displayed.
- (2) Using the trackball, move an arrow to the Set-up, press the ENTER switch.
 - \rightarrow The preset setting select list is displayed.
- (3) Using the trackball, move the arrow to the Preset Control, and press the ENTER switch.
 - \rightarrow The Preset Control screen is displayed.



| Kind of data (List box) | : | Used to select and set the kind of data from Preset No., Annotation Dictionary, Body | |
|-------------------------|---|--|--|
| | | Mark Library, Common Preset, Color Map or Measurement. | |
| Сору | : | Copies data. | |
| Move | : | Rearranges data. | |
| US to US | : | Copies data inside the instrument. | |
| Copy to Media | : | Copies data in the instrument to an external media. | |
| Copy from Media | : | Copies data in the instrument from an external media. | |
| Media Type | : | Select from FD, Media, CD-R or DVD to make the setting. | |
| | | The media that is selected when you display Preset Control is the one that was | |
| | | selected in the previous session. | |
| -20 | : | Select when you wish to copy or rearrange data. | |
| | | You cannot select this item unless data has been selected. | |
| Exit | : | Returns to the preset setting selection list. | |

[Remark]

To select each button, move the arrow to a button using the trackball, and press the ENTER switch. When using a CD-R with an external media, it is necessary to have an optional CD-R drive and connection kit. When using a DVD with an external media, it is necessary to have an optional DVD drive and connection kit.

7-4-1. Method of copying preset No. data to a USB memory

[Remark]

The Preset Name is used as the data filename.

If necessary, change the preset name in the Preset Set-up Menu in advance.

- (1) Insert a formatted floppy disk in the instrument.
- (2) Set the kind of data in the **Preset No**.



- (3) Select the Copy to Media.
- (4) Select the Media.
 - \rightarrow The following screen is displayed.



- (5) Select the name of the preset that you wish to copy, from the US column.
 - \rightarrow The preset name in the US column is highlighted in blue, indicating that you can select
- (6) Select
 - \rightarrow The message of "In progress. Please wait." is displayed.

[Remark]

Never remove the floppy disk while the "In progress. Please wait." message is displayed.

(7) When the copy is finished, the preset name copied to the column of the Media is displayed.

[Remark]

7-4-2. When copying preset No. data inside the instrument

- (1) Select the Preset No.
- (2) Select the Copy.
- (3) Select the US to US.
- (4) Select the name of the copy source preset from the left US column.
- (5) Select the name of copy destination preset from the right US column.
- (6) Select \square .

- an an this · .n 1.5 Sety Tent. 19enen 2 Abdor en 3 Abdor en 10 4 OS11 Nine 16ata al None 2.Abdomen | J 1:4bdomen | J 4:082 | 20 to US strotal Hourt Start 26 A Sony to Veda FUNITON. GYN Copy from Nedla Cardine A 5. Jana Berli Elem T 10-bri orta Ceda Type 001040 Flavor IS: TGB IS: Small (ed) CO R Mura sula lo 155 Johny A.Prov.als (18AD D.Com IC: E-me 16-9 404 200.4 64.9.2 Ext
- (7) When copying is completed, the preset name on the right changes to the copy source preset name.

7-4-3. Copying preset No. data from the USB memory

- (1) Select the **Preset No**.
- (2) Select the Copy from Media.
- (3) Select the copy source preset name from the Media column.
- (4) Select the copy destination preset name from the US column.
- (5) Select
- (6) When copying is completed, the name of the copied preset changes to the preset name in the US column.

[Remark]



7-4-4. When rearranging Preset No. data

- (1) Select the Preset No.
- (2) Select the Move.
- (3) Select a preset name from the left US columnn.
- (4) Select a preset name from the right US column.
- (5) Select
- (6) The positions of the preset name selected from the left US column and the preset name selected from the right US column are interchanged.



7-4-5. When copying data in Annotation Dictionary to a USB memory

- (1) Select the Annotation Dictionary.
- (2) Select the Copy to Media.
- (3) Select the copy source dictionary from the US column.
- (4) Select
- (5) When copying is completed, the filename called Dic User* is displayed in the Media column.

[Remark]

A filename is automatically assigned to the data.

[Remark]

| Arrich Ger Diel om f | La Portiona y 2.actionary 2 2.30etkarary 2 4.75ctionary 2 4.75ctionary 34 | - | Vera Nere | |
|--|--|---|--------------|--|
| . Capy Eka Media. Capy Fran Yesa Nedia Type -U Media Cam Yan | Nuslimmy : Göldlarury : | | | |
| | | | | |

7-4-6. When copying data in Annotation Dictionary from a USB memory

- (1) Select the Annotation Dictionary.
- (2) Select the Copy from Media.
- (3) Select the copy source Dic User* from the Media column.
- (4) Select the copy destination dictionary name from the US column.
- (5) Select
- (6) When copying is completed, the filename Dictionary* is displayed in the US column.

[Remark]

When you copy the data to FD, CD-R or DVD operate in the same way.

7-4-7. When copying Common Preset data to a USB memory

- (1) Select the Common Preset.
- (2) Select the Copy to Media.
- (3) Select a Common Preset from US column.
- (4) Select
- (5) When copying is completed, a filename called Common User is displayed in the Media column.

| Common Presul | - | |
|--|--------------------|------|
| | 1.9 | Velo |
| Date: | No. | Hane |
| Witten . | Inde nor on Presel | |
| US 16 US L.Sareta Media. Capy Fran Vacia | | |
| Neda Type -U | | |
| Co n Yah | | |
| | | |
| | | |
| | 1 | |

[Remark]

| Cory Cove | Note: Prince: Prince: | _ | II2 Network ICA: overy 1 |
|---|-----------------------------|---|---|
| US 16-US Copy to Media Same Franci Xacu | 2.00 L 5.1 V | | 2Det. on ny 2 Odlet omry 3 Afflet on ny 4 Sillet, on ny 4 Billet omry 6 |
| Neda Type -U Weta <u>CO N</u> Yah | | | |
| | | | 2:41 |

7-4-8. When copying Common Preset data from a USB memory

- (1) Select the Common Preset.
- (2) Select the Copy from Media.
- (3) Select the Common User from the Media column.
- (4) Select the Common Preset from the US column.
- (5) Select

| Vener on Provid Cory Toxe US 16:05 Copy to Media Kark from Xica Nedia Type -U Media Colin Yan | Euros Internor Joer | IIX Mark PContric : Entwo |
|---|------------------------|---------------------------------|
| | | |

[Remark]

When you copy the data to FD, CD-R or DVD operate in the same way.

7-4-9. When copying Color Map to a USB memory

- (1) Select the Color Map.
- (2) Select the Copy to Media.
- (3) Select the Color Map from the US column.
- (4) Select
- (5) When copying is completed, the filename called Color User* is displayed in the Media column.

[Remark]

A filename is automatically assigned to the data.

[Remark]

| Opton Vale | - | |
|-----------------|------------------------------------|--------|
| | L.8 | Carl a |
| Date: | No. | Hans |
| Nova . | Problem Vind A 2. Option View E | |
| | Billion Vet C | |
| US IN US | 4 Color Cha D | |
| Capy to Media | 5.Optor Vax E QColor Vet CAE | |
| Copy From Vec a | | |
| Neda Type | | |
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| | | Coli |

7-4-10. When copying Color Map from a USB memory

- (1) Select the Color Map.
- (2) Select the Copy from Media.
- (3) Select a Color User* from the Media column.
- (4) Select a Color Map from the US column.
- (5) Select

[Remark]

When you copy the data to FD, CD-R or DVD operate in the same way.

7-4-11. When copying Measurement to a USB memory

- (1) Select the Measurement.
- (2) Select the Copy to Media.
- (3) Select the application of Measurement from the US column.
- (4) Select

[Remark]

When you copy the data to FD, CD-R or DVD operate in the same way.





7-4-12. When copying Measurement from a USB memory

- (1) Select the Measurement.
- (2) Select the Copy from Media.
- (3) Select the application of Measurement from the Media column.
- (4) Select the application of Measurement from the US column.
- (5) Select



[Remark]

7-5. Preset Set-up Menu

The Preset Set-Up Menu is used to set the initial values, for example, in all presets of the selected preset No.

- (1) Using the trackball, move an arrow cursor to the No. corresponding to the preset in the preset setting select list whose registered contents you wish to change, then press the ENTER switch.
 - \rightarrow The Preset Set-Up Menu is displayed.

| | Proved Sulf-Ar S Ekpira Ekpira Elsist-S Flow B.Garranal - Unities Fruite Rank For Vank For Vank F | | |
|------------------------|--|--|--|
| Preset No. | : Indicates the registration number of the preset. (Corresponds to the number in the pre- set) | | |
| Preset Name | : Used to register or change the name of a preset. Enter the name from the keyboard. The registered or changed name is displayed in the preset menu. | | |
| Application | ed to select the part of the body to be examined. | | |
| Study for Measurement | sed to select a measurement study corresponding to the Application to be mea- ured. | | |
| Probe Select | : You can register up to six kinds of probes to be connected. When a probe registered here is connected, the auto calling function calls the preset in which the probe is registered. | | |
| Probe List | : A list of probes that can be registered is displayed. | | |
| Initialize all presets | : All items are initialized together according to the set application. | | |

Set the present conditions : The conditions of the currently used instrument are registered together.

7-6. Display1 to 2 DISP-B,M -D,Flow

Display1-2 DISP-B,M DISP-D,Flow are used to register the set conditions related to the screen display.

- (1) Move an arrow cursor to the Display1-2 DISP-B,M DISP-D,Flow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Display1

| Preset Sulf-Je Ekploy | in Bullar | No: 7 | | | |
|-------------------------------|----------------------------|-------------|-------------------|---------------|------------|
| Chpin-3 | Karne - Aladon on | | Assilent k | w · etrone | |
| - CIR3 M | Active and a second second | | | | " |
| CISE-DEMA | Ebpla-Node | - 11 C | | EXTERNO | |
| D.Corrnet1 | 8 | - Cn | - | 00 | - |
| On otext | | | _ | | _ |
| in w C ne | Englas Note Him | AAN A Yes | | | |
| Cody Yark | 70 | - berna | - | | |
| None-USER | 1 | | | | |
| Nerro-Grave | ID Formal SizeXX: | SD Format | S 2247/) | 40 Formum St | 54 |
| Nemu Function | Harryal | - w de | -1 | ta Ma | - |
| Non-Autor | 1 | | _ | | - |
| CINTRE SA | E Formal Biz, PC | SN hormal | | BP Formul & | |
| | Harral | - L.M | - | Varmal | |
| Custar Fee | 14-111-01 | 1 Jan | | ****** | |
| - Online - Kry | Sour Arcold | Brun Ar Lab | tit only | Star Analisi | ERACICE |
| Fby% o | 111 - 1 ₁₂ | 100 | 1.5 | 75 | -l |
| maga C,Y' | | 1 | - | | |
| Himesurb.V2 | Scen Area TAVI | | | | |
| J FOOR | | | | | |
| Foel Proces | | | | | |
| Example 1 | Title Area W(E) | E on Artesh | ego)nes — | File, Area)le | stal) |
| Exppler9 | 14 2 4 | 50 | | 40 | <u>-</u> . |
| 1 Tise | | | | | |
| H Evnus Eles | | | | | |
| a welca | | | | | |
| Tious Copp | | | | | |
| Loop tion | -1 | | | | |
| 1.00 | | | | Codil | Cancel |
| | | | - | | |

| Name | Function | Setting |
|--------------------|--|----------------------------|
| | Display1 | |
| Display Mode | The display mode at starting time is set. | B, 2B, 4B, B/M, B/PW, B/CW |
| T.H.E | The T.H.E. (Tissue Harmonic Echo) is Off at starting time. | Off |
| | The T.H.E. (Tissue Harmonic Echo) is On at starting time. | On |
| ExPHD(T.H.E.) | The ExPHD(T.H.E.) is Off at T.H.E. starting time. | Off |
| | The ExPHD(T.H.E.) is On at T.H.E. starting time. | On |
| Display Mode, Flow | The Flow, Power Flow and eFlow are Off at starting time. | Off |
| | The Flow is On at starting time | Flow |
| | The Power Flow is On at starting time. | Power Flow |
| | The eFlow is On at starting time. | eFlow |
| Display Mode, TDI | The D, Flow, and Power Flow mode are operated on normal | Normal |
| | condition. | |
| | The D, Flow, and Power Flow mode are operated on the | TDI |
| | TDI state. | |
| 1B Format Size(W) | B mode image on 1B mode is displayed with normal width. | Normal |
| | B mode image on 1B mode is displayed with wide width. | Wide |
| 2B Format Size(W) | B mode image on 2B mode is displayed with normal width. | Normal |
| | B mode image on 2B mode is displayed with wide width. | Wide |
| 4B Format Size | B mode image on 4B mode is displayed with normal width. | Normal |
| | B mode image on 4B mode is displayed wide normal width. | Wide |

| Name | Function | Setting |
|--------------------|--|------------------------------------|
| B Format Size(H) | B mode image or M mode image on B, 2B, B/D, B/M or M | Normal |
| | mode is displayed with normal width. | |
| | In B, 2B and B/D mode, the vertical size of the display area | Wide |
| | for B mode images is expanded for enlarged image display. | |
| B/* Format | B/ Sweep mode is displayed with normal width. | L/R |
| | B/ Sweep mode is displayed up and down. | U/L |
| B/* Format Size | B/ Sweep mode is displayed with normal width. | Normal |
| | The longitudinal width of B mode with U/L is displayed | Wide |
| | about the half size of sweep mode. | |
| Scan Area(B) | Scan range of B mode at starting time is set. | 25 to 100% (5% Step) |
| Scan Area(B(Flow)) | Scan range of B mode on B(Flow) mode is set. | 25 to 100% (5% Step) |
| Scan Area | Scan range of B mode on a B(Flow)/D mode is set. | 25 to 100% (5% Step) |
| (B(Flow)/D) | | |
| Scan Area | Scan range of B mode on a B(FAM) mode is set. | $25 \sim 100\% (5\% \text{ Step})$ |
| (FAM) | | |
| Flow Area(W),B(F) | Setting (B mode is assumed 100%) of lateral width of flow | 15 to 100% (5% Step) |
| | area on B(Flow) mode. | |
| Flow Area(W), | Setting (B mode is assumed 100%) of lateral width of flow | 15 to 100% (5% Step) |
| B(F)/* | area on B(Flow) / D mode. | |
| Flow Area(Height) | Setting of height of flow area on B(Flow) and | 25 to 100% (5% Step) |
| | B(Flow) / D mode (B mode is assumed 100%). | |

Display2

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| Name | Function | Setting |
|---------------|--------------------------------|---------------------------|
| | Display2 | |
| Beam Steer(B) | It has B mode deflect. | -30 to 30degree (5° Step) |
| Beam Steer(D) | It has Doppler cursor deflect. | -30 to 30degree (5° Step) |
| Beam Steer | It has Flow area deflect. | -30 to 30degree (5° Step) |
| (Flow) | | |

| Name | Function | Setting |
|-----------------|--|----------------------|
| Steering Link | Even if the polarity changes by change of deflection angle of a beam | Off |
| | of a linear probe, SPECTRUM INVERT does not occur. | |
| | SPECTRUM INVERT occurs when the polarity changes by change | On |
| | of deflection angle of a beam of a linear probe. | |
| Invert Link | Following a spectrum invert, it does not change Color Polarity. | Off |
| | Following a spectrum invert, it does change Color Polarity. | On |
| T.B.Priority | At freeze cancellation, the trackball function that was carried out | Auto |
| (Frz Off) | before freezing is rebooted. | |
| | At freeze cancellation, the trackball function that was carried out | Unchanged |
| | before freezing is continued. | |
| T.B.Priority | At freeze, a Search function is started automatically. | Search |
| (Frz On) | At freeze, a Bodymark function is started automatically. | Bodymark |
| | At freeze, a Comment function is started automatically. | Comment |
| | At freeze, a Measurement menu is displayed automatically. | Measurement + Search |
| | At freeze, the trackball function that was carried out before | Unchanged |
| | freezing is continued. | |
| Cursor Position | When a cursor is displayed, it is displayed in the left side. | Left |
| | When a cursor is displayed, it is displayed in the center. | Center |
| | When a cursor is displayed, it is displayed in the right side. | Right |
| Cursor Display | Preset at starting time: The cursor is always displayed. | Off |
| | Preset at starting time: The cursor is not displayed. | On |
| Freeze G.Knob | At freeze On, the search of an image is possible with B gain switch. | Search |
| | At freeze On, the operations of each gain switch are possible | Gain |
| | regardless of active or non-active. | |
| LCD/Panel | Selects from amongst the Type A, Type B and Type C that were | ТуреА |
| Setup | combined by Common Preset \rightarrow Common3 \rightarrow LCD/Panel Setup, | ТуреВ |
| | and sets the brightness of the LCD monitor, touch panel and operation panel LED. | ТуреС |

• DISP-B,M

| Prevet Sul-Jac | - In Bullar | No: 2 | | | |
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| Name | Function | Setting |
|---------------------|--|-------------------------------|
| | DISP-B,M | |
| Image Direction | A scanning direction at starting time is set in a normal direction. | Normal |
| (L/R) | A scanning direction at starting time is set in a reverse direction. | Invert |
| Image Rotation | At starting time, an image is displayed without rotating. | 0 ° |
| | At starting time, an image is rotated 90 degrees and displayed. | 90 ° |
| | At starting time, an image is rotated 180 degrees and displayed. | 180 ° |
| | At starting time, an image is rotated 270 degrees and displayed. | 270 ° |
| Cine Division | After freeze, cine memory is divided into 1 or 2 or 4. | 1,2,4 |
| Position Shift (CV/ | Offsets the depth of the B mode image. | -10.0 to 20.0cm (0.1cm |
| LN/PA) | | Step) |
| Position Shift | Offsets the depth of the B mode image. | -50, 0, 50% |
| (Radial) | | |
| Color Map(B,M) | It is displayed without adding a color to B mode and M mode image. | Gray |
| | An image is displayed with adding from blue to orange. | A |
| | An image is displayed with adding blue color. | В |
| | An image is displayed with adding weak blue color compared to B. | С |
| | An image is displayed with adding orange color. | D |
| | It is a brown brightness characteristic. | Е |
| | It is a brown brightness characteristic weaker than E. | F |
| | It is a blue and yellow brightness characteristics. | G |
| Zoom Method | It is zoomed at the center of image as base. | Center |
| | With displaying a zoom box, it is zoomed | Box |
| B Shift | On B/D mode, B mode image does not follow to a cursor | Off |
| | movement. | |
| | On B/D mode, B mode image follows a cursor movement. | On |
| Sweep Speed(M) | A sweep velocity on an M mode is set. | 25, 33.3, 50, 66.7, 100, 150, |
| | | 200mm/s |
| Echo Erase | At starting time, the Echo Erase function is not used. | Off |
| | When Echo Erase is On, the range of Erase is set. | 1 to 19(1 Step) |

• DISP-D,Flow

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| Name | Function | Setting |
|-------------------|--|---------|
| | DISP-D, Flow | |
| Triplex Mode | When switching to B/D modes, etc., it becomes simultaneous | Triplex |
| | operations. | |
| | When it is switched, it is displayed on B real and D blank. | B-Real |
| | When it is switched during D cursor display with B mode, it | D-Real |
| | becomes D real display with B freeze. | |
| Simul Mode | When the Triplex Mode is on B-Real or D-Real, Triplex is not | Off |
| | started even if PW switch is pressed. | |
| | When the Triplex Mode is on B-Real or D-Real, Triplex is started | On |
| | if PW switch is pressed. | |
| Triplex Mode Type | B mode image in a simultaneous operation becomes a normal | MSE |
| | display. | |
| | B mode image in a simultaneous operation becomes a refresh | Refresh |
| | display. | |
| Triplex VEL Range | On B(Flow)/D simultaneous mode, the speed range of D mode is | Low |
| | the same as B(Flow). | |
| | When a speed range is raised, it is advanced with 1:1. | |
| | On B(Flow)/D simultaneous mode, the speed range of D mode is | High |
| | double a B(Flow). | |
| | When a speed range is raised, it is advanced with 1:2. | |
| | On B(Flow)/D simultaneous mode, the speed range of B(Flow) is | B Fix |
| | constant and a speed range increases only in D mode. | |
| Triplex,Frame | On B (Flow)/D simultaneous mode, the B mode image frame rate | Low |
| Rate(B) | is set to Low. | |
| | On B (Flow)/D simultaneous mode, the B mode image frame rate | Medium |
| | is set to Medium. | |
| | On B (Flow)/D simultaneous mode, the B mode image frame rate | High |
| | is set to High. | |

| Name | Function | Setting |
|----------------|---|---------------------------------------|
| Spectrum Size | Longitudinal spectrum of B/D and D mode is displayed with a normal width. | Normal |
| | Longitudinal spectrum of B/D and D mode is displayed with wide width. | Wide |
| Image Polarity | The polarity of D mode image is made Posi. | Posi |
| | The polarity of D mode image is made Nega. | Nega |
| Sweep Speed(D) | The sweep speed of D mode is set. | 25, 33.3, 50, 66.7, 100, 150, 200mm/s |
| PW Sound On | When D cursor is displayed on B mode image and B/D simultaneous operation is on in the unit, PW sound does not sound. | Off |
| | When D cursor is displayed on B mode image and B/D simultaneous operation is on in the unit, PW sound does sound. | On |
| Area Lock | When a sample volume is moved, it becomes the setting flow area is not following. | Off |
| | When a sample volume is moved, it becomes the setting flow area does follow. | On |
| Capture Time | A pixel holding time at a capture is set. | 1sec, 2sec, 3sec |
| | It is maintained till it freezes. | Continuous |

(Setting of Range Select)

- (1) Using the trackball, move an arrow to the "+" mark displayed in front of DISP-B, M on the screen left side, press the ENTER switch.
 - \rightarrow The Range Select is displayed.
- (2) Using the trackball, move the arrow to the Range Select, and press the ENTER switch.



 \rightarrow The setting screen as the following is displayed.

Range Select



(3) Set the default screen depth at power-on and the step of the display depth.

7-7. ID Comment

ID Comment is used for inputting patient information and comment.

- (1) Move an arrow cursor to the ID Comment under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- ID Comment

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| Name | Function | Setting |
|-----------------------|---|----------------------------|
| | ID,Comment | |
| ID Input | At ID starting time, it terns to ID Name screen. | ID Name |
| | At ID starting time, it terns to ID Obstetrics screen. | ID Obstetrics |
| | At ID starting time, it terns to ID Gynecology screen. | ID Gynecology |
| | At ID starting time, it turns to ID BSA screen. | ID BSA |
| | At ID starting time, it turns to ID Urology screen. | ID Urology |
| Sex | Gender is set. | Male, Female, Other, Blank |
| BSA Equation | At selection of ID BSA, the computation expression of Du | Du Bois |
| | Bois is used for BSA. | |
| | At selection of ID BSA, the computation expression of Boyd | Boyd |
| | is used for BSA. | |
| | At selection of ID BSA, the computation expression of | Shintani |
| | Shintani is used for BSA. | |
| GA/EDC Calculation | At ID OB selection, the calculation methods of week of | LMP, BBT, EGA, EDC, GA |
| | gestation number / calculated date of confinement are set. | |
| Menstrual Date | At ID GYN selection, the menstruation day input method is set. | LMP, BBT |
| Auto Comment Off | At freeze cancellation, comments are erased. | Erase |
| | At freeze cancellation, comments are not erased. | Remain |
| Character Size | Letters of comments are displayed with standard character size. | Normal |
| | Letters of comments are displayed in a double height and | Large |
| | width size character. | |
| Annotation Dictionary | Dictionary for ANNOTATION function execution is set. | 1, 2, 3, 4, 5, 6 |
| Annotation Dic. Type | ANNOTATION is displayed with full spelling. | Full Spelling |
| | ANNOTATION is displayed with an abbreviation. | Abbreviation |
| | | |

7-8. Graphics

Graphics is used for image adjustment.

- (1) Move an arrow cursor to the **Graphics** under Preset Set-up selection menu on left side of the page with the trackball, and press the **ENTER** switch.
 - \rightarrow The following screen is displayed.
- · Graphics

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| Name | Function | Setting |
|--------------------------|--|---------------------|
| | Graphics | |
| Graphic Color | The foreground colors of letters and graphics on screen are set. | A, B, C, D, E, User |
| Imaging Information | An automatic display in an image display area is not displayed. | Off |
| | An automatic display in an image display area is displayed. | On |
| Info Display Position | An automatic display in an image display area is displayed at the bottom side. | Lower |
| | An automatic display in an image display area is displayed at the top side. | Upper |
| Thermal Index | Sound power indices are displayed in thermal indices for soft tissues. | TIS |
| | Sound power indices are displayed in thermal indices for osseous. | TIB |
| | Sound power indices are displayed in thermal indices for the skull. | TIC |
| Puncture Guide Line | At starting time, the puncture guideline is not displayed. | Off |
| | At starting time, the puncture guideline is displayed. | On |
| Angle Select (Punc) | The incidence angle of puncture metal fittings is set. | 1 to 8 |
| MI/TI Display | When it freezes, MI/TI is not displayed. | Erase |
| (Frz On) | When it freezes, MI/TI is displayed. | Remain |
| Rotary Plane Mark | A rotary plane mark of a rotary plane transesophageal probe is not displayed. | Off |
| | A rotary plane mark of a rotary plane transesophageal probe is displayed. | On |

7.Preset 7-8.Graphics

| Name | Function | Setting |
|--------------------|---|-----------------------------|
| Rotary Plane Angle | The angle at rotary plane mark display of a rotary plane | Erase |
| | transesophageal probe is not displayed. | |
| | The angle at rotary plane mark display of a rotary plane | Display |
| | transesophageal probe is displayed. | |
| Grid Display Type | Sets the type of Grid display. | A, B, C |
| Biplane Label | A biplane label of a biplane transesophageal probe is not | Off |
| | displayed. | |
| | A biplane label of a biplane transesophageal probe is | On |
| | displayed. | |
| Biplane Line | A biplane line of a biplane transesophageal probe is not | Off |
| | displayed. | |
| | A biplane line of a biplane transesophageal probe is | On |
| | displayed. | |
| OMNI Plane | Sets the angle of the omni-plane. | -45° to 45°(5°step) |
| OMNI Plane Mark | Does not display the omni-plane mark. | Off |
| | Displays the omni-plane mark. | On |
| OMNI Plane Angle | Displays the angle of the omni-plane mark. | Display |
| | Does not display the angle of the omni-plain mark. | Erase |
| Auto Clipping | Sets the cutting out range for a Video display. | Full Size, Auto, No ID Size |
| Thumbnail Display | The thumbnail is not displayed in the display. | Off |
| | The thumbnail is displayed in the display. | On |
| PF Info Display | In Power Flow, eFlow or Directional TDI Power, PRF and | Off |
| | flow rate values are not displayed. | |
| | In Power Flow, eFlow or Directional TDI Power, PRF value | PRF |
| | is displayed. | |
| | When Directional (Flow) of Power Flow, eFlow, or TDI | Velocity |
| | Power is On, the return flow rate is displayed. | |
| Font Size | The character size for measurement results is not enlarged. | ×1 |
| (Meas. Results) | The character size for measurement results is enlarged by | ×1.2 |
| | 1.2 times. | |
| | The character size for measurement results is enlarged by | × 1.4 |
| | 1.4 times. | |

7-9. Store, Cine

The Store, Cine is used for the save of an image.

- (1) Move an arrow cursor to the Store and Cine under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- · Store, Cine

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| Name | Function | Setting | | | | |
|---------------------|---|---------------------------|--|--|--|--|
| | Store, Cine | | | | | |
| Acquire Mode | Moving image prior to pressing the STORE switch until the set time (1 to 16 seconds) is taken in. | Pre Time | | | | |
| | | D FOO | | | | |
| | Moving image of R-wave prior to pressing STORE switch till the | Pre ECG | | | | |
| | R-wave just before the set heartbeat (1 to 10 heartbeats) is taken | | | | | |
| | in. | | | | | |
| | Moving images right after pressing STORE switch till the set time | Post Time | | | | |
| | (1 to 16 seconds) is taken in. | | | | | |
| | Moving image of R-wave right after pressing the STORE switch | Post ECG | | | | |
| | till the R-wave just before a set heartbeat (1 to 10 heartbeats)is | | | | | |
| | taken in. | | | | | |
| | Images right after pressing the STORE switch until pressing the | Manual | | | | |
| | STORE switch are taken in. | | | | | |
| ECG Cycle | A heartbeat rate for taking in moving image on what heartbeat | 1 to 10(integer value) | | | | |
| | cycle is set. | Cycle | | | | |
| Time Cycle | A time cycle for taking in moving image on what seconds is set. | 1 to 16(integer value)sec | | | | |
| Format Type(Single) | Whether DICOM or AVI for saving the file format of still image is | DICOM | | | | |
| | selected. | | | | | |
| | The file format for saving still images is JPEG. | JPEG | | | | |
| | The file format for saving still images is BMP. | BMP | | | | |
| | The file format for saving still images is TIFF. | TIFF | | | | |
| Store Media | It is recorded on HDD of the unit with STORE switch. | HDD | | | | |
| | It is recorded on Removable Media with STORE switch. | Media | | | | |
| | It is recorded on CD-R Buffer with the STORE switch. | CD-R Buffer | | | | |
| | It is recorded on DVD with the STORE switch. | DVD | | | | |
| | It is transmitted to a network with DICOM format with the | NET(DICOM) | | | | |
| | STORE switch. | | | | | |
| Auto Loop | When moving image is stored, no play back in loop is performed | Off | | | | |
| Ĩ | automatically. | | | | | |
| | When moving image is stored, play back in loop is performed | On | | | | |
| | automatically. | | | | | |
| Loop Mode | Synchronization is set to the image with the shortest Loop point | Short | | | | |
| | among multiple images. | | | | | |
| | Synchronization is set to the image with the longest Loop point | Long | | | | |
| | among multiple images. | | | | | |
| | Synchronization is set to the image with the longest Loop point | Align | | | | |
| | among multiple images, and adjust not to exist any difference with | 8 | | | | |
| | a short time Loop image. | | | | | |
| | Playing back without synchronizing between multiple images is | Free Run | | | | |
| | set. | | | | | |
| Message | Line format is converted to image without displaying a warning | Off | | | | |
| Display(Review) | dialog box. | | | | | |
| Display(ICoview) | When line format is converted to image, a warning dialog box is | 16sec | | | | |
| | | 10300 | | | | |
| | displayed if a moving image file of 16 seconds or more exists. | | | | | |

7-10. Body Mark

Body Mark is used to assign the body mark. The body mark which is assigned can be displayed on the touch panel menu.

- (1) Move an arrow cursor to the Body Mark under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Body Mark



| Name | Function | Setting |
|------------------|---|--|
| | Body Mark | I |
| Display | When the unit is started or application is changed, the body mark is not displayed. | Off |
| | When the unit is started or application is changed, the body mark is displayed. | On |
| Body Mark Method | It is a setting for switching the body mark when probe mark is moved from side to side and top and bottom with the trackball. | Trackball |
| | It is a setting not to switch the body mark with the trackball. | Locate Only |
| Body Mark Assign | Sets the Body Mark combination displayed on the touch panel menu one screen at a time. | Body Mark1 Body Mark2 Body Mark3 |

- Using the trackball, move the arrow to the square frame() and press the ENTER switch.Using the trackball, move the arrow to the Edit and press the ENTER switch.
 - \rightarrow The following screen is displayed.



[Remark]

Up to 15 body marks can be displayed on a single touch panel page. To register more body marks, switch Body Mark Assign to register them to the subsequent pages. Up to 45 body marks can be registered.

| Name | Function | Setting |
|-------------------|---|-----------|
| Direction Display | LR mark that shows the right and left is not displayed on the | Off |
| | body mark. | |
| | LR mark that shows the right and left is displayed on the | On |
| | body mark. | |
| ALL MARK | By checking the ALL MARK box and then selecting the On/Off button, you can display/hide the LR mark in one batch operation. | Check Box |

- (3) Using the trackball, move the arrow to the body mark to be registered, and press the ENTER switch.
 - \rightarrow The selected body mark is registered.
- (4) Select the Probe and the Position, and Direction Display, move the arrow to Exit using the trackball, and press the ENTER switch. The screen returns to the Body Mark screen.

Direction Display:

LR mark that shows the right and left is displayed on the body mark. This setting is made using the On/Off button on Direction Display. By checking the ALL MARK box and then selecting the On/Off button, you can add the LR marks to the assigned body marks in one batch operation.

[Remark]

Checking the ALL MARK box does not add the LR marks to all the body marks. The LR mark is not added to the body marks for which the right and left indication is unnecessary, such as CARDIO.

7-11. Menu-User SW Assign, -Group Assign, -Function Assign, Menu Analysis

This function enables you to assign the function of menu and switches to the touch panel.

- (1) Move an arrow cursor to the Menu-User SW Assign, -Group Assign, Function Assign under Preset Setup selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Menu User SW Assign

Functions are assigned in the user switch area on the touch panel menu.

| Provet Suit-Jo 2 Ciepiny Ciepiny5 4 Ciet-5 M Ciet-5 Prive | <u>te Ballen</u> Karte - <u>Alab</u> | H2: 3 | | rallon i esta | 1611 |
|---|---|--------------|---------------------|--------------------------|----------------------|
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| Marga, Cra. 1 | Paku 2 Transfer VOL Mess | eci c | | Audio Volume | DAT |
| Custarr Foo - Custon - Key Etys o | Page A | | | | |
| maga C,V° H masurb.V2 ⊒ Pous Frei Proces | Salect bera Common | | | Free | Mast |
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| n Anicy 1 Anicy 1 Thous Days | P Setup | Share Second | Blani Ston Eitit | Blant Blant (Clarker) | W.K |
| - losacition a | | | | Codi | |

Menu Group Assign

Functions are assigned to the group area on the touch panel menu.

| Preset Sulf-Jo Ekplay Ebplay3 HEIRF-S M EIRF-S Fix | <u>tribular</u> Karis ^a Alalan d | Ma: 7 | 622 1 | niion i ette Yoos : 2 | 1631 |
|---|--|------------------|--------------------|---------------------------|---------------|
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| Eody Yark • Nena-U628 Siena-Group | <u> </u> <u> </u> <u> </u> | Ronge Roma Ro | For VAI | Color Map RMIDI | ām w Ser I. p |
| Neno Funcili Neno-Auste. Caentro Stationers | Part 2 maga fune DO f | Foel Francing | STO Nerrory | Functure | 20 Scar |
| Custar Faa Ouston Key Flys o | Page à | | | | |
| maga D,Y" H masurb.Y2 U Pocas | Salect barrs B Nody | | | Free | Hast |
| Foel Proceet 4 Doredur 1 Coppler 2 | naeu naeu St | nast nast 52 | 11440 Mark 59 | Functore | Hos. ABI |
| n filoa Hitoria Hitori Ji Afiloa | Ang e Sho | P Rogion Ri | Brootey Transpy | and Memory | |
| Those Dapp Those Dapp | | | | 2:41 | |

Menu Function Assign

Functions are assigned to the group area on the touch panel menu.

| Preset SuinJa 2 Elépiny | In Ballon | No: 3 | | | |
|--|------------------------------|-----------------------|------------------------|---------------------------|--------------------|
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| H DIRE-S M DIRE-D Film | | | | Voce : 3 | - |
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| - On Mars | | | | | |
| im wûne | Ware In | rege Func D' | - | | |
| Eody Yark | S Nom | | _ | | |
| · NAMA-UKEH | a Meetin | | | | |
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| Ford Proces | B1000-01801 | | | | |
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| hour ton | | | | 2:41 | Secol |

• Image Viewer Menu Assign

Assign functions of the review Image Viewer to the menu area in the touch panel menu.

| Prevet Suinder Elepity | In Ballon | Ma: 3 | : | | |
|--|--------------------------|---------------------------|--------------------|--------------------|---------------------|
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| New Funcil Sharesha | Al krages | Single Longer | Mailer re(| V.HICOLD | |
| Sea vh Pa Nena Arata | Select Al | UnSelect All | Tull Screen | | |
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| Custar Agy | | | | | |
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| 1 maga E,VS 1 roga Fosi Pinces | Excess I (Media) | Execution | 5404-0CD-H | Environment | Execut Epo-Mont |
| * Copplant * Copplant * Constant | Dicov Medar | DIGGV(FDI | DKOTHECD-R) | DIGGUTTUDA | Elea7 (E0.1-M01) |
| Fice Forer Fice | E1007 (Local HJQ) | о сом Селисти | Profest Profest | Zeenalt | 2001-0.1 |
| tentez a | | | | Codi - | - Carcal |

• Search Result Menu Assign

Assign functions related to review search results to the menu area in the touch panel menu.

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| - Ohnelson Store Cine | | | | | |
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| None-User | | | | | |
| Nerri-Grave | Copy All | Copy All | Copy All | Copy All | |
| Nerv Catall | (Meda) | XE (V | (Server) | IIII (COVERNIE) | |
| internet i de ser | Select AL | 0.186 est 30 | | | ALE VORTHO |
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| Caston 65 Caston-Foo | FT 12 | Delece | tirw. | en-s | Fx r |
| Custar Key | | | | | |
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| - Doredur 2 1 Ficture 1 Ficture Files | Open Hawking | Pres | Constraints 10401 | Covy Bay 100-MM | Convillation (Local NLQ) |
| entez 🔹 | | | | Coll | Carcal |

Menu Analysis

• TDI Analysis Menu Assign

A function for TDI Analysis is assigned to a menu area on the touch panel menu.

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|--|----------------------------------|-----------------------------|----------------------------|--------------------|-----------------------|
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CHE Analysis Menu Assign

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| * Done (La) Copplet () 1 Ticy | Loop & Don- | Cook 6 Donrait | 8 | End Frank | HOI BOL |
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| | | | | Esdi | Cancel |

A function for CHE Analysis is assigned to a menu area on the touch panel menu.

Stress Echo Analysis Menu Assign

A function for Stress Echo Analysis is assigned to a menu area on the touch panel menu.

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| ¹¹ Sussaibt Caentri Sa | Loop 6 Dynait | Loop & Don- | | | Store Hall Serven Media |
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| Foel Procee | Loop 8 Doern | oop 8 Twfault | Stem e | Store Full Solven -ID | Store Full Screen Media |
| Coppler) T Ticy | LOURY | washed F. I | Norman C Mar San C | (Poince) (S | Strump. |
| H Hunui Hks | | | | Coll | - Cercel |

[Remark]

As for details of physiological signals, refer to "6.Touch panel".

7-12. Custom SW,-Foot SW,-Keyboard

The Custom SW, -Foot SW, -Keyboard perform a task for assigning custom switches.

- (1) Move an arrow cursor to the Custom SW, -Custom SW, 2 -Foot SW, -Keyboard under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Custom SW

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Custom-Foot SW

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Custom-Keyboard

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<Registration of switch>

- (1) Move an arrow cursor to the square frame under the switch name with the trackball and press the ENTER switch.
 - \rightarrow The following list which is for registration is displayed.

| Co ner on | <u>.</u> | | |
|------------|--------------|------------------|--------------------|
| Press. | FIG | | |
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| Relet | | | |
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| | | | |
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- (2) Move an arrow cursor to the item which is wanted to register with the trackball and press the ENTER switch.
 - \rightarrow The item which had been listed is erased, and the item which is selected is registered with the custom switch.

7-13. Physio

Physio performs a setting relating to optional physiological signals.

- (1) Move an arrow cursor to the Physio under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

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· Physio

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| | 120 - 1101 |
| | |

| Name | Function | Setting |
|-------------------|---|--------------------------------|
| | Physio | 1 |
| ECG Display(B) | On B mode, ECG is not displayed. | Off |
| | On B mode, ECG is displayed. | On |
| ECG | On sweep mode, ECG is not displayed. | Off |
| Display(Sweep) | On sweep mode, ECG is displayed. | On |
| Drift Filter | Drift filter function is turned off. | Off |
| | The base line of an ECG waveform is stabilized. | On |
| ECG Invert | An ECG waveform does not reverse. | Off |
| | An ECG waveform reverses. | On |
| R-Delay Time | ECG SYNC:ON, a time phase from R-wave on an | 0.00 to 2.55sec (0.01sec Step) |
| | uptaking of B mode image is set. | |
| R-Wave Beep | A tone is not sounded at the time of R-wave detection. | Off |
| | A tone is sounded at the time of R-wave detection. | On |
| Sweep Speed(B) | On B mode image, a sweep speed of physiological | 25, 33.3, 50, 66.7, 100, 150, |
| | signals display is set. | 200mm/s |
| HR Stability | The heart rate stability is not determined. | Off |
| Display | The heart rate stability is determined, and the HR value | On |
| | is displayed on the screen with black and white reversed | |
| | when the rate is stable. | |
| HR Stability Disp | The allowable range of the difference between the | 0 to 50% (1%Step) |
| (Avg.) | average of previous five heart rates and the latest heart | |
| | rate/previous heart rate is set. | |

7.Preset 7-13.Physio

| Name | Function | Setting |
|-------------------|--|---------|
| HR Stability Disp | The allowable range of the difference between the latest 0 to 50% (1%Step) | |
| (Conti) | heart rate and the previous heart rate is set. | |
| ECG SENS ECG | The sensitivity of ECG waveform is set. | 1 to 32 |
| ECG POSI(B) | The position of ECG waveform is set on the B mode. | 1 to 32 |
| ECG POSI(Sweep) | The position of ECG waveform is set on the Sweep | 1 to 32 |
| | mode. | |

7-14. Image-B,M, AIP Level, IP Select

Image-B,M1/ Image-B,M2 IP Select(B)/IP Select(THE)/IP Select(ExPHD)/IP Select(Spatial Compound)/IP Select(Spatial Compound,THE/ExPHD)/AIP Level(B)/P Level(THE)/IP Level(ExPHD)/IP Select(M) perform the setting for image adjustments.

- (1) Move an arrow cursor to the Image-B,M1 under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Image-B,M1

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|--|-------------------|--------------------------------|------------------------------|
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| Himasurb.VZ Ji Poras | Fing Parg Jore | Deary Proceeding Medition 1 | Frame Corre Type Name |
| Foel Proces | ione <u>-</u> | Head III | |
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| Name | Function | Setting |
|------------------|--|------------------------|
| | Image-B,M1 | |
| DVA(B, B/M, M) | It is set the transmission output on B, B/M, and M mode. | 0 to 100% (1% Step) |
| DVA(THE) | The transmission output at Tissue Harmonic Echo is set. | 0 to 100% (1% Step) |
| DVA(ExPHD) | The transmission output at ExPHD(T.H.E.) is set. | 0 to 100% (1% Step) |
| Gain(B) | A gain value of B mode at starting time is set. | 10 to 90dB (1dB Step) |
| Gain(THE) | A gain value when Tissue Harmonic Echo is On is set. | -30 to 30dB (1dB Step) |
| | A correction value of Gain(B) is set. | |
| Gain(ExPHD) | A gain value at ExPHD(T.H.E.) is On is set. | -30 to 30dB (1dB Step) |
| | A correction value of Gain(B) is set. | |
| Gain(M) | A gain value of M mode at starting time is set. | -30 to 30dB (1dB Step) |
| | A correction value of Gain(B) is set. | |
| Adaptive STC | It is adjusted always at a constant ratio for a display depth. | Normal |
| | It is changed an adjustable range of STC equally for an image | Adaptive |
| | display range. | |
| Angle Gain Type | A pattern of Angle Gain is set. | Linear,V1,V2,V3,User |
| Image/Freq (B/M) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |

| Name | Function | Setting |
|--------------------|---|-------------|
| Image/Freq (THE) | It is started with high frequency of a probe when Tissue Harmonic | High |
| | Echo is On. | |
| | It is started with slightly high frequency of a probe when Tissue | Resolution |
| | Harmonic Echo is On. | |
| | It is started with slightly low frequency of a probe when Tissue | Standard |
| | Harmonic Echo is On. | |
| | It is started with low frequency of a probe when Tissue Harmonic | Penetration |
| | Echo is On. | |
| Image/Freq (ExPHD) | It is started with high frequency of a probe when ExPHD(T.H.E.) is | High |
| | On. | |
| | It is started with slightly high frequency of a probe when | Resolution |
| | ExPHD(T.H.E.) is On. | |
| | It is started with slightly low frequency of a probe when | Standard |
| | ExPHD(T.H.E.) is On. | |
| | It is started with low frequency of a probe when ExPHD(T.H.E.) is | Penetration |
| | On. | |
| Frame Rate | When connecting an electron system probe, it is set with the small | Low |
| | number of scanning lines. | |
| | When connecting an electron system probe, it is set with the | Medium |
| | middle number of scanning lines. | |
| | When connecting an electron system probe, it is set with the large | High |
| | number of scanning lines. | |
| Frame Rate (Mech) | When connecting a mechanical scanner, it is set with the small | Low |
| | number of scanning lines. | |
| | When connecting a mechanical scanner, it is set with the middle | Medium |
| | number of scanning lines. | |
| | When connecting a mechanical scanner, it is set with the large | High |
| | number of scanning lines. | |
| Frame Rate(ExPHD) | When ExPHD(T.H.E.) is On, it is set with the small number of | Low |
| | scanning lines. | |
| | When ExPHD(T.H.E.) is On, it is set with the middle number of | Medium |
| | scanning lines. | |
| | When ExPHD(T.H.E.) is On, it is set with the large number of | High |
| | scanning lines. | |
| PRF Limit | A limit is not imposed on the a frame rate in short distance. | Off |
| | A limit is imposed on a frame rate in short distance. | On |
| Ping Pong | Ping-pong is not displayed. | Off |
| | Ping-pong is displayed. | On |
| Beam Processing | On B mode, it is scanned with simultaneous multiple receiving | Multi |
| | beams. | |
| | On B mode, it is scanned with standard multiple receiving lines. | Single |
| Frame Corre Type | The setting of frame correlation is set depending on the frame rate | Auto |
| | of B mode image. | |
| | The setting of frame correlation is done by the setting of voluntary. | Manual |

| Name | Function | Setting |
|-------------------|---|--------------|
| Frame Smoothing | The frame smoothing is not applied. | Off |
| | The frame smoothing is applied. | On |
| Fixed MI Level | The MI value is fixed when the Fixed MI function is activated. | 0.05 to 1.90 |
| Fixed MI CHE Link | The Fixed MI function does not work with functions such as CHE. | Off |
| | The Fixed MI function works with CHE, ExPHD (C.H.E.) and | On |
| | Power C.H.E. | |

• Image-B,M2

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| Name | Function | Setting |
|-------------------|--|---------|
| | Image-B,M2 | |
| FTC(B) | The edges of B mode image are not accentuated or emphasized on start-up. | Off |
| | The edges of B mode image are accentuated or emphasized on start-up. | On |
| FTC(M) | The edges of M mode image are not accentuated or emphasized on start-up. | Off |
| | The edges of M mode image are accentuated or emphasized on start-up. | On |
| FTC(ExPHD) | When ExPHD(T.H.E.) is On, the edges of image are not accentuated or emphasized. | Off |
| | When ExPHD(T.H.E.) is On, the edges of image are accentuated or emphasized. | On |
| Edge Optimizer | When Edge Optimizer function is Off, it does not optimize speckle or emphasize border area. | Off |
| | Applies image processing to the received ultrasound signal to optimize speckle and emphasize border area. | On |
| Edge Opti Balance | Sets the blend ratio between the original image and the Edge Optimize processed image. The higher the value, the greater the proportion of the original image. | 1 to 8 |
| Edge Opti Lev | Changes the level of edge emphasis of image processing in B mode. | 1 to 8 |

| Name | Function | Setting | | |
|---------------------------|---|-----------------------|--|--|
| Edge Opti Lev (THE) | Changes the level of edge emphasis of image processing when T.H.E. is On. | 1 to 8 | | |
| Edge Opti Lev (ExPHD) | Changes the level of edge emphasis of image processing when ExPHD(T.H.E.) is On. | 1 to 8 | | |
| Spatial Compound | The image is displayed using an ultrasound beam in one direction. | Off | | |
| | Ultrasound beams from multiple angles are synthesized to reduce artifacts. | On | | |
| Compound Angle | Sets the angles of ultrasound transition beams when Spatial Compound is active. | 5 to 30deg(1deg Step) | | |
| High Frame Compound | When Spatial Compound is operating, the images transition becomes smoother by updating the images each time several frames are sent. | Off | | |
| | When Spatial Compound is operating, the frame rate is improved by updating the images each time a frame is sent. | On | | |
| Frame Rate (Compound) | When Spatial Compound is operating, it is set with the small number of scanning lines. | Low | | |
| | When Spatial Compound is operating, it is set with the middle number of scanning lines. | Medium | | |
| | When Spatial Compound is operating, it is set with the large number of scanning lines. | High | | |
| AIP | The AIP function is not operated. | Off | | |
| | Smoothing process is performed after the processes for border area emphasis and removing speckle are completed. Displays an ultrasound image that is easier to recognize. | On | | |
| Brightness Level | The target value for the average brightness is automatically set in Image Optimizer. | Auto | | |
| | The target value for the average brightness is manually set in Image Optimizer. | 40 to 80(1Step) | | |
| Trapezoidal Scan | When the linear probe is used, the width of the field of view will be the same as the width of the probe. | Off | | |
| | When the linear probe is used, an image is displayed in a trapezoid shape to enlarge the field of view. | On | | |
| Frame Rate (Trapezoid) | When Trapezoidal Scan is operating, it is set with the small number of scanning lines. | Low | | |
| | When Trapezoidal Scan is operating, it is set with the middle number of scanning lines. | Medium | | |
| | When Trapezoidal Scan is operating, it is set with the large number of scanning lines. | High | | |

(Setting of IP Select)

- (1) Move an arrow cursor to the "+" mark displayed in front of the Image-B,M2 under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - → IP Select(B), (THE),(ExPHD), (Spatial Compound), (Spatial Compound,THE/ExPHD), AIP Level(B), IP Level(THE), IP Level(ExPHD) and IP Select(M) are displayed.



- (2) Move an arrow cursor to the IP Select with the trackball, and press the ENTER switch.
 - \rightarrow A setting screen is displayed as the following.

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AIP Level(THE)



IP Select(M)

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AIP Level(B)



AIP Level(ExPHD)



| Name | Function | Setting |
|--------------------|---|---------|
| | IP Select(B) | |
| IP Select(B) | The setting of Frame Corre, Contrast, AGC, Relief, Smoothing, View | 1 to 8 |
| | Gamma on a B mode is registered to eight patterns of IP Select. | |
| | IP Select(THE) | |
| IP Select(THE) | The setting of Frame Corre, Contrast, AGC, Relief, Smoothing, View | 1 to 8 |
| | Gamma on a T.H.E. is registered to eight patterns of IP Select. | |
| | IP Select(ExPHD) | • |
| IP Select(ExPHD) | The setting of Frame Corre, Contrast, AGC, Relief, Smoothing, View | 1 to 8 |
| | Gamma on a ExPHD(T.H.E.) mode is registered to eight patterns of IP | |
| | Select. | |
| | IP Select (Spatial Compound) | |
| IP Select | The setting of Frame Corre, Contrast, AGC, Relief, Smoothing, View | 1 to 8 |
| (Spatial Compound) | Gamma on a Spatial Compound can be independently set up to eight | |
| | pattern of IP Select. | |
| | IP Select (Spatial Compound, THE/ExPHD) | |
| IP Select | The setting of Frame Corre, Contrast, AGC, Relief, Smoothing, View | 1 to 8 |
| (Spatial Compound, | Gamma on a Spatial Compound+T.H.E. or Spatial Compound+ExPHD | |
| THE/ExPHD) | can be independently set up to eight pattern of IP Select. | |
| | AIP Level(B) | |
| AIP Level(B) | The setting of Edge Sens and Resolution on a AIP is registered to six | 1 to 6 |
| | pattern of AIP Level. | |
| | AIP Level(THE) | |
| AIP Level(THE) | The setting of Edge Sens and Resolution on a AIP+T.H.E. is registered | 1 to 6 |
| | to six patterns of AIP Level. | |
| | AIP Level(ExPHD) | |
| AIP Level(ExPHD) | The setting of Edge Sens and Resolution on a AIP+ExPHD is | 1 to 6 |
| | registered to six patterns of AIP Level. | |
| | IP Select(M) | 1 |
| IP Select(M) | The setting of Contrast, AGC, Relief on a M mode is registered to eight | 1 to 8 |
| | patterns of IP Select. | |
7-15. Focus

The Focus and Focus(ExPHD) make the setting for relating to image adjustments.

- (1) Move an arrow cursor to the Focus, Focus(ExPHD) under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Focus

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| Name | Function | Setting |
|-----------------|---|-----------------------------------|
| | Focus | |
| Auto Focus Type | In auto-focus, the position of a focus point is succeeded, | Unchanged |
| | even if the range is changed. | |
| | In auto-focus, the position of a focus point is returned to | Reset |
| | the position of auto when the range is changed. | |
| Focus(B) | A focus is set at one step only in the vicinity of the screen | 1P |
| | center. | |
| | One point which is fixed at one point on the top of the | 2P (@) |
| | screen and movable to the center is set. | |
| | Two focus points are set on the whole image in average. | 2P |
| | Three focus points are set on a whole image. | 3P |
| | Voluntary focus points are set. | Manual |
| 1P Position | When the B, T.H.E., or ExPHD (T.H.E.) mode is used | Near |
| | combined with Auto1P, the focus position is set to short | |
| | distance. | |
| | When the B, T.H.E., or ExPHD (T.H.E.) mode is used | Std |
| | combined with Auto1P, the focus position is set to | |
| | intermediate distance. | |
| | When the B, T.H.E., or ExPHD (T.H.E.) mode is used | Far |
| | combined with Auto1P, the focus position is set to long | |
| | distance. | |
| Manual Focus(B) | When Manual is selected on the Focus (VOL), a focus | 1 to 8 |
| | point is set. | (four steps setting are possible) |

| Name | Function | Setting |
|-----------------|---|-------------------------------------|
| Focus(M) | The focus point of M mode is set automatically. | Auto |
| | The focus point of M mode is set voluntarily. | Manual |
| Manual Focus(M) | When Manual is selected on the Focus (M), a focus point | 1 to 8 |
| | is set. | (only one step setting is possible) |
| Focus(D) | The focus point of D or Flow mode is set automatically. | Auto |
| | The focus point of D or Flow mode is set an arbitrary | Manual |
| | point. | |
| Manual Focus(D) | When selecting Manual on the Focus (D, Flow), a focus | 1 to 8 |
| | point is set. | (only one step setting is possible) |

• Focus(ExPHD)

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| Name | Function | Setting |
|--------------|---|-----------------------------------|
| | Focus(ExPHD) | |
| Focus(ExPHD) | Sets a focus near the center of screen only with one step. | 1P |
| | Sets one point which is movable to the center at one static point on the top of image. | 2P(@) |
| | Sets two-point focuses across the image on an average. | 2P |
| | Sets a three-point focus on an image. | 3P |
| | Sets an optional-point focus. | Manual |
| Manual | Sets the focus points when Manual is selected in Focus (ExPHD). | 1 to 8 |
| Focus(ExPHD) | | (four steps setting are possible) |

[Remark]

The setting of focus on B mode image is independent by On/Off of ExPHD(T.H.E.).

The setting of Focus (ExPHD) is active when ExPHD(T.H.E.) = On.

The setting of Focus (B) is active when ExPHD(T.H.E.) = Off.

7-16. Post Processing

The Post Processing does the setting for image adjustments.

- (1) Move an arrow cursor to the FPost Processing under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Post Processing

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| Name | Function | Setting |
|-----------------|---|------------------|
| | Post Processing | |
| Post Processing | It is displayed without applying any brightness characteristics. | Linear |
| | It is displayed with a minimum brightness for echoes lower than the range that is wanted to expand brightness and with a maximum brightness for echoes higher than that. | Slope1 (0 to 63) |
| | It is displayed with a minimum brightness for both lower echoes and higher echoes than the range that is wanted to expand brightness. | Slope2 (0 to 63) |
| | The change of brightness for lower echoes and higher echoes than the range that is wanted to expand brightness is displayed with the 1/4 compression. | Slope3 (0 to 63) |
| | Echoes lower than a setting level is displayed with a minimum brightness. | Reject (0 to 63) |

7-17. Doppler1, 2

Doppler1, 2 does the setting for the doppler.

- (1) Move an arrow cursor to the Doppler1 or Doppler2 under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

Doppler1

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| Name | Function | Setting |
|-----------------|--|----------------------------|
| | Doppler1 | - |
| DVA(PW) | A transmission output on a D(PW) mode is set. | 0 to 100% (1% Step) |
| DVA(CW) | A transmission output on a D(CW) mode is set. | 0 to 100% (1% Step) |
| Dop Gain(PW) | A gain of a D(PW) mode is set. | 0 to 127dB (1dB Step) |
| Dop Gain(CW) | A gain of a D(CW) mode is set. | -63 to 63dB (1dB Step) |
| | A correction value of the DOP Gain(PW) is set. | |
| Image/Freq(PW) | When the PW mode is activated, the probe starts at a high | High |
| | frequency. | |
| | When the PW mode is activated, the probe starts at a | Resolution |
| | slightly high frequency. | |
| | When the PW mode is activated, the probe starts at a | Standard |
| | slightly low frequency. | |
| | When the PW mode is activated, the probe starts at a low | Penetration |
| | frequency. | |
| Dop Filter(PW) | It is controlled with a filter value corresponding to a flow | Auto |
| | rate range. | |
| | It is controlled with a fixed filter value. | Manual |
| Dop | It is set 12 steps from 1 to 12 corresponding to a flow rate | 1 to 12 |
| Filter(PW),AUTO | range. | |
| Dop | It is set at 6 steps of 50Hz, 100Hz, 200Hz, 400Hz, 800Hz, | 50Hz, 100Hz, 200Hz, 400Hz, |
| Filter(PW),MANU | and 1600Hz. | 800Hz, 1600Hz |

| Name | Function | Setting |
|--------------------|---|-------------------------------|
| Dop Filter(CW) | It is controlled with a filter value corresponding to a flow | Auto |
| | rate range. | |
| | It is controlled with a fixed filter value. | Manual |
| Dop Filter(CW), | It is set 12 steps from 1 to 12 corresponding to a flow rate | 1 to 12 |
| AUTO | range. | |
| Dop Filter(CW), | It is set at 6 steps of 50Hz, 100Hz, 200Hz, 400Hz, 800Hz, | 50Hz, 100Hz, 200Hz, 400Hz, |
| MANU | and 1600Hz. | 800Hz, 1600Hz |
| Velocity Range(PW) | A speed range of a PW mode is set. | 6.22 to 398.40cm/s |
| Velocity Range(CW) | A speed range of a CW mode is set. | 24.90 to 796.20cm/s |
| High PRF | Even if a flow rate range is raised, the High PRF function | Off |
| | does not work. | |
| | When a flow rate range is raised, the High PRF function | On |
| | works. | |
| Sample Volume | The size of a sample volume of a PW mode is set. | 0.5mm to 20.0mm (the number |
| | | of steps varies with a size.) |
| Zoom Lock | The display position for sample volume is set at the center. | Off |
| | The ZOOM operations is not available. | |
| | The display position for sample volume is set at the center. | On |
| | The ZOOM operations is available. | |
| Scale Display | It does not display a Flow rate to doppler scale. | Off |
| | It displays a Flow rate to doppler scale. | On |
| Base Line Position | It sets the position of base line on D mode. | -16 to 16 (1 Step) |
| Spectrum Invert | When it is entered on D mode, a smooth current direction is | Normal |
| | displayed with an upward direction. | |
| | When it is entered on D mode, a smooth current direction is | Invert |
| | displayed with a downward direction. | |
| Invert Axis | A spectrum is inverted against a base line as a base. | Base Line |
| | A spectrum is inverted against the center of image as a base. | Center |
| Color Map(D) | D mode image is displayed without adding colors. | Gray |
| | It is displayed an image adding colors from blue to orange. | Α |
| | An image is displayed with adding blue color. | В |
| | An image is displayed with adding weak blue color | С |
| | compared to B. | |
| | An image is displayed with adding orange color. | D |
| | It is a brown brightness characteristic. | Е |
| | It is a brown brightness characteristic weaker than E. | F |
| | It is a blue and yellow brightness characteristics. | G |
| B Refresh | In simultaneous display of $B + Flow / M + Flow$, a renewal | 1 |
| | interval of B mode image is set. | |
| | Renewal is done every 1sec. | |
| | Renewal is done every 2sec. | 2 |
| | Renewal is done every 4sec. | 4 |
| | Renewal is done every 6sec. | 6 |
| | Renewal is done every 8sec. | 8 |

Doppler2

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| Name | Function | Setting |
|--------------------|---|------------------------|
| | Doppler2 | |
| Angle Correct | An angle mark is not displayed. | Off |
| Display | An angle mark is displayed. | On |
| Angle Correction | An angle correction on D mode is registered beforehand. | -80 to 0 to 80 deg, |
| | | 1deg Step |
| D. Trace Direction | It is set whether the trace range of Real Time Doppler Auto Trace | Toward |
| | is set at the upper-side (Toward) against a base line. | |
| | It is set whether the trace range of Real Time Doppler Auto Trace | Away |
| | is set at the lower-side (Away) against a base line. | |
| | It is set whether the trace range of Real Time Doppler Auto Trace | Both |
| | is set at both side (Both) of a base line. | |
| | It is set whether the trace range of Real Time Doppler Auto Trace | Auto |
| | is set on Auto (a larger side of display range against a baseline) | |
| | against a base line. | |
| Freeze Trigger | Even if freeze is cancelled, a real time auto trace is not started. | Off |
| | When a freeze is cancelled, a real time auto trace is started. | On |
| D. Trace Level | The detection level of a trace line of Real Time Doppler Auto | 0 to -22db (every 1db) |
| | Trace is adjusted. | |
| D. Trace Display | It does ON/OFF for the Real time Doppler Auto Trace. | Off |
| | When it is pressed in real time, a trace line and measured values | |
| | are not displayed. | |
| | It does ON/OFF for the Real time Doppler Auto Trace. | On |
| | When it is pressed in real time, a trace line and measured values | |
| | are displayed. | |
| D. Trace Smooth | The trace line of a Real Time Doppler Auto Trace is smoothed down. | Low |
| | The trace line of a Real Time Doppler Auto Trace is smoothed | High |
| | down more than the Low. | |

| Name | Function | Setting |
|------------------|--|---------|
| Measurement | When it freezes, a menu for measurement memory transfer is | Auto |
| Transfer | displayed automatically. | |
| | When it freezes, a menu for measurement memory transfer is not | Manual |
| | displayed. | |
| D. Trace Display | It sets whether it is displayed of PI, RI, S/D, D/S, PSV, EDV, | On /Off |
| Items | MnV, and FlowT individually. | |

- (1) Move an arrow cursor to the "+" mark displayed in front of the Doppler under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The IP Select (D) is displayed.
- (2) Move an arrow cursor to the IP Select (D) with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- IP Select (D)

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| Name | Function | Setting |
|--------------|--|---------|
| | IP Select (D) | |
| IP Select(D) | The setting of Contrast, Image Select (D), Comp Curve(D), and Resolution on a D mode is registered to eight patterns of IP Select. | 1 to 8 |

7-18. Flow

The Flow Preset Setup menu is used to set various parameters related to flow function.

- (1) Move an arrow cursor to the Flow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

• Flow

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| Name | Function | Setting |
|-------------------|--|-----------------------------|
| | Flow | |
| DVA(FLOW) | A transmission output on Flow mode is set. | 0 to 100% (1% Step) |
| Flow Gain | A gain value of a Flow at starting time is set. | 0 to 127dB (1dB Step) |
| Image/Freq(Flow) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |
| Frame Rate(Flow) | It is set the number of frames on the Flow. | -4 to 0 to 4 |
| Frame Rate(B+F/D) | It sets of combining the number of scanning lines of a | Off, Medium1, Medium2, Fast |
| | Flow on a B + FLOW/D simultaneous mode with the | |
| | number of scanning lines of B mode. | |
| | When it goes from OFF to FAST, the number of | |
| | scanning lines are getting gradually smaller. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Compound) | Spatial Compound function is in use. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Trapezoid) | Trapezoidal Scan function is in use. | |
| Average(Flow) | It sets the number of transmission instance at low. | Low |
| | It sets the number of transmission instance at medium. | Medium |
| | It sets the number of transmission instance at high. | High |
| Velocity Range | A speed range is set when it enters Flow phase. | 6.22 to 227.70cm/s |
| (Flow) | | |

7.Preset 7-18.Flow

| Name | Function | Setting |
|---------------------|--|--|
| Wall Motion | A level for cutting wall motion noise is set. | off, 1 to 15 |
| Reduction | As it goes up from low to high, the noise is removed | |
| | gradually. | |
| Color Map,Group | It is set a group of the combination of Flow rate and | Abdom, Cardio, Vascular, Power, |
| | dispersion of a color Flow. | eFlow, Directional Power, Directional eFlow, User |
| Color Map,Setting | It is set the details of a group of the combination of Flow | A, B, C, D, E |
| | rate and dispersion of a color Flow. | |
| Display Priority | It sets a segmentation for displaying on what | Color, Both, Color(TDI), |
| | information and how much degrees when a black and | Both(TDI) |
| | white image and a color flow rate display are overlapped | |
| | with $B + Flow$ mode. | |
| Disp Prio Lev,B/W | It sets a threshold value displaying black and white | 0 to 127 |
| | information. | |
| Disp Prio Lev,Color | It sets a threshold value displaying color information. | 1 to 127 |
| Color Polarity | In Flow, it is displayed in red in smooth direction and in | Normal |
| | blue in reverse direction. | |
| | In Flow, it is displayed in blue in smooth direction and in | Invert |
| | red in reverse direction. | |
| Rejection(Flow) | A low flow rate ingredient is not cut. | 0 |
| | It is set the level of a low flow rate ingredient to be cut in | 1 to 31 |
| | a color information of Flow. | |
| Frame Rate Accel | A Flow image every inter-frame is displayed. | Off |
| | Images having continuation between frames are | On |
| | produced. | |
| Edge Smooth | The aliasing of color border is not smoothed down. | Off |
| | The aliasing of color border is smoothed down. | On |
| Color Line | Between color reception line intervals, new lines are not | Off |
| Correlation | added. | |
| | Between color reception line intervals, new lines are | Low |
| | added and the image becomes smoother. | |
| | With adding new multiple lines between color reception | High |
| | lines, it becomes smoother image. | |
| Flow Edge | The pixel information of color is not handled. | Off |
| | With disposing color pixel information, it reduces | On |
| | reaching out of colors into tissues. | |

- (1) Move an arrow cursor to the "+" mark displayed in front of Flow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The IP Select (Flow) is displayed
- (2) Move an arrow cursor to the IP Select (Flow) with the trackball, and press the ENTER switch.
 - \rightarrow The following setting screen is displayed.
- IP Select (Flow)

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| Name | Function | Setting |
|-----------------|---|---------|
| | IP Select(Flow) | |
| IP Select(Flow) | The setting of Frame Corre, Smoothing, Image Select (Flow), and Filter (Flow) in the Flow is registered to the 8 patterns of the IP Select. | 1 to 8 |

7-19. Power Flow

The Power Flow Preset Setup menu is used to set various parameters related to power flow function.

- (1) Move an arrow cursor to the Power Flow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Power Flow

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| Name | Function | Setting |
|-------------------|--|-----------------------------|
| | Power Flow | |
| DVA(FLOW) | The transmission output on Power Flow mode is set. | 0 to 100% (1% Step9) |
| Flow Gain | A gain value of Power Flow at starting time is set. | -63 to 63dB (1dB Step) |
| | A correction value of the Gain(B) is set. | |
| Image/Freq(Flow) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |
| Frame Rate(Flow) | It is set the number of frames at Power Flow. | -4 to 0 to 4 |
| Frame Rate(B+F/D) | It is set of combining the number of scanning lines of a | Off, Medium1, Medium2, Fast |
| | Power Flow on a B + FLOW/D simultaneous mode with | |
| | the number of scanning lines of B mode. | |
| | When it goes from OFF to FAST, the number of | |
| | scanning lines are getting smaller gradually. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Compound) | Spatial Compound function is in use. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Trapezoid) | Trapezoidal Scan function is in use. | |

| Name | Function | Setting |
|---------------------|---|---------------------------------|
| Average(Flow) | The number of transmission instances of Power Flow is | Low |
| | set at low. | |
| | The number of transmission instances of Power Flow is | Medium |
| | set at medium. | |
| | The number of transmission instances of Power Flow is | High |
| | set at high. | |
| Velocity Range | A speed range is set when it is at Power Flow. | 6.22 to 227.70cm/s |
| (Flow) | | |
| Wall Motion | Does not cut wall motion noise. | Off |
| Reduction | Sets the level of removing wall motion noise. Noise is | 1 to 15 |
| | removed gradually and incrementally in the range of 1 to | |
| | 15. | |
| Color Map,Group | It is set a group of the combination of Flow rate and | Abdom, Cardio, Vascular, Power, |
| | dispersion of a color Flow. | eFlow, Directional Power, |
| | | Directional eFlow, User |
| Color Map,Setting | It is set the details of a group of the combination of Flow | A, B, C, D, E |
| | rate and dispersion of a color Flow. | |
| Display Priority | It is set a segmentation for displaying of what | Color, Both, Color(TDI), |
| | information and how much degrees when a black and | Both(TDI) |
| | white image and a color flow rate display are overlapped | |
| | on a $B + Flow$ mode. | |
| Disp Prio Lev, | The threshold value displaying black and white | 0 to 127 |
| B/W | information is set. | |
| Disp Prio Lev,Color | The threshold value displaying color information is set. | 0 to 127 |
| Power Flow Display | It is displayed with a background color at Power Flow. | PF A |
| | It is displayed without a background color at Power | PF B |
| | Flow. | |
| Directional(Flow) | At Power Flow starting time, it does not enter the | Off |
| | Directional Power Flow. | |
| | At Power Flow starting time, it enters the Directional | On |
| | Power Flow. | |
| Frame Rate Accel | A Flow image every inter-frame is displayed. | Off |
| | Images having continuation between frames are | On |
| | produced. | |
| PFD Range | A dynamic range on Power Flow is set at Low. | Low |
| | A dynamic range on Power Flow is set at Medium. | Medium |
| | A dynamic range on a Power Flow is set at High. | High |
| Edge Smooth | The aliasing of color border is not smoothed down. | Off |
| | The aliasing of color border is smoothed down. | On |
| Color Line | Between color reception line intervals, new lines are not | Off |
| Correlation | added. | |
| | Between color reception line intervals, new lines are | Low |
| | added and the image becomes smoother. | |
| | With adding new multiple lines between color reception | High |
| | lines, the image becomes smoother. | |

| Name | Function | Setting |
|-------------|--|---------|
| Flow Edge | The pixel information of color is not processed. | Off |
| | With processing color pixel information, it reduces | On |
| | reaching out of colors into tissues. | |
| CHE FR Rate | Sending and receiving on one line maintains a constant | Normal |
| | PRF value, regardless position of the flow area. | |
| | Sending and receiving on multiple lines improves the | High |
| | frame rate, but the PRF value changes with position of | |
| | the flow area. | |

- (1) Move an arrow cursor to the "+" mark displayed in front of the Power Flow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow IP Select (Power) is displayed.
- (2) Move an arrow cursor to the IP Select (Power) with the trackball, and press the ENTER switch.
 - \rightarrow The setting screen as the following is displayed.
- IP Select (Power)

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| | | | | 2:41 | Cancel |

| Name | Function | Setting |
|------------------|---|---------|
| | IP Select (Power) | |
| IP Select(Power) | The setting of Frame Corre, Smoothing, Image Select | 1 to 8 |
| | (Flow), and Filter (Flow) in a Power Flow is registered | |
| | to the 8 patterns of the IP Select. | |

7-20. eFlow

The eFlow Preset Setup menu is used to set various parameters related to eFlow function.

- (1) Move an arrow cursor to the **eFlow** under Preset Set-up selection menu on left side of the page with the trackball, and press the **ENTER** switch.
 - \rightarrow The following screen is displayed.
- eFlow

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| Name | Function | Setting |
|-------------------|--|-----------------------------|
| | eFlow | • |
| DVA(FLOW) | The transmission output on eFlow mode is set. | 0 to 100% (1% Step) |
| Flow Gain | A gain value of eFlow at starting time is set. | -63 to 63dB (1dB Step) |
| | A correction value of the Gain(B) is set. | |
| Image/Freq(Flow) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |
| Frame Rate(Flow) | It is set the number of frames at eFlow. | -4 to 0 to 4 |
| Frame Rate(B+F/D) | It is set of combining the number of scanning lines of a | Off, Medium1, Medium2, Fast |
| | eFlow on a B + FLOW/D simultaneous mode with the | |
| | number of scanning lines of B mode. | |
| | When it goes from OFF to FAST, the number of scanning | |
| | lines are getting smaller gradually. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Compound) | Spatial Compound function is in use. | |
| Frame Rate | Sets the frame rate of B-Mode when both eFlow and | -4 to 0 to 4 |
| (Trapezoid) | Trapezoidal Scan function is in use. | |

| Name | Function | Setting |
|--------------------|--|--------------------------------|
| Average(Flow) | The number of transmission instances of eFlow is set at | Low |
| | low. | |
| | The number of transmission instances of eFlow is set at | Medium |
| | medium. | |
| | The number of transmission instances of eFlow is set at | High |
| | high. | |
| Velocity Range | A speed range is set when it is at eFlow. | 6.22 to 227.70cm/s |
| (Flow) | | |
| Color Map,Group | It is set a group of the combination of eFlow rate and | Abdom, Cardio, Vascular, |
| | dispersion of a color Flow. | Power, eFlow, Directional |
| | | Power, Directional eFlow, User |
| Color Map,Setting | It is set the details of a group of the combination of eFlow | A, B, C, D, E |
| | rate and dispersion of a color Flow. | |
| Power Flow Display | It displays the background color is colored at Power Flow. | PF A |
| | It displays without the background color at Power Flow. | PF B |
| Directional(Flow) | At eFlow starting time, it does not enter the Directional | Off |
| | eFlow. | |
| | At eFlow starting time, it enters the Directional eFlow. | On |
| Frame Rate Accel | A eFlow image every inter-frame is displayed. | Off |
| | Images having continuation between frames are produced. | On |
| PFD Range | A dynamic range on eFlow is set at Low. | Low |
| | A dynamic range on eFlow is set at Medium. | Medium |
| | A dynamic range on a eFlow is set at High. | High |
| Edge Smooth | The aliasing of color border is not smoothed down. | Off |
| | The aliasing of color border is smoothed down. | On |

- (1) Move an arrow cursor to the "+" mark displayed in front of the eFlow under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow IP Select (eFlow) is displayed.
- (2) Move an arrow cursor to the IP Select (eFlow) with the trackball, and press the ENTER switch.
 - \rightarrow The setting screen as the following is displayed.
- IP Select (eFlow)

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| Name | Function | Setting |
|------------------|--|---------|
| | IP Select (eFlow) | |
| IP Select(eFlow) | The setting of Frame Corre, Smoothing, Image Select | 1 to 8 |
| | (eFlow), and Filter (Flow) in the eFlow is registered to | |
| | the 8 patterns of the IP Select. | |

7-21. Tissue Doppler

The Tissue Doppler Preset Setup menu is used to set various parameters related to Tissue Doppler function.

- (1) Move an arrow cursor to the **Tissue Doppler** under Preset Set-up selection menu on left side of the page with the trackball, and press the **ENTER** switch.
 - \rightarrow The following screen is displayed.
- Tissue Doppler

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| Name | Function | Setting | | | | |
|-----------------|--|-------------------------|--|--|--|--|
| Tissue Doppler | | | | | | |
| DVA(PW) | The transmission output on Tissue Doppler is set. | 0 to 100% (1% Step) | | | | |
| Dop Gain(PW) | The gain of Tissue Doppler mode is set. | 0 to 127dB (1dB Step) | | | | |
| Dop Filter(PW) | It controls with a filter value corresponding to a flow | Auto | | | | |
| | rate range. | | | | | |
| | It controls with a fixed filter value. | Manual | | | | |
| Dop Filter(PW), | A filter value is set optimal corresponding to a flow rate | 1 to 12 | | | | |
| AUTO | range automatically. | | | | | |
| Dop Filter(PW), | It can be changed at 6 steps of 50Hz, 100Hz, 200Hz, | 50Hz,100Hz,200Hz,400Hz, | | | | |
| MANU | 400Hz, 800Hz, and 1600Hz. | 800Hz,1600Hz | | | | |
| Image/Freq(PW) | When the PW mode is activated, the probe starts at a | High | | | | |
| | high frequency. | | | | | |
| | When the PW mode is activated, the probe starts at a | Resolution | | | | |
| | slightly high frequency. | | | | | |
| | When the PW mode is activated, the probe starts at a | Standard | | | | |
| | slightly low frequency. | | | | | |
| | When the PW mode is activated, the probe starts at a | Penetration | | | | |
| | low frequency. | | | | | |
| Velocity Range | The speed range of the PW mode is set. | 6.22 to 398.40cm/sec | | | | |
| (PW) | | | | | | |

| Name | Function | Setting |
|--|---|----------------------------|
| Sample Volume | The size of a sample volume of a PW mode is set. | 0.5mm to 20.0mm |
| | | (0.5 to 5mm: 0.5mmstep) |
| | | (5 to 10mm: 1mmstep) |
| | | (10 to 20mm: 2mmstep) |
| Zoom Lock | The display position for sample volume is set at the | Off |
| | center. The ZOOM operations is not available. | |
| | The display position for sample volume is set at the | On |
| | center. The ZOOM operations is available. | |
| Scale Display | A Flow rate value is not displayed on a doppler scale. | Off |
| | A Flow rate value is displayed on a doppler scale. | On |
| Base Line Position | The setting of a base line position of Tissue Dop mode | -16 to 16 (1step) |
| Spectrum Invert | When D mode is started, a smooth current direction is | Normal |
| 1 | displayed with upward direction. | |
| | When D mode is started, a smooth current direction is | Invert |
| | displayed with downward direction. | |
| Invert Axis | A spectrum is reversed against a baseline as a base. | Base Line |
| | A spectrum is reversed with the image center as a base. | Center |
| Color Map(D) | It is displayed without adding colors to Tissue Dop | Gray |
| ······································ | mode image. | |
| | An image is displayed with adding colors from blue to | Α |
| | orange. | |
| | An image is displayed with adding blue color. | В |
| | An image is displayed with adding weak blue compared | |
| | to B. | |
| | An image is displayed with adding orange color. | D |
| | It is a brown brightness characteristic. | E |
| | It is a brown brightness characteristic. It is a brown brightness characteristic weaker than E. | F |
| | It is a blown originates characteristic weaker than <i>D</i> . It is a blue and yellow brightness characteristics. | G |
| B Refresh | In simultaneous display of $B + Flow /M + Flow$, a | 1 |
| Divenesii | renewal interval of B mode image is set. | 1 |
| | Renewal is done every 1sec. | |
| | Renewal is done every 1sec. | 2 |
| | Renewal is done every 4sec. | 4 |
| | Renewal is done every 4sec. | 6 |
| | Renewal is done every 8sec. | 8 |
| Angle Correct | An angle mark is not displayed. | 8 Off |
| • | | |
| Display | An angle mark is displayed. | On |
| Angle Correction | The angle correction is registered beforehand before it | - 80 to 80 deg, 1 deg Step |
| | enters D mode. | |

- (1) Move an arrow cursor to the "+" mark displayed in front of the Tissue Doppler under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow IP Select (D) is displayed.
- (2) Move an arrow cursor to the IP Select(D) with the trackball, and press the ENTER switch.
 - \rightarrow The setting screen as the following is displayed.
- IP Select (D)

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| Name | Function | Setting |
|--------------|--|---------|
| | IP Select(D) | |
| IP Select(D) | The setting of Contrast, Image Select (D), Comp Curve(D), and Resolution on a Tissue Dop is registered to the eight patterns of IP Select. | 1 to 8 |

7-22. Tissue Flow

The Tissue Flow Preset Setup menu is used to set various parameters related to Tissue Flow function.

- (1) Move an arrow cursor to the **Tissue Flow** under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Tissue Flow

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| - MD | - | | _ | 2:41 | Cancel |

| Name | Function | Setting |
|-------------------|--|-----------------------------|
| | Tissue Flow | |
| DVA(FLOW) | A sound power on Tissue Flow mode is set. | 0 to 100% (1% Step) |
| Flow Gain | A gain value of Tissue Flow at starting time is set. | 0 to 127dB (1dB Step) |
| Image/Freq(Flow) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |
| Frame Rate(Flow) | Combining the number of scanning lines of B mode with | -4 to 0 to 4 |
| | the number of scanning lines of Flow, it is set the | |
| | number of frames on Tissue Flow mode. | |
| Frame Rate(B+F/D) | It is set of combining the number of scanning lines of | Off, Medium1, Medium2, Fast |
| | Tissue Flow on B + FLOW/D simultaneous mode with | |
| | the number of scanning lines of B mode. | |
| | When it goes from OFF to FAST, the number of | |
| | scanning lines are getting smaller gradually. | |
| Average(Flow) | The number of transmission instances of Tissue Flow is | Low |
| | set at low. | |
| | The number of transmission instances of Tissue Flow is | Medium |
| | set at medium. | |
| | The number of transmission instances of Tissue Flow is | High |
| | set at high. | |

| A speed range when it is on the Tissue Flow is set. It is set a group of the combination of Flow rate and dispersion of colors on Tissue Flow mode. It is set the details of a group of the combination of Flow rate and dispersion of colors on Tissue Flow mode. | 6.22 to 227.70cm/s Abdom, Cardio, Vascular, Power, eFlow, Directional Power, Directional eFlow, User A, B, C, D, E |
|--|---|
| dispersion of colors on Tissue Flow mode. It is set the details of a group of the combination of Flow | Power, eFlow, Directional Power, Directional eFlow, User |
| dispersion of colors on Tissue Flow mode. It is set the details of a group of the combination of Flow | Power, eFlow, Directional Power, Directional eFlow, User |
| It is set the details of a group of the combination of Flow | Power, Directional eFlow, User |
| | |
| | A, B, C, D, E |
| rate and dispersion of colors on Tissue Flow mode. | |
| | |
| A Coding method on TDI Flow mode is set as TDI. | Α |
| A Coding method on TDI Flow mode is set as Normal. | В |
| It is sets of a segmentation for displaying on what | Color, Both, Color(TDI), |
| information and how much degrees when a black and | Both(TDI) |
| white image and a color flow rate display are overlapped | |
| on B + Flow mode. | |
| The threshold displaying black and white information is | 0 to 127 |
| set. | |
| The threshold displaying color information is set. | 1 to 127 |
| | |
| In Tissue Flow, it is displayed in red for a smooth | Normal |
| direction and in blue for a reverse direction. | |
| In Tissue Flow, it is displayed in blue for a smooth | Invert |
| direction and in red for a reverse direction. | |
| It is set the level of a low flow rate ingredient to be cut in | 0 to 31 |
| the color information of Flow. | |
| A Flow image every inter-frame is displayed. | Off |
| Images having continuation between frames are | On |
| produced. | |
| The aliasing of color border is not smoothed down. | Off |
| The aliasing of color border is smoothed down. | On |
| Between color reception line intervals, new lines are not | Off |
| added. | |
| Between color reception line intervals, new lines are | Low |
| added and the image becomes smoother. | |
| With adding new multiple lines between color reception | High |
| lines, the image becomes smoother. | - |
| | information and how much degrees when a black and white image and a color flow rate display are overlapped on B + Flow mode. The threshold displaying black and white information is set. The threshold displaying color information is set. In Tissue Flow, it is displayed in red for a smooth direction and in blue for a reverse direction. In Tissue Flow, it is displayed in blue for a smooth direction and in red for a reverse direction. In Tissue Flow, it is displayed in blue for a smooth direction and in red for a reverse direction. It is set the level of a low flow rate ingredient to be cut in the color information of Flow. A Flow image every inter-frame is displayed. Images having continuation between frames are produced. The aliasing of color border is not smoothed down. The aliasing of color border is smoothed down. Between color reception line intervals, new lines are not added. Between color reception line intervals, new lines are added and the image becomes smoother. With adding new multiple lines between color reception |

- (1) Move an arrow cursor to the "+" mark displayed in front of the **Tissue Flow** under Preset Set-up selection menu on left side of the page with the trackball, and press the **ENTER** switch.
 - \rightarrow The IP Select (Flow) is displayed.
- (2) Move an arrow cursor to the IP Select (Flow) with the trackball, and press the ENTER switch.
 - \rightarrow The following setting screen is displayed.
- IP Select (Flow)

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| Name | Function | Setting |
|-----------------|--|---------|
| | IP Select(Flow) | |
| IP Select(Flow) | The setting of Frame Corre, Smoothing, Image Select (Flow), and Filter (Flow) on a Tissue Flow is registered to the 8 patterns of the IP Select. | 1 to 8 |

7-23. Tissue Power Flow

The Tissue Power Flow Preset Setup menu is used to set various parameters related to Tissue Power Flow function.

- (1) Move an arrow cursor to the **Tissue Power Flow** under Preset Set-up selection menu on left side of the page with the trackball, and press the **ENTER** switch.
 - \rightarrow The following screen is displayed.
- Tissue Power Flow



| Name | Function | Setting |
|-------------------|--|-----------------------------|
| | Tissue Power Flow | |
| DVA(FLOW) | The transmission output on Tissue Power Flow mode is | 0 to 100% (1% Step) |
| | set. | |
| Flow Gain | A gain value of Tissue Power Flow at starting time is set. | -63 to 63dB (1dB Step) |
| | A correction value of the Tissue Flow gain is set. | |
| Image/Freq(Flow) | It is started with the high frequency of a probe. | High |
| | It is started with the slightly high frequency of a probe. | Resolution |
| | It is started with the slightly low frequency of a probe. | Standard |
| | It is started with the low frequency of a probe. | Penetration |
| Frame Rate(Flow) | Combining the number of scanning lines of B mode with | -4 to 0 to 4 |
| | the number of scanning lines of Flow, it is set the number | |
| | of frames on Tissue Power Flow mode. | |
| Frame Rate(B+F/D) | It is set of combining the number of scanning lines of a | Off, Medium1, Medium2, Fast |
| | Tissue Flow on B + FLOW/D simultaneous mode with the | |
| | number of scanning lines of B mode. | |
| | When it goes from OFF to FAST, the number of scanning | |
| | lines are getting gradually smaller. | |

| Name | Function | Setting |
|----------------------|---|---------------------------------|
| Average(Flow) | The number of transmission instances of Tissue Power | Low |
| | Flow is set at low. | |
| | The number of transmission instances of Tissue Power | Medium |
| | Flow is set at medium. | |
| | The number of transmission instances of Tissue Power | High |
| | Flow is set at high. | |
| Velocity Range | A speed range is set when it is on Tissue Power Flow. | 6.22 to 227.70cm/s |
| (Flow) | | |
| Color Map,Group | It is set a group of the combination of Flow rate and | Abdom, Cardio, Vascular, Power, |
| | dispersion of colors on Tissue Power Flow mode. | eFlow, Directional Power, |
| | | Directional eFlow, User |
| Color Map,Setting | It is set a group of the combination of Flow rate and | A, B, C, D, E |
| | dispersion of colors on Tissue Power Flow mode. | |
| Display Priority | It is set of a classification for displaying on what | Color, Both, Color(TDI), |
| | information and how much degrees when a black and | Both(TDI) |
| | white image and a color flow rate display are overlapped | |
| | on B + Tissue Flow mode. | |
| Disp Prio Lev, | This sets a threshold value displaying black and white | 0 to 127 |
| B/W | information. | |
| Disp Prio Lev, Color | This sets a threshold value displaying color information. | 0 to127 |
| Power Flow Display | It is displayed with a background color at Power Flow. | PF A |
| | It is displayed without a background color at Power Flow. | PF B |
| Directional (Flow) | At Power Flow starting time, it does not enter the | Off |
| | Directional Power Flow. | |
| | At Power Flow starting time, it enters the Directional | On |
| | Power Flow. | |
| Frame Rate Accel | A Flow image every inter-frame is displayed. | Off |
| | Images having continuation between frames are produced. | On |
| Edge Smooth | The aliasing of color border is not smoothed down. | Off |
| C | The aliasing of color border is smoothed down. | On |
| Color Line | Between color reception line intervals, new lines are not | Off |
| Correlation | added. | |
| | Between color reception line intervals, new lines are added | Low |
| | and the image becomes smoother. | |
| | With adding new multiple lines between color reception | High |
| | lines, the image becomes smoother. | 0 |

- (1) Move an arrow cursor to the "+" mark displayed in front of **Tissue Power Flow** under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow IP Select (Power) is displayed.
- (2) Move an arrow cursor to the IP Select (Power) with the trackball, and press the ENTER switch.
 - \rightarrow The setting screen as the following is displayed.
- IP Select (Power)

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| Name | Function | Setting |
|------------------|---|---------|
| | IP Select(Power) | |
| IP Select(Power) | The setting of Frame Corre, Smoothing, Image Select | 1 to 8 |
| | (Power), and Filter (Flow) on a TDI Power Flow is | |
| | registered to the 8 patterns of the IP Select. | |

7-24. Stress Echo1, 2

The Stress Echo Preset Setup menu is used to set various parameters related to Stress Echo function.

- (1) Move an arrow cursor to the Stress Echo1 or Stress Echo2 under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Stress Echo1

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| Name | Function | Setting |
|-----------------|--|--|
| | Stress Echo1 | 1 |
| Protocol Select | Selects the default protocol in the preset. | Exercise Stress Echo, Treadmill Exercise, Bicycle Exercise, DSE, High-Dose DSE, Low-Dose DSE, Arbutamine, Dipyridamole |
| Frame Rate | Sets the maximum frame rate. | 30Hz, 45Hz, 60Hz, 75Hz |
| Acquire Mode | Acquires moving images displayed just before pressing the STORE switch within a time set beforehand. | Pre ECG, |
| | Acquires moving images displayed just after pressing the STORE switch within a time set beforehand [Remark] When Acquire cycle is Multi on the Protocol making, it is set as Post even if Pre is selected. | Post ECG |
| ECG Cycle | Sets the number of heartbeats to acquire after pressing the STORE switch. | 1 Cycle, 2 Cycle, 3 Cycle, 4 Cycle |
| View Condition | Does not save the image information acquired in the Base Stage. | Off |
| | Saves the image information acquired in the Base Stage. | On |
| ROI Display | Does not display the ROI when the image is acquired in 1B mode. | Off |
| | Displays the ROI when the image is acquired in 1B mode. | On |

| Name | Function | Setting |
|----------------|---|--------------------------|
| Default | Sets the default position of the Priority image (blue | Current1 |
| Priority Cycle | border displayed) in the Priority screen. | Current2 |
| | Current1 (upper left) Current2 (upper right) | Current3 |
| | Current3 (lower left) Current4 (lower right) | Current4 |
| | Display Off (The Priority Select screen is not displayed.) | Display Off |
| Quad Zoom | Sets the display size when 4B mode is displayed. | 100, 125, 150, 175, 200% |
| Loop Mode | The loop playback time is set to match the shortest window. | Short |
| | The loop playback time is set to match the longest window. | Long |
| | The loop playback time is set to match the longest window, and the loop playback time of the other windows is adjusted. | Align |
| | Loop playback of each window takes place asynchronously. | Free Run |
| | Loop playback takes place from the R wave to a point 300 ms after it. | R-to300ms, |
| | Loop playback takes place from the R wave to a point 330 ms after it. | R-to330ms, |
| | Loop playback takes place from the R wave to a point 360 ms after it. | R-to360ms |
| | Loop playback takes place from the R wave to a point 390 ms after it. | R-to390ms, |
| | Loop playback takes place from the R wave to a point 420 ms after it. | R-to420ms |
| Default | Displays and compares the views of two stages. | Compare |
| Shuffle Mode | Displays and compares the views for each view. | Shuffle View |
| | Displays and compares the views for each stage. | Shuffle Stage |
| Store Timing | Sets to store on HDD in Priority after End protocol. *: The selection of whether only the Priority is stored or all of the Cycles are stored can be made at the saving time. | End Protocol |
| | Sets only in Priority to store automatically every finishing the Stage. | End Stage (Priority) |
| | Sets all the Cycle to store automatically every finishing the Stage. | End Stage (ALL) |
| 4B Request | Selects the stage or view to be displayed in the 4B display when the protocol is the more than 5View and 5Stage. | View, Stage |
| Report Display | Sets the report display type to Schema View display. | Shuffle View |
| Туре | Sets the report display type to Schema Stage display. | Shuffle Stage |
| | Sets the report display type to Chart display. | Chart |
| Schema Display | Does not display the Schema. | Off |
| -r <i>J</i> | Displays the Schema. | On |

| Name | Function | Setting |
|----------------------------|---|--|
| Imaging Information(SE) | No automatic display of the image display area in the Stress Echo is not performed. *: No function in the Pause Protocol is performed. | Off |
| | The automatic display of the image display area in the Stress Echo is performed. *: No function in the Pause Protocol is performed. | On |
| 4B Request Select Stage | Selects a stage to be displayed on 4B images, when using a 5Stage or higher protocol. (You can select by using pull-down menu) *: This function operates in 4B Request | Upper Left: Selecting the stage name Upper Right: Selecting the stage name Lower Left: Selecting the stage name Lower Right: Selecting the stage name |
| 4B Request Select View | Selects a view to be displayed on 4B images, when using a 5View or higher protocol. (You can select by using pull-down menu) *: This function operates in 4B Request | Upper Left: Selecting the stage name Upper Right: Selecting the stage name Lower Left: Selecting the stage name Lower Right: Selecting the stage name |

• Stress Echo2

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| Name | Function Setting | |
|---------------|--|----|
| | Stress Echo2 | |
| Segment Model | Set 16 segments for the myocardium segment model when scoring. | 16 |
| | Set 17 segments for the myocardium segment model when scoring. | 17 |

7-25. FAM

The FAM Preset Setup menu is used to set various parameters related to Free Angular M mode function.

- (1) Move an arrow cursor to the FAM under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

• FAM

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| Name | Function | Setting |
|----------------|---|---------|
| | FAM | • |
| Multi FAM | It sets the number of cursors to be displayed. | 2, 3 |
| MAG (FAM) | The amplification of M mode image is set at $\times 0.5$ with reference to the display size of B mode image as a base. | × 0.50 |
| | The amplification of M mode image is set at $\times 0.75$ with reference to the display size of B mode image as a base. | × 0.75 |
| | The amplification of M mode image is set at $\times 1$ with reference to the display size of B mode image as a base. | × 1.00 |
| | The amplification of M mode image is set at $\times 1.5$ with reference to the display size of B mode image as a base. | × 1.50 |
| | The amplification of M mode image is set at $\times 2$ with reference to the display size of B mode image as a base. | × 2.00 |
| Contrast (FAM) | The contrast of M mode image is set. | 1 to 16 |
| Gamma (FAM) | The brightness characteristics of M mode image are not changed. | Off |
| | The brightness characteristics of M mode image are changed. | 1 to 4 |
| PSAX | It does not have plural cursors display simultaneously. | Off |
| | It has plural cursors display and move simultaneously. | On |
| Trace Fit | When plural cursors are displayed at the same time, the depth of scroll is not adapted to B mode. | Off |
| | When plural cursors are displayed at the same time, depth of scroll is adapted to B mode. | On |

7-26. Contrast Echo

The Contrast Harmonic Echo Preset Setup menu is used to set various parameters related to Contrast Harmonic Echo function.

- (1) Move an arrow cursor to the Contrast Echo under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Contrast Echo1

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| Name | Function Setting | | | | |
|-----------------|---|------------------------|--|--|--|
| Contrast Echo1 | | | | | |
| DVA(CHE) | The transmitting output at the time of C.H.E. On is set. | 0 to 100%(1% Step) | | | |
| DVA(ExPHD) | The transmitting output at the time of ExPHD(C.H.E.) On is set. | 0 to 100%(1% Step) | | | |
| Gain(CHE) | When C.H.E. is On, it sets a gain value. | -30 to 30dB (1dB Step) | | | |
| Gain(ExPHD) | When ExPHD(C.H.E.) is On, it sets a gain value. | -30 to 30dB (1dB Step) | | | |
| Image/Freq(CHE) | When C.H.E. is On, the probe starts at a high frequency. | High | | | |
| | When C.H.E. is On, the probe starts at a slightly high frequency. | Resolution | | | |
| | When C.H.E. is On, the probe starts at a slightly low frequency. | Standard | | | |
| | When C.H.E. is On, the probe starts at a low frequency. | Penetration | | | |
| Image/Freq | When ExPHD(C.H.E.) is On, the probe starts at a high frequency. | High | | | |
| (ExPHD) | When ExPHD(C.H.E.) is On, the probe starts at a slightly high | Resolution | | | |
| | frequency. | | | | |
| | When ExPHD(C.H.E.) is On, the probe starts at a slightly low | Standard | | | |
| | frequency. | | | | |
| | When ExPHD(C.H.E.) is On, the probe starts at a low frequency. | Penetration | | | |

| Name | Function | Setting |
|---|---|---------------|
| Color Map(ExPHD) | Displays a ExPHD(C.H.E.) mode image without adding color. | Gray |
| | Displays an image after adding a color between blue and orange. | А |
| | Displays an image after adding blue. | В |
| | Displays an image after adding lighter blue than that added when B | С |
| | is selected. | |
| | Displays an image after adding orange. | D |
| | Brown brightness characteristics | Е |
| | Blue brightness characteristics that are slightly weaker than those | F |
| | of E. | |
| | Blue and yellow brightness characteristics | G |
| Frame Rate | When an electronic type probe is connected, it is set with the small | Low |
| (ExPHD) | number of scanning lines. | |
| | When an electronic type probe is connected, it is set with the | Medium |
| | middle number of scanning lines. | |
| | When an electronic type probe is connected, it is set with the large | High |
| | number of scanning lines. | |
| Intermittent Method | An intermittent transmission with an R-wave interval is performed. | ECG |
| | An intermittent transmission is performed with a set time interval | Time |
| | regardless of ECG indication. | |
| Intermittent 1B | The display of Intermittent Mode is switched to 1B display. | INT |
| Display | The display of Intermittent Mode is switched to 1B display. | INT + MON |
| Intermittent 2B | The display of Intermittent Mode is switched to 2B display. | INT INT |
| Display | The display of Intermittent Mode is switched to 2B display. | MON INT |
| Image/Freq | When the monitor is on, the probe starts up at a high frequency. | High |
| (Monitor) When the monitor is on, the probe starts up at a resolution | | Resolution |
| | frequency. | |
| | When the monitor is on, the probe starts up at a standard | Standard |
| | frequency. | |
| | When the monitor is on, the probe starts up at a Penetration | Penetration |
| | frequency. | |
| Monitor Level | The sound power of monitor image side is set at a ratio for the | 5 to 100% |
| | intermittent image side power. | (5% step) |
| Monitor Gain | The B gain of the monitor image side is set with the offset for the B | -40 to 40dB |
| | gain of the intermittent image side. | |
| Monitor Capturing | It does not captures the images with line data when a monitor side | Off |
| | image is displayed. | |
| | It captures the images with line data when a monitor side image is | On |
| | displayed. | |
| Monitor Cine Partition | When the cine memory is divided for Mon/INT, the ratio of the | 1:5 |
| | monitor side and the INT side is set to 1:5. | |
| | When the cine memory is divided for Mon/INT, the ratio of the | 1:1 |
| | monitor side and the INT side is set to 1:1. | |
| Frame Rate Limit | A limit for the frame rate is not imposed. | Off |
| | Select a limit for the a frame rate. | 15, 30, 60 Hz |

| Name | Function | Setting | | |
|--------------------------|---|----------------------|--|--|
| Flash Level | A sound power at the Flash operation time is set. | 10 to 100% | | |
| | | (2% step) | | |
| Flash Time | The continuous time at the Flash operation time is set. | 30 to 3000msec | | |
| | | (30msec step) | | |
| Flash Type | Sets the transmission conditions to a low acoustic pressure setting | Normal | | |
| | when the Flash operations at low acoustic pressure are taking place. | | | |
| | Sets the transmission conditions to a high acoustic pressure setting | Strong | | |
| | when the Flash operations at low acoustic pressure are taking place. | | | |
| Contrast Agent | Sets the transmission conditions to a high acoustic pressure setting. | ТуреА | | |
| Туре | Sets the transmission conditions to a low acoustic pressure setting. | ТуреВ | | |
| Counter Link | Functions selected at the time of Counter On are not operated interlocking. | Off | | |
| | Functions selected at the time of Counter On are operated interlocking. | On | | |
| Counter Link Function | You can automatically operate a function (Store, Sequence, or REC) set in a preset in synchronism with the start of Counter, by turning On the Counter Link function in the menu. | Store, Sequence, REC | | |
| FTC(ExPHD) | Contours of an image in the ExPHD(C.H.E.) mode are not emphasized. | Off | | |
| | Contours of an image in the ExPHD(C.H.E.) mode are emphasized. | On | | |
| Capture Time | A pixel holding time at a capture is set. | 1sec, 2sec, 3sec | | |
| (CHE) | It is maintained till it freezes. Continuous | | | |

- (1) Move an arrow cursor to the "+" mark displayed in front of the Contrast Echo under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow $\;$ The Sequence and IP Select (ExPHD) are displayed.
- (2) Move an arrow cursor to the Sequence or IP Select (ExPHD) with the trackball, and press the ENTER switch.
 - \rightarrow The following setting screen is displayed.

Sequence

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| Name | Function | Setting | | | | |
|----------|---|-------------------------------------|--|--|--|--|
| | Sequence | | | | | |
| ECG On | A transmission interval at the time of ECG On is set. | 1 to 30.0 (1step) | | | | |
| | | No Update | | | | |
| ECG Off | A transmission interval at the time of ECG Off is set. | 0.1 to 30.0sec (0.1 to 1.0:0.1step, | | | | |
| | | 1.0 to 30.0:0.5 step) | | | | |
| | | No Update | | | | |
| Frame No | The scanning the number of frames for one trigger is set. | 1 to 30Frames (1Frame step) | | | | |
| Time | In a Sequence operation, the time for changing to the next sequence is set. | 0 to 999 sec (1sec step) | | | | |

IP Select (ExPHD)

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| Name | Function | Setting |
|------------------|--|---------|
| IP Select(ExPHD) | | |
| IP Select(ExPHD) | The Frame Corre, Contrast, AGC, Relief, Smoothing, and View Gamma for the ExPHD (C.H.E.) are registered in eight IP Select patterns. | 1 to 8 |

7-27. Echo Tracking

The Echo Tracking Preset Setup menu is used to set various parameters related to Echo Tracking function.

- (1) Move an arrow cursor to the Echo Tracking under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Echo Tracking

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| Name | Function | Setting |
|-------------------------|--|--------------------------------|
| | Echo Tracking | • |
| Auto Analyze | The data acquisition screen remains after data acquisition. | Off |
| | The analysis screen appears after data acquisition. | On |
| Pressure Auto Regist | The blood pressure value is not automatically registered when it is stored after being changed. | Off |
| | The blood pressure value is automatically registered when it is stored after being changed. | On |
| Disten Wave Posi | Sets the display position of vessel diameter-change waveform. | 1 to 32 |
| Acquire Mode | Data acquisition takes place in heartbeat units. | ECG |
| | Data acquisition takes place in time units. | Time |
| Time Cycle(ET) | Sets the data acquisition time when data is being acquired in time units. | 1 to 30sec |
| ECG Cycle | Sets the quantity of data to be acquired when data is being acquired in heartbeat units. | 1 to 20cycle |
| Wave Scale | Sets the size of the blood vessel change waveform. | 0.10, 0.20, 0.25, 0.50, 0.75mm |
| Acquire Pause(ET) | Press the STORE switch to save ET data without changes. | Off |
| | After the STORE switch is pressed, the screen is stopped temporarily, so that the blood pressure and blood vessel name can be input. | On |
| Processing Method | Sets the calculation method for vessel diameter values to | Latest, Avg.(3), Avg.(5) |
| (ET) | display on the screen. | |

7-28. Wave Intensity

The Wave Intensity Preset Setup menu is used to set various parameters related to Wave Intensity function.

- (1) Move an arrow cursor to the Wave Intensity under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- · Wave Intensity

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| name | Function | Setting |
|--------------------|---|--------------------------------|
| | Wave Intensity | • |
| Auto Analyze | After data collection, the Analysis screen is not | Off |
| | displayed automatically. | |
| | After data collection, the Analysis screen is displayed | On |
| | automatically. | |
| Pressure Auto | Even if data is stored after the blood pressure is | Off |
| Regist | changed, the value will not be registered automatically. | |
| | If data is stored after the blood pressure value is | On |
| | changed, the value will be registered automatically. | |
| Disten Wave Posi | Sets the display position for the distension waveform. | 1 to 32 |
| Acquire Mode(WI) | Data is collected in heartbeat units. | ECG |
| | Data is collected in time units. | Time |
| Time Cycle(WI) | If data is collected in time units, set the data collection | 1 to 30sec |
| | time. | |
| ECG Cycle(WI) | If data is collected in heartbeat units, set the data | 1 to 20Cycle |
| | collection volume. | |
| Wave Scale | Sets the size of the distension waveform. | 0.10, 0.20, 0.25, 0.50, 0.75mm |
| Velocity Wave Posi | Sets the display position for the velocity waveform. | 1 to 32 |
| Acquire Pause(WI) | Press the STORE switch to save WI data without | Off |
| | changes. | |
| | After the STORE switch is pressed, the screen is stopped | On |
| | temporarily, so that the blood pressure and blood vessel | |
| | name can be input. | |
| Processing Method | Sets the calculation method for vessel diameter values to | Latest, Avg.(3), Avg.(5) |
| (WI) | display on the screen. | |
7-29. FMD

The Flow Mediated Dilatation Preset Setup menu is used to set various parameters related to Flow Mediated Dilatation function.

- (1) Move an arrow cursor to the FMD under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- FMD

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| Name | Function | Setting |
|----------------------|--|--------------------------|
| | FMD | |
| Auto Analyze | An automatic measurement does not start during data-saving | Off |
| | time. | |
| | An automatic measurement starts during data-saving time. | On |
| Pressure Auto Regist | Blood pressure is not registered automatically, even when | Off |
| | stored after changing the blood pressure. | |
| | Blood pressure is registered automatically, when stored after | On |
| | changing the blood pressure. | |
| Disten Wave Posi | Set the display position for the distension waveform. | 1 to 32 |
| Acquire Time(FMD) | A data taking-in time is set. | 5 to 25min(1Step) |
| Wave Scale | The Y range of displacement curve on an M image is set. | 0.10, 0.20, 0.25, 0.50, |
| | | 0.75mm |
| Velocity Wave Posi | Set the display position for the velocity waveform. | 1 to 32 |
| Flow Method | The Flow Off at a data acquisition time is performed | Auto |
| | automatically. | |
| | The Flow Off at a data acquisition time is performed manually. | Manual |
| Flow Time | The Flow duration at an automatic Flow Off time is set. | 1, 5 to 60sec(5Step) |
| Processing | Set the calculation method for vessel diameter values to | Latest, Avg.(3), Avg.(5) |
| Method(FMD) | display on the screen. | |
| Graph Scale | The maximum value for the distension graph displayed during | 5, 10, 20, 30% |
| | data collection is set on the basis of the baseline vessel | |
| | diameter. | |

7-30. RT3D

The RT3D Preset Setup menu is used to set various parameters related to Real Time 3D display function.

- (1) Move an arrow cursor to the RT3D1 under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.

• RT3D1

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| Name | Function | Setting |
|----------------|---|------------|
| | RT3D1 | - |
| 3D Layout | The image is displayed as 1View at startup. | 1View |
| | The image is displayed as 2Views at startup. | 2Views |
| | The image is displayed as 4Views at startup. | 4Views |
| 3D View Select | Display the section of 2Views display and the initial | Ref A |
| | display image of 1View display as RefA. | |
| | Display the section of 2Views display and the initial | Ref B |
| | display image of 1View display as RefB. | |
| | Display the section of 2Views display and the initial | Ref C |
| | display image of 1 View display as RefC. | |
| | Display the initial display image of 1View display as | 3D |
| | 3D. | |
| Beam Process | The simultaneous reception setting in Real Time 3D is | STD |
| | set in STD. | |
| | The simultaneous reception setting in Real Time 3D is | Multi |
| | set in Multi. | |
| | The simultaneous reception setting in Real Time 3D is | SuperMulti |
| | set in SuperMulti. | |
| 3D Brightness | A brightness is set for three perpendicular sections or a | 1 to 16 |
| (Normal) | 3D image in active. | |

| Name | Function | Setting |
|------------------------|--|---|
| Rendering Mode | The rendering mode of a 3D image is set in Shaded. | Shaded |
| | The surface of an object is imaged. | |
| | The rendering mode of a 3D image is set in Brightest. | Brightest |
| | The rendering mode of a 3D image is set in X-ray. | X-ray |
| | The rendering mode of a 3D image is set in Lighted. | Lighted |
| | The rendering mode of a 3D image is set in GVA. | GVR |
| Smooth for Lighted | When the Rendering mode is in Lighted, the smoothing | Low |
| | process is set at Low. | |
| | When the Rendering mode is in Lighted, the smoothing | High |
| | processing is set at High. | |
| 3D Gamma | This function performs corrections for expressing | 1 to 16 |
| (Normal) | information about a diagnosis region effectively, with | |
| | changing brightness characteristic of ultrasound data. | |
| Border Frame | The frame of a rectangular solid showing a volume data | Off |
| | range for a 3D image is not displayed. | |
| | The frame of a rectangular solid showing a volume data | On |
| | range for a 3D image is displayed. | |
| Overlay Graphic | This does not display graphics such as a view (camera) | Off |
| 5 1 | mark and a Function Indicator, which are displayed on a | |
| | 3D image/section image. | |
| | This displays graphics such as a view (camera) mark and | On |
| | a Function Indicator, which are displayed on a 3D | |
| | image/section image. | |
| 3D Smooth | The smoothing process for a 3D image is not applied. | Off |
| | The smoothing process for a 3D image is applied. | On |
| Function Indicator | The function status of the trackball of 3D View Control | Off |
| 1 411011011 1114104001 | is not displayed on the top-left corner of active image. | |
| | The function status of the trackball of 3D View Control | On |
| | is displayed on the top-left corner of active image. | |
| 3D Orientation | The display of a 3D image is indicated with every 90 | 0°, 90°, 180°, 270° |
| 5D Olientation | degrees turn. | 0,90,100,270 |
| Displayed | A foreground color of a 3D image is set. | A, B, C, D, E, F, G, H |
| Color(3D) | A foreground color of a 5D mage is set. | <i>H</i> , D , C , D , E , F , G , H |
| Loop Direction | When a playback-in-Loop is performed, it is played | One way |
| Loop Direction | back by one way. | One way |
| | When a playback-in-Loop is performed, it is played | Round trip |
| | back by both ways. | Kound urp |
| Rotation Axis | When a playback-in-Loop is performed, it is played | Vertical |
| Rotation Axis | back from the vertical direction. | Ventical |
| | When a playback-in-Loop is performed, it is played | Horizontal |
| | back from the horizontal direction. | |
| Stop Angle | | $1^{\circ} t_{0} 45^{\circ} (1^{\circ} t_{0} t_{0})$ |
| Step Angle | A playback range of volume data for playback-in-Loop | 1° to $45^{\circ}(1^{\circ}$ step) |
| | is specified. | |
| Rotation Angle | A playback range of volume data for playback-in-Loop | 10° to 180° (10°Step) |

| Name | Function | Setting |
|------------------------|---|------------------------------------|
| Loop Speed | The speed of playback-in-Loop is adjusted. | 1 to 30Hz (1Step) |
| 3D Zoom | Sets the zoom value of a 3D image. | 50, 60, 70, 80, 90, 100, 120, 140. |
| | | 160, 180, 200% |
| RefA, B, C Zoom | Set the zoom value for the section image. | 50, 60, 70, 80, 90, 100, 120, 140, |
| | *This only functions when 3D Zoom Link is Off. | 160, 180, 200% |
| 3D ROI Position | Sets a ROI position. | 20 to 80% (10% Step) |
| 3D ROI Height | Sets a ROI height. | 25 to 100% (5% Step) |
| Smoothing(3D) | Smoothes the line data to reduce noise in an RT3D | Off, Low, Medium1, Medium2, |
| | image. | High |

• Image Parameter



| Name | Function | Setting | |
|---------------|--|----------------------|--|
| | Image Parameter | | |
| Scan Area | In Real Time 3D, a scan width for an electronic direction is set. | 30 to 100% (5% Step) | |
| Scan Angle | In Real Time 3D, a scan angle for a mechanical direction is set. 10 to 100% (10% Step) | | |
| Line Density | In Real Time 3D, the line density for an electron scanning direction | Low, Med, High | |
| | is set. | | |
| Frame Density | In Real Time 3D, the image density against mechanical scanning | Low, Med, High | |
| | density is set. | | |

Opacity Control

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| Name | Function | Setting |
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| | Opacity Control | |
| Low Level | The low turning point of an Opacity curve is set. | 0 to 125 (5 Step) |
| High Level | The high turning point of an Opacity curve is set. | 80 to 255 (5 Step) |
| Power | The gradient of an Opacity curve is set. | 1.0 to 3.0 (0.1 Step) |

• RT3D2

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| Name | Function | Setting | | |
|-------------------|---|--|--|--|
| | RT3D2 | | | |
| 3D View Direction | Change the viewpoint direction for 3D images. | Top, Bottom, Front, Back, Left, Right | | |
| 3D Zoom Link | Change 3D zoom separately for 3D and section. Off | | | |
| | Change 3D zoom simultaneously for 3D and section. | On | | |
| Clipper Type | Change Clipper to Box. | Box | | |
| | Change Clipper to Front Cut Plane. | Plane | | |
| 3D Image Display | Display the 3D image when in 4views. | Enable | | |
| | Do not display the 3D image when in 4views. | Disable | | |

| Name | Function | Setting |
|--------------------------|--|--|
| Glossy Level | Sets the level of addition of smoothness and gloss to the | 0 to 10(1step) |
| (Normal) | 3D image. | |
| Depth Attenu. | Sets the level of brightness variation in the depth | 1 to 10(1step) |
| (Normal) | direction of the 3D image, to increase perception of 3D | |
| Inversion Mode | depth. The inversion of brightness of 3D image is not | Off |
| Inversion wode | displayed. | Oli |
| | | 0 |
| 2D Drighter agg(Ins.) | The inversion of brightness of 3D image is displayed. | On $1 \text{ to } 1((1 \text{ stor}))$ |
| 3D Brightness(Inv.) | Sets the brightness for the active three perpendicular | 1 to 16(1step) |
| $2D(C_{1},\ldots,C_{n})$ | sections, or for the 3D image in Inversion Mode. | 14. 1((1-4) |
| 3D Gamma(Inv.) | In Inversion Mode, vary the brightness characteristics of | 1 to 16(1step) |
| | the ultrasound data, compensating in order to effectively | |
| | express data about the area being diagnosed. | |
| Glossy Level(Inv.) | Sets the level of addition of smoothness and gloss to the | 0 to 10(1step) |
| | 3D image in Inversion Mode. | |
| Depth Attenu.(Inv.) | Sets the level of brightness variation in the depth | 0 to 10(1step) |
| | direction of the 3D image in Inversion Mode, to increase | |
| | perception of 3D depth. | |
| Progressive Clipper | Opacity is not continuously varied. | Off |
| | Automatically set the depth of the range in which | Auto |
| | opacity is continuously varied, depending on the | |
| | brightness value of the cross-sectional image on the top | |
| | of the Clipping Box. | |
| | Sets the depth of the range in which opacity is continuously varied. | 1 to 10(1step) |
| 3D View Guide | The 3D View Guide is not displayed. | Off |
| | The 3D View Guide indicating the display direction of | On |
| | 3D images is displayed. | |
| VOL Cutter | The VOL Cutter function is not operated. | Off |
| | Cutting a 3D image on any sections to display. | On |
| VOL Cutter Frame | When the VOL Cutter function operates, no frame lines | Off |
| | are displayed. | |
| | When the VOL Cutter function operates, frame lines are | On |
| | displayed. | |
| Image Resolution | When a round-trip scan is performed, the electronic scan | Low |
| | direction is not reversed so that image becomes | |
| | smoother. | |
| | Improves slice resolution when a round-trip scan is | High |
| | performed by reversing the electronic scan direction. | |
| | Auto Vol Measure | |
| ROI Type | Sets the ROI form to Bubble. | Bubble |
| | Setst the ROI form to Box. | Box |
| | Sets the ROI form to Bullet. | Bullet |

| Name | Function | Setting |
|---------------|--|----------------|
| Calc.Type | Sets when the echo level for the extracted tissue is | High Echol |
| | higher than for the surrounding area. | |
| | Sets when the echo level is even higher than High | High Echo2 |
| | Echo1. | |
| | Sets when the echo level for the extracted tissue is lower | Low Echo1 |
| | than for the surrounding area. | |
| | Set when the echo level is even lower than Low Echo1. | Low Echo2 |
| Solid Model | Displays the 3D image at the actual brightness value for | Off |
| | automatic volume measurement. | |
| | Eliminates brightness value inconsistency and smooth | On |
| | the surface of the 3D image for automatic volume | |
| | measurement. | |
| Depth Attenu. | Sets the level of brightness variation in the depth | 1 to 10(1step) |
| (AVM) | direction of the 3D image for automatic volume | |
| | measurement, to increase perception of 3D depth. | |

• RT3D3

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| Name | Function | Setting |
|-----------------|--|------------------------|
| | RT3D3 | |
| | Multi Slice Imaging | |
| Layout | When the Multi Slice Imaging function is used, the display | 2×2 |
| | layout is set to 2 lines by 2 columns. | |
| | When the Multi Slice Imaging function is used, the display | 3 × 3 |
| | layout is set to 3 lines by 3 columns. | |
| Slice Number | When the Multi Slice Imaging function is used, the | 8 to 19(1Step) |
| | number of image slices is set. | |
| Slice Distance | When the Multi Slice Imaging function is used, the | 0.5 to 10.0mm(0.5Step) |
| | distance between image slices is set. | |
| Slice Direction | When the Multi Slice Imaging function is used, the | RefA, RefB, RefC |
| | direction in which an image is sliced is set. | |

7-31. 3D Scan

The 3D Scan Preset Setup menu is used to set various parameters related to 3D Scan function.

- (1) Move an arrow cursor to the 3D Scan under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.



| Name | Function | Setting |
|--------------------------|---|------------------------|
| | | |
| 3D ROI Height | Sets a 3D ROI height. | 25 to 100%(5%Step) |
| 3D ROI Position | Sets a 3D ROI position. | 20 to 80% (10%Step) |
| Scan Area | Sets a scan width for an electronic direction. | 30 to 100%(5%Step) |
| Scan Angle | Sets the scan angle for a mechanical scan direction. | 10 to 100%(10%Step) |
| Line Density | Sets the line density for an electronic scan direction. | Low, Med, High |
| Frame Density | Sets the line density for a mechanical scan direction. | Low, Med, High |
| Scan Length(Freehand) | Configures the length of the 3D that is displayed in Free Hand 3D mode. | 10 to 500mm(10mm Step) |

7-32. Flow 3D

The Flow 3D Preset Setup menu is used to set various parameters related to Flow 3D function.

- (1) Move an arrow cursor to the Flow 3D under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The following screen is displayed.
- Flow 3D

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| Name | Function | Setting |
|-----------------|--|---------------------|
| | Flow 3D | 1 |
| 3D ROI Height | Sets a 3D ROI height. | 25 to 100%(5%Step) |
| 3D ROI Position | Sets a 3D ROI position. | 20 to 80% (10%Step) |
| Scan Area | Sets a scan width for an electronic direction. | 30 to 100%(5%Step) |
| Scan Angle | Set the scan angle of a mechanical scan direction. | 10 to 100%(10%Step) |
| Line Density | Set the line density of an electronic scan direction. | -4 to 0 to 4(1Step) |
| Frame Density | Set the line density of a mechanical scan direction. | Low, Med, High |
| Clip Only BW | Clips both black and white images and color images when VOL Cutter or Clipping Box is used. | Off |
| | Clips only black and white images when VOL Cutter or Clipping Box is used. | On |
| 3D Display Data | Displays black and white images and color images in 3D. | BW+Flow |
| | Displays only color images in 3D. | Flow |
| | Displays only black and white images in 3D. | BW |
| Color Mar(3D) | Sets the colors to display color of the 3D images and the Ref images. | A to H |

<Flow Opacity Control settings>

- (1) Move an arrow cursor to the "+" mark displayed in front of the Flow 3D under Preset Set-up selection menu on left side of the page with the trackball, and press the ENTER switch.
 - \rightarrow The Flow Opacity Control is displayed.
- (2) Move an arrow cursor to the Flow Opacity Control with the trackball, and press the ENTER switch.
 - \rightarrow The following set screen is displayed.
- Flow Opacity Control

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| Name | Function | Setting |
|------------|--|---------------------|
| | Flow Opacity Control | |
| Low Level | Sets the low turning point of an Opacity curve. | 0 to 250(5Step) |
| High Level | Sets the high turning point of an Opacity curve. | 5 to 255(5Step) |
| Power | Sets the gradient of an Opacity curve. | 1.0 to 3.0(0.1Step) |

1-3

Symbols

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