

**SERVICE MANUAL
FOR
DIAGNOSTIC ULTRASOUND SYSTEM**
*Nemio***XG**
MODEL SSA-580A
[MAINTENANCE MENU VOLUME]
(2D730-509EN*A)

TOSHIBA MEDICAL SYSTEMS CORPORATION

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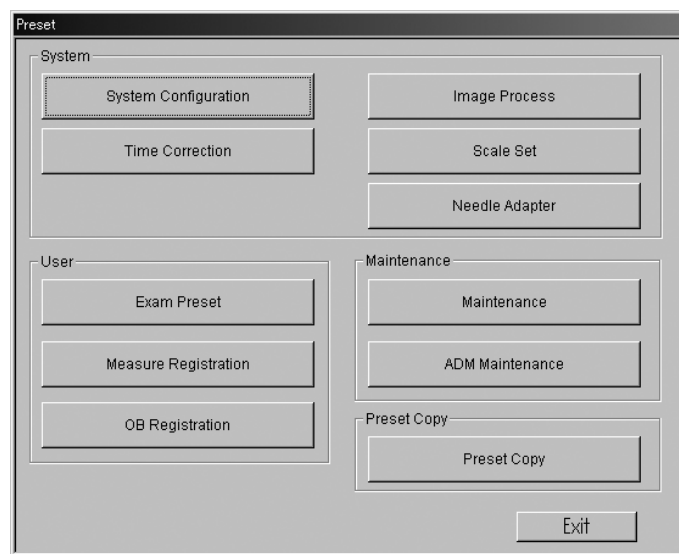
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1. OUTLINE OF THE SERVICE MENU

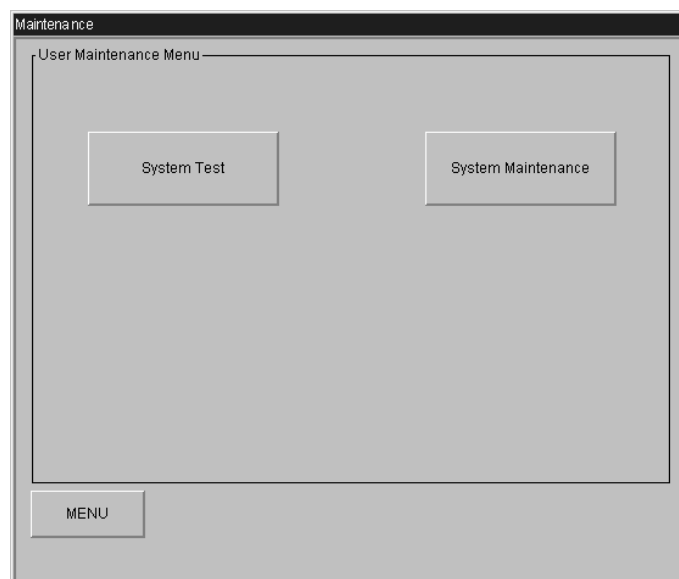
The Service menu is used for performing hardware operational checks, site information entry, and checking/recording an option's installation status.

1.1 Service Menu Display Method

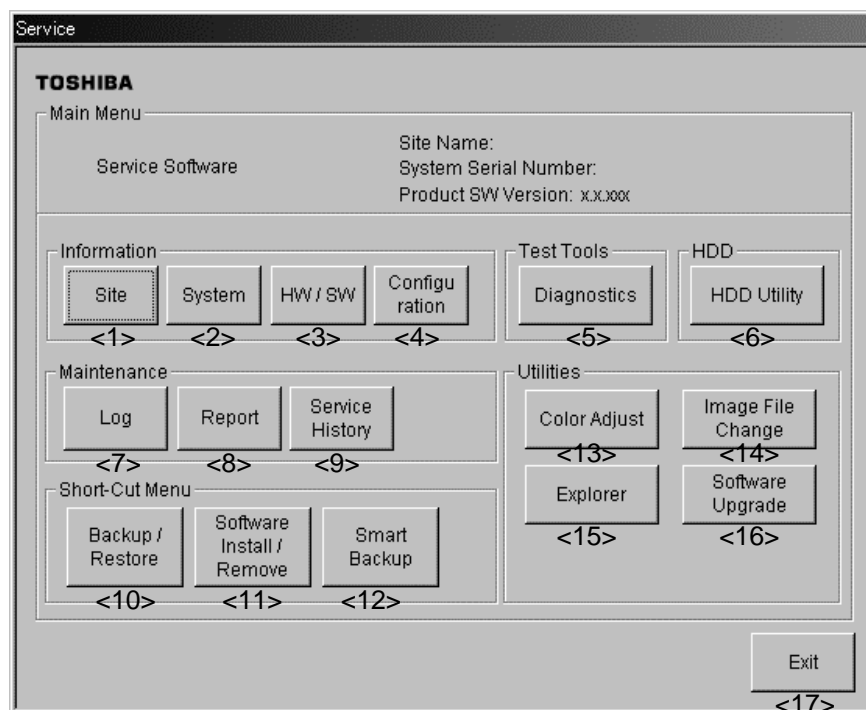
- (1) Turn ON the power of the system to boot it.
- (2) Press  . The Exam Select menu is displayed.
- (3) Select [Preset] in the Exam Select menu. The following Preset screen appears.



- (4) Press [Maintenance] to display the Maintenance menu.



- (5) Press "< (>)" while holding down the **Shift** key on the keyboard. The password entry screen is displayed.
- (6) Enter the dedicated password and press [OK]. The Service screen is displayed.



No.	Item	Function
<1>	Site	Displays/enters the site-specific information.
<2>	System	Displays/enters the system-specific information.
<3>	HW/SW	Displays/enters the hardware/software information.
<4>	Configuration	Displays/enters the service department/representative information.
<5>	Diagnostics	Implements the automatic/manual malfunction diagnosis program.
<6>	HDD Utility	Displays and checks the hard disk information.
<7>	Log	Displays the log for each category.
<8>	Report	Displays the image and log saved by the user when the problem occurred.
<9>	Service History	Displays/enters the service history.
<10>	Backup/Restore	Backs up/restores the user data/preset data.
<11>	Software Install/Remove	Installs/uninstalls the optional software.
<12>	Smart Backup	Saves the service data etc. on the MO.
<13>	Color Adjust	Displays the color/monochrome test pattern for adjusting the video printer, VCR, and monitor.
<14>	Image File Change	Changes the image to be displayed on the startup screen/screen saver when the diagnostic ultrasound system is started up.
<15>	Explorer	Starts up Windows Explorer.
<16>	Software Upgrade	Upgrades system programs.
<17>	Exit	Closes the menu.

2. SITE-SPECIFIC INFORMATION ENTRY

- (1) Press [Site] on the Main Menu of the Service screen. The screen shown below is displayed.

No.	Item	Contents
<1>	Hospital	Hospital name
<2>	Street	Street name
<3>	Street No.	Street number
<4>	Zip Code	Zip code
<5>	Phone No.	Telephone number
<6>	City	City name
<7>	District	District name
<8>	Country	Country name
<9>	Site-Name	Diagnosis site
<10>	Location	System installation location
<11>	Name	User name or administrator name
<12>	ID	User ID or administrator ID
<13>	Memo	Other information
<14>	View	Displays the currently registered information.
<15>	Input	Allows information entry.
<16>	Save	Saves the data.

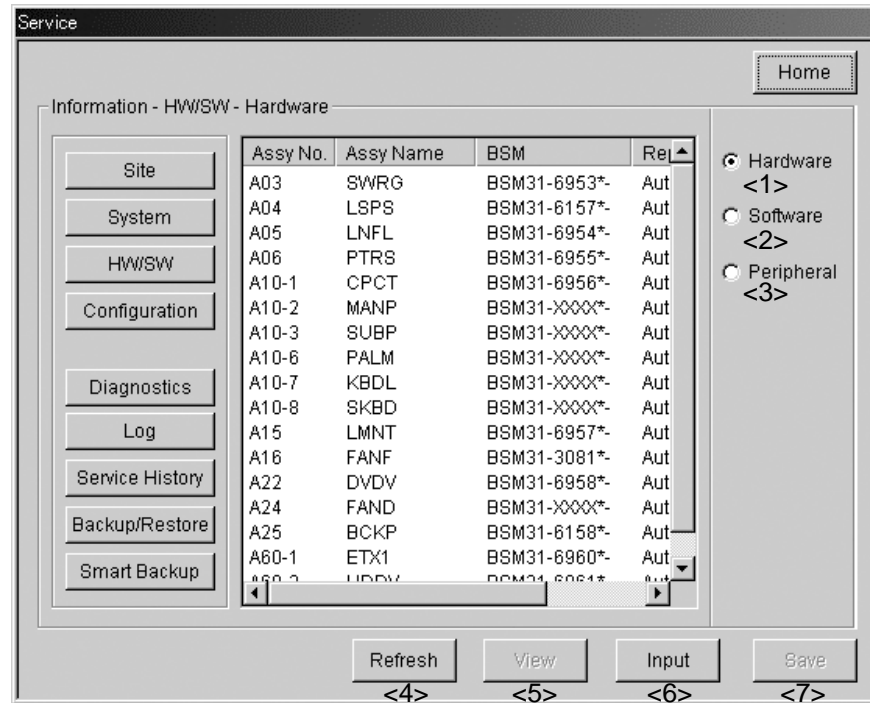
3. SYSTEM-SPECIFIC INFORMATION ENTRY

- (1) Press [System] on the Main Menu of the Service screen. The screen shown below is displayed.

No.	Item	Contents
<1>	Serial Number	Displays/sets the serial number.
<2>	System Use Time	Displays/resets the power-supplied time.
<3>	Inspection Schedule	Sets the display of the message prompting the periodic inspection to ON/OFF.
<4>	Service Use Time	Displays/sets the service time.
<5>	Installed date	Installed date "From" and "Until" are used for lease systems etc.
<6>	Maintenance contract	Displays whether or not the maintenance contract exists and the contract period (when the contract existed).
<7>	View	Displays the currently registered information.
<8>	Input	Allows information entry.
<9>	Save	Saves the data.

4. HARDWARE/SOFTWARE INFORMATION ENTRY

- (1) Press [HS/SW] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Hardware	Displays the names and drawing numbers of the hardware.
<2>	Software	Displays the names and drawing numbers of the software.
<3>	Peripheral	Displays/enters the peripheral unit names and their information.
<4>	Refresh	Updates the list of registered information (for Hardware only).
<5>	View	Displays the currently registered information.
<6>	Input	Allows the information entry.
<7>	Save	Saves the data.

5. SERVICE DEPARTMENT/REPRESENTATIVE INFORMATION ENTRY

- (1) Press [Configuration] on the Main Menu of the Service screen. The screen shown below is displayed.

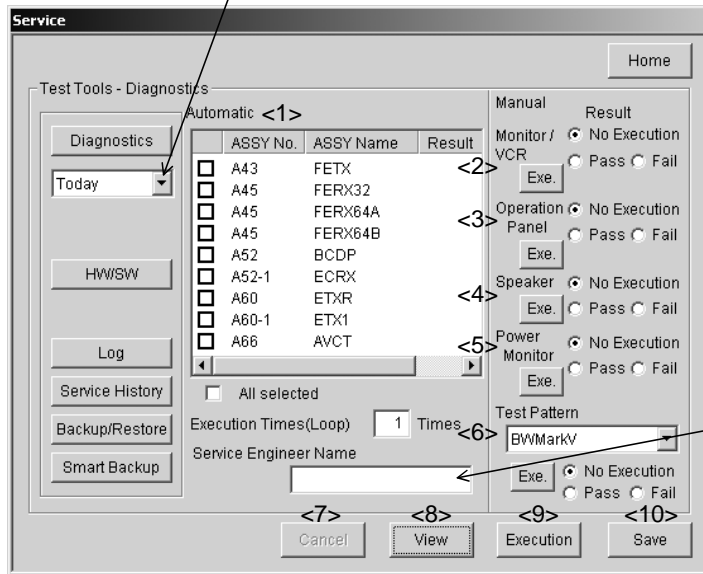
No.	Item	Contents
<1>	Service Representative	Service representative name
<2>	Tel No.	Telephone number
<3>	User Maintenance Menu	Sets the display of the [System Test] and [System Maintenance] switches displayed on the Maintenance menu (refer to (4) of subsection 1.1) to ON/OFF.
<4>	View	Displays the currently registered information.
<5>	Input	Allows information entry.
<6>	Save	Saves the data.

6. MALFUNCTION DIAGNOSIS

(1) Press [Diagnostics] on the Main Menu of the Service screen. The screen shown below is displayed.

- Automatic column: Items for which pass or fail is judged automatically
- Manual column: Items for which pass or fail is judged manually

It is possible to select whether the self-diagnosis results (up to the previous 10 results) are displayed.



Service engineer name entry field

No.	Item	Contents
<1>	Automatic	Performs self diagnosis for the PWBs (refer to subsection 6.1).
<2>	Monitor/VCR	When [Exe.] is pressed, the color/monochrome test pattern for adjusting the video printer, VCR, and monitor is displayed. When the SVO-9500MD(P) of the VCR is connected, perform picture recording and playback to confirm that it operates normally.
<3>	Operation Panel	Performs diagnosis for the panel switch (refer to subsection 6.2).
<4>	Speaker	When [Exe.] is pressed, sound is heard from the speaker. Check the sound to confirm that the speaker operates normally.
<5>	Power Monitor	Checks the voltages used in the system.
<6>	Test Pattern	When [Exe.] is pressed, the test pattern selected from the list is displayed. The displayed test pattern can be used to check the operation of each board installed. (Refer to subsection 6.3.)
<7>	Cancel	Cancels the self-diagnosis results.
<8>	View	Displays the self-diagnosis results of the set date.
<9>	Execution	Starts self diagnosis.
<10>	Save	Saves the self-diagnosis results.

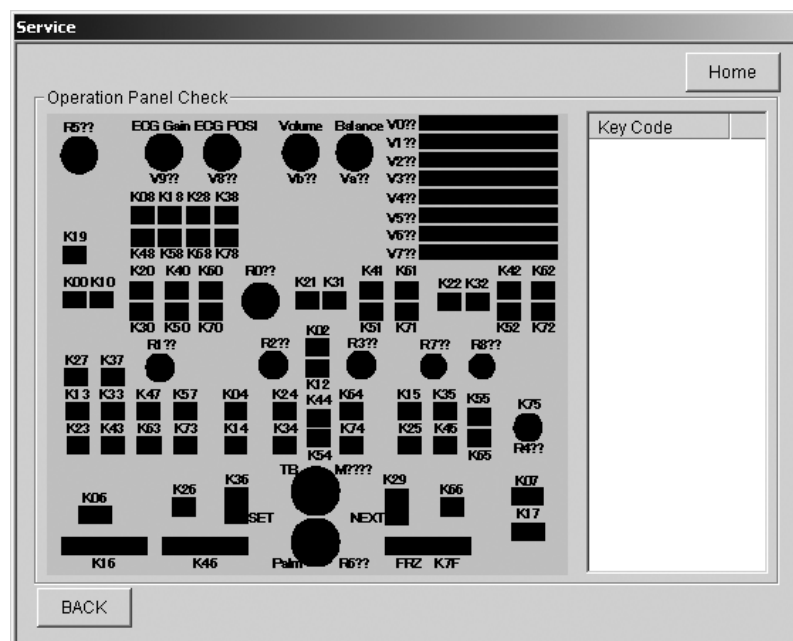
6.1 Self Diagnosis of the PWBs

- (1) Select the PWB to be diagnosed in the Automatic column.
 - To diagnose all the PWBs, place a check mark in followed by "All selected".
 - To diagnose individual PWBs, place the cursor on the PWB name in the list and press the switch. After is displayed followed by the PWB name, place a mark in .
- (2) Set the Execution Times (Loop).
- (3) When [Execution] is pressed, diagnosis starts. If no abnormality is found, "Pass" is displayed. If an abnormality is found, "Fail" is displayed.
 - * If the PWB selected for diagnosis is not installed, "Not installed" is displayed.

6.2 Operational Checks for the Panel Switches

Whether or not the main and sub panel switches physically function can be checked.

- (1) Press [Exe.] for "Operation Panel" in the Manual column. The screen shown below is displayed. The figures in the screen indicate the main and sub panel switches.

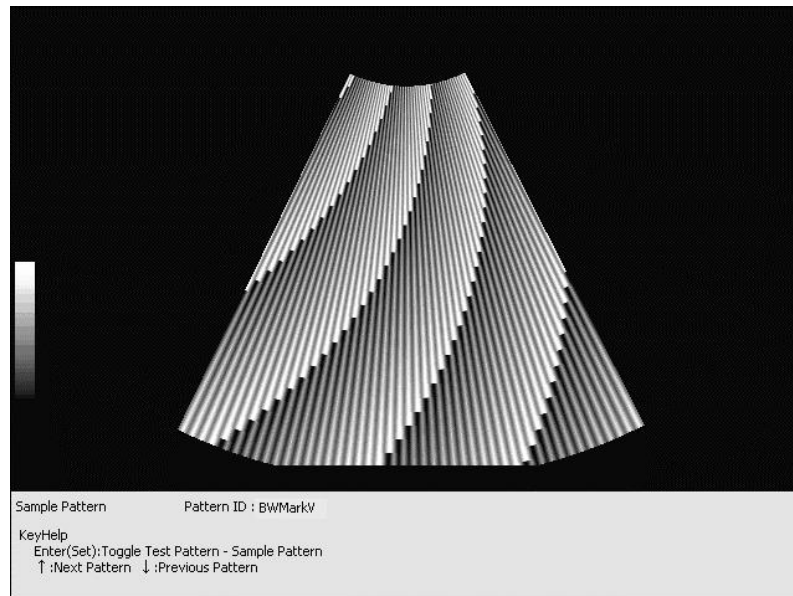


- (2) When a panel switch is pressed, the key code is displayed in the Key Code column on the right. Check whether the pressed switch matches the key code.

6.3 Operational Check Using Test Pattern

It is possible to identify a defective board by displaying the test pattern.

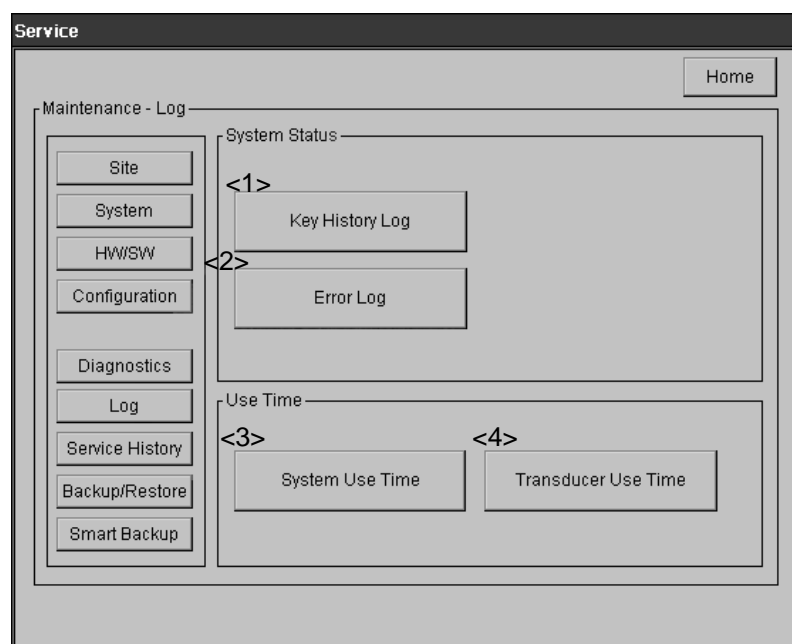
- (1) Press [Exe.] under Test Pattern in the Manual area. The sample test pattern shown below is displayed. This example is a sample test pattern which is displayed when "BW MarkV" is selected from the list.



- (2) Press **SET** while the sample pattern is displayed. The actual test pattern for the board is displayed. Compare the two patterns to check for any abnormality with images or image quality.

7. LOG (RECORD) DISPLAY

(1) Press [Log] on the Main Menu of the Service screen. The screen shown below is displayed.

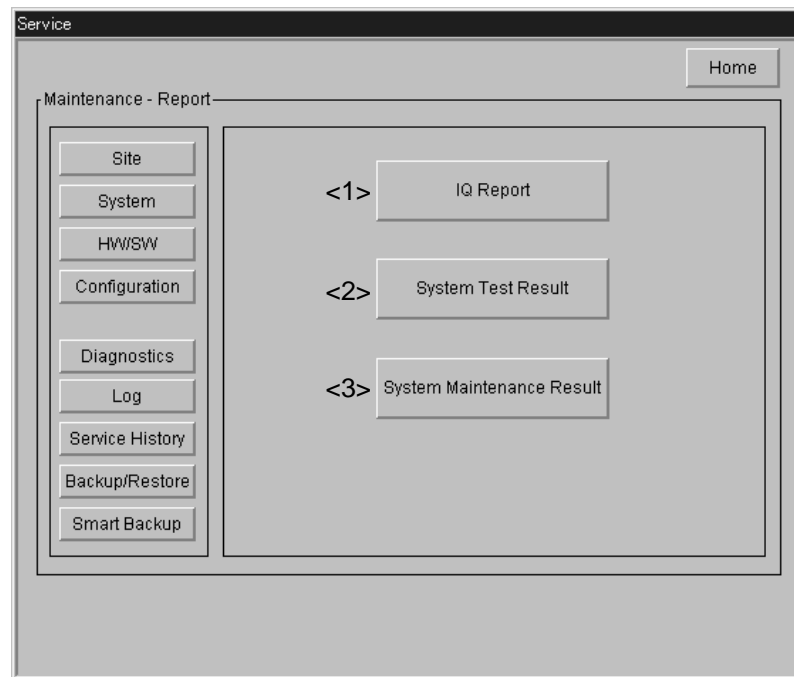


No.	Item	Contents
<1>	Key History Log	<p>Displays the operated switch data. A maximum of 5000 data sets can be saved.</p> <ul style="list-style-type: none"> Trackball operation log display [TB, (interval with the previous key), (process for receiving the key), (source X coordinate), (source Y coordinate), (destination X coordinate), (destination Y coordinate)] Switches [(Switch name), (interval with the previous key), (process for receiving the key), (TB arbitration)]
<2>	Error Log	Displays the generated error log.
<3>	System Use Time	Displays/sets the cumulative power-supplied time and service time.
<4>	Transducer Use Time	<p>Displays/sets the individual transducer use time.</p> <ul style="list-style-type: none"> The system cannot recognize when a transducer is replaced. Therefore, the transducer use time is not cleared until the service engineer resets the time. If multiple same-type transducers are used, the system cannot recognize each transducer. Therefore, the total transducer use time is displayed, but the individual transducer use time is not displayed.

8. DISPLAY OF DATA SAVED BY USER WHEN PROBLEM OCCURRED

(1) Press [Report] on the Main Menu of the Service screen. The screen shown below is displayed.

The abnormal image and log saved by the user at the time the problem occurred can be displayed by pressing the [Shift] and [F1] keys.



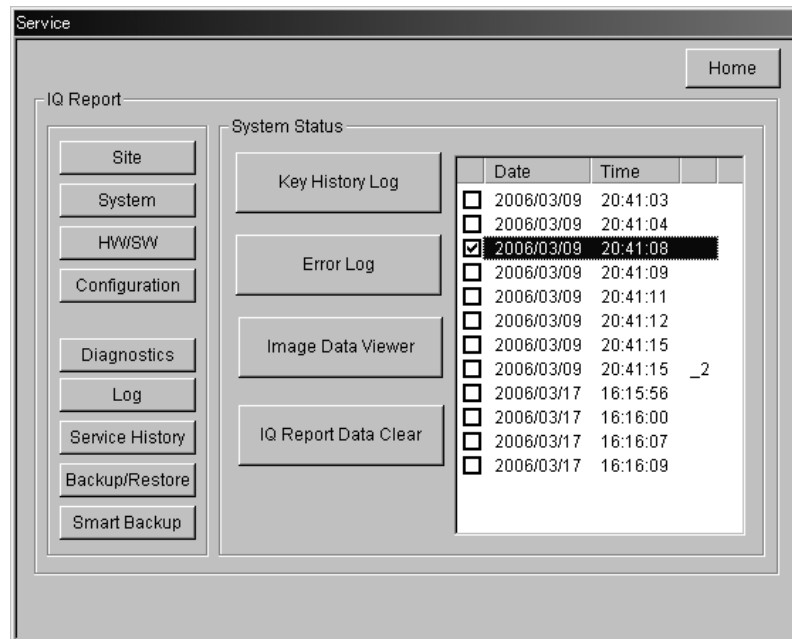
No.	Item	Contents
<1>	IQ Report	Refer to subsection 8.1.
<2>	System Test Result	Displays the result of the System Test performed by the user.
<3>	System Maintenance Result	Displays the result of the System Maintenance performed by the user.

8.1 Displaying Image and Log Saved by the User When the Problem Occurred (IQ Request)

- (1) Press [IQ Report] on the Main Menu of the Service screen. The screen shown below is displayed.

For the contents of the Key History Log and Error Log, refer to section 7.

- * The log recorded at the time the problem occurred is displayed (up to the most recent 30 problems).



- (2) Pressing [Image Data Viewer] displays the image stored at the time the selected problem occurred.
- (3) Pressing [IQ Report Data Clear] deletes the data stored at the time the selected problem occurred.

9. SERVICE HISTORY LOG DISPLAY

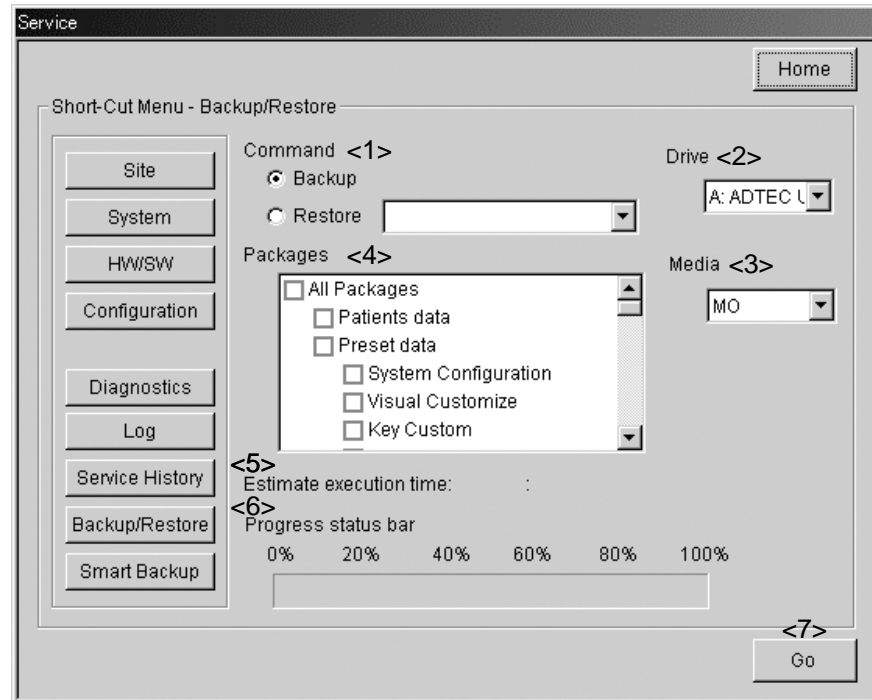
- (1) Press [Service History] on the Main Menu of the Service screen. The screen shown below is displayed.

No.	Item	Contents
<1>	History List	Restores the previous service history.
<2>	Enforcement day	Present date
<3>	Service Engineer Name	Displays/inputs the service engineer name.
<4>	Key1	Maintenance types (Select from the following options.) <ul style="list-style-type: none"> • Preventive Maintenance • Corrective Maintenance
<5>	Key2	Applicable systems for maintenance (Select from the following options.) <ul style="list-style-type: none"> • Sys. Hardware • Sys. Software • Sys. Hard&Soft • Transducer • Option device • No problem found • Other • -blank- (Free description is possible.)
<6>	Key3	Problem frequency (Select from the following options.) <ul style="list-style-type: none"> • Reappears (Always) • Reappears (Sometimes) • Reappears (Rarely) • No Reappearance • Other • -blank- (Free description is possible.)

No.	Item	Contents
<7>	Key4	Service status (Select from the following options.) <ul style="list-style-type: none"> • Completion • Observing for reappearance • Wait for FRU • Other • -blank- (Free description is possible.)
<8>	Key5	Working hours (Select from the following options.) <ul style="list-style-type: none"> • Within 15 min • Within 30 min • Within 45 min • Within 1 h • Within 1.5 h • Within 2 h • Over 2 h
<9>	Memo	Service content entry column
<10>	View	Displays the currently registered information.
<11>	Input	Allows information entry.
<12>	Save	Saves the data.

10. BACKUP/RESTORE OF THE USER DATA/PRESET DATA

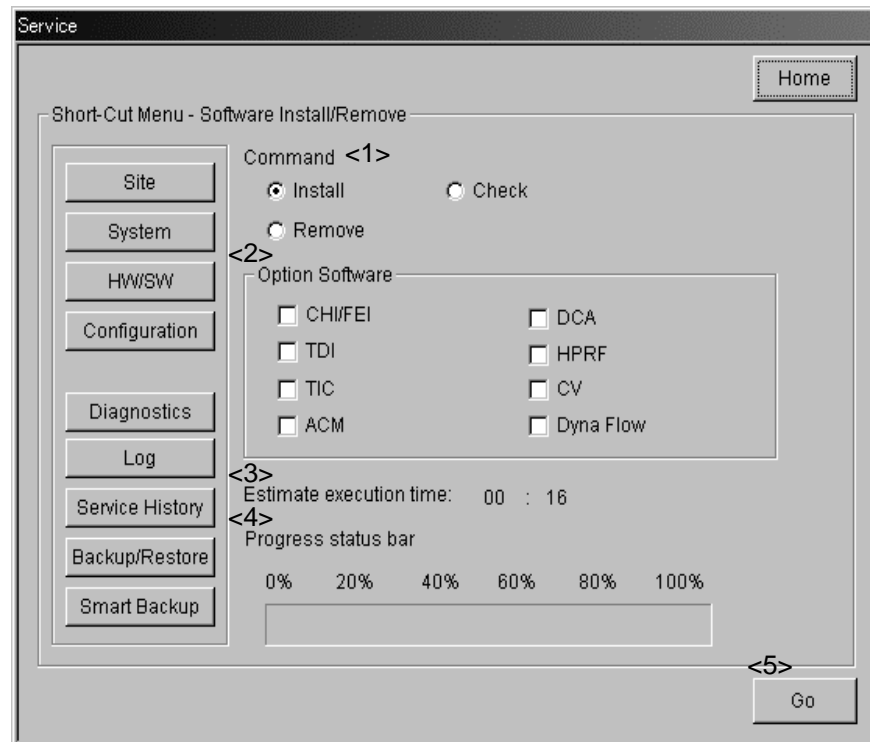
- (1) Press [Backup/Restore] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Command	Selects data backup/restore.
<2>	Drive	Specifies the storage destination drive/storage source drive.
<3>	Media	Specifies the media for the storage destination drive/storage source drive.
<4>	Packages	Backs up/restores the selected item.
<5>	Estimate execution time	Estimate time * This time should be used only as a guide. The actual execution time may be longer than the displayed time.
<6>	Progress status bar	Displays the progress status for backup/restore.
<7>	Go	Starts backup/restore.

11. SOFTWARE INSTALLATION/UNINSTALLATION

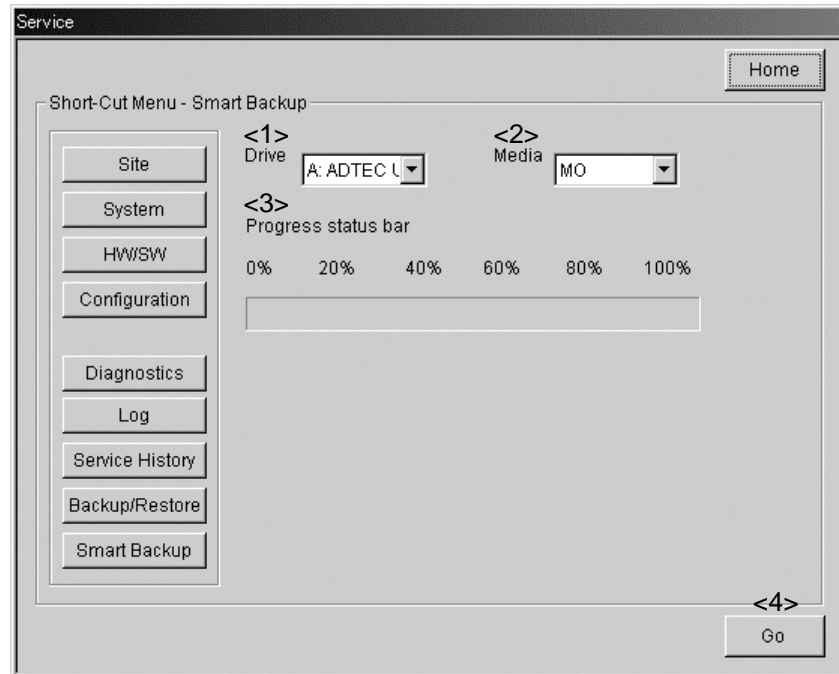
- (1) Press [Software Install/Remove] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Command	Selects whether software installation/software uninstallation/software key disk checking is performed.
<2>	Option Software	Selects the software to be installed/uninstalled.
<3>	Estimate execution time	Estimate time * This time should be used only as a guide. The actual execution time may be longer than the displayed time.
<4>	Progress status bar	Displays the progress status for installation/uninstallation.
<5>	Go	Starts the software installation/software uninstallation/software key disk check process.

12. SAVING THE SERVICE DATA

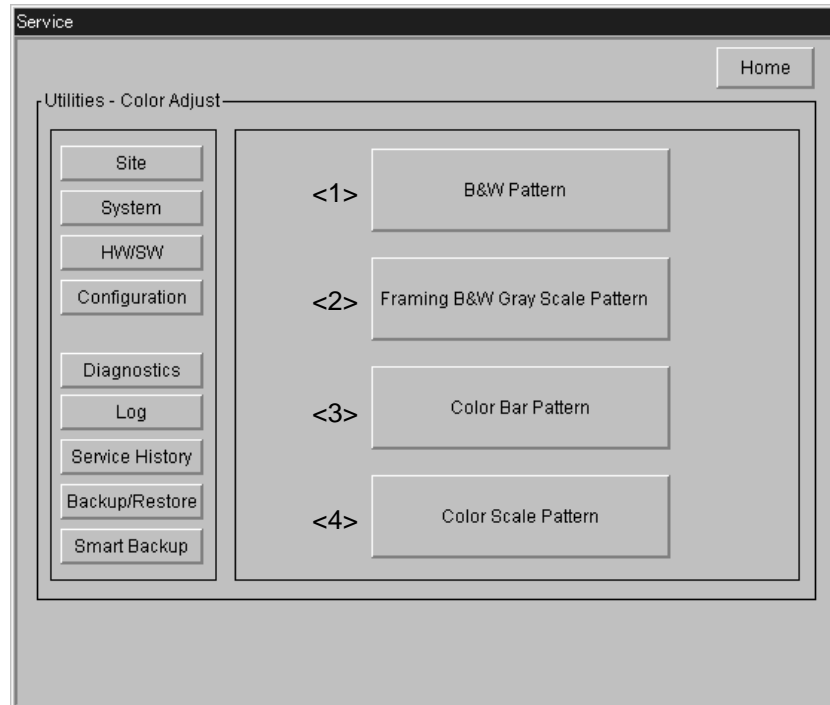
- (1) Press [Smart Backup] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Drive	Specifies the storage destination drive.
<2>	Media	Specifies the media for the storage destination drive.
<3>	Progress status bar	Displays the progress status for saving.
<4>	Go	Starts installation/uninstallation.

13. COLOR/MONOCROME TEST PATTERN DISPLAY

- (1) Press [Color Adjust] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	B&W Pattern	Displays the B&W pattern (refer to figure 13-1). Pressing the SET switch returns to the previous screen.
<2>	Framing B&W Gray Scale Pattern	Displays the framing, gray-scale pattern (refer to figure 13-2). Pressing the SET switch returns to the previous screen.
<3>	Color Bar Pattern *1	Displays the color-bar pattern (refer to figure 13-3). Pressing the SET switch returns to the previous screen.
<4>	Color Scale Pattern *1	Displays the color-scale pattern (refer to figure 13-4). Pressing the SET switch returns to the previous screen.

*1: These patterns cannot be displayed in black-and-white systems.

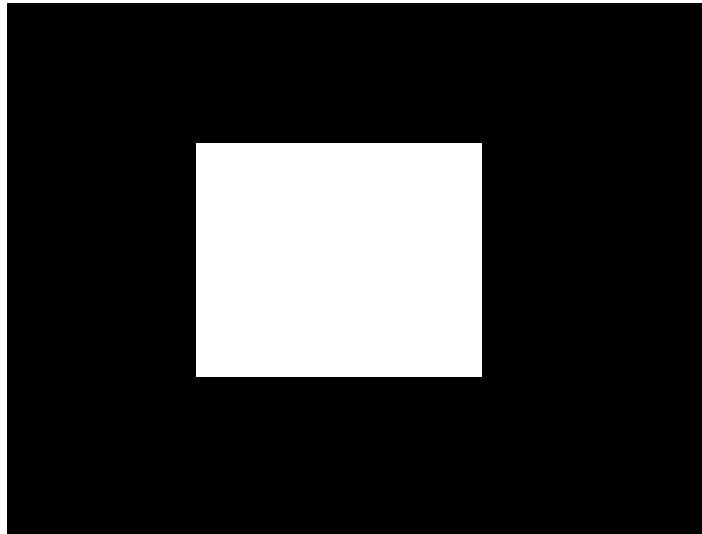


Figure 13-1 B&W Pattern

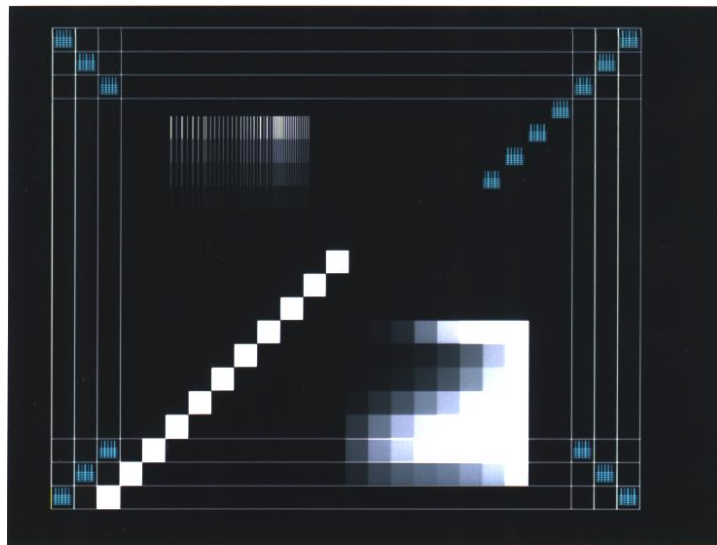


Figure 13-2 Framing B&W Gray Scale Pattern

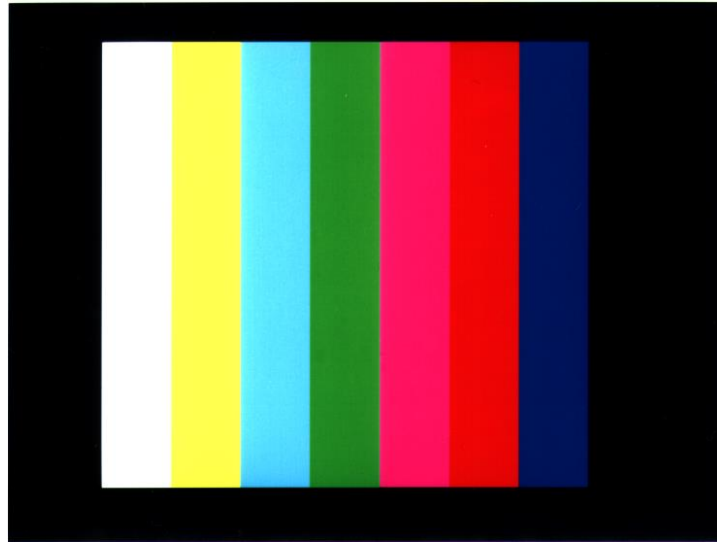


Figure 13-3 Color Bar Pattern

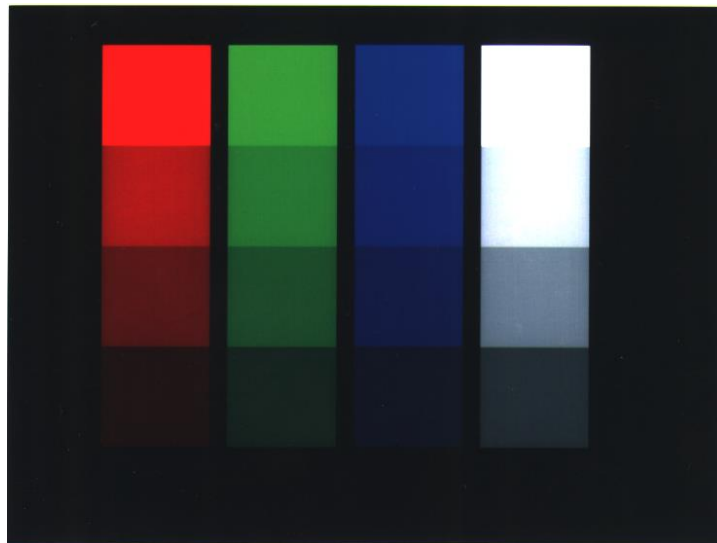
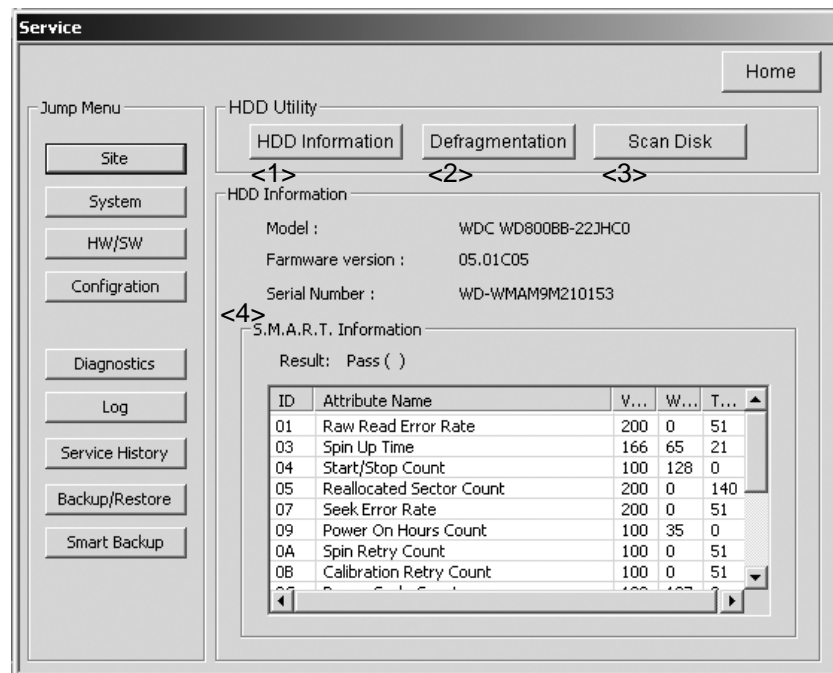


Figure 13-4 Color Scale Pattern

14. MANAGEMENT AND MAINTENANCE OF THE HARD DISK DRIVE

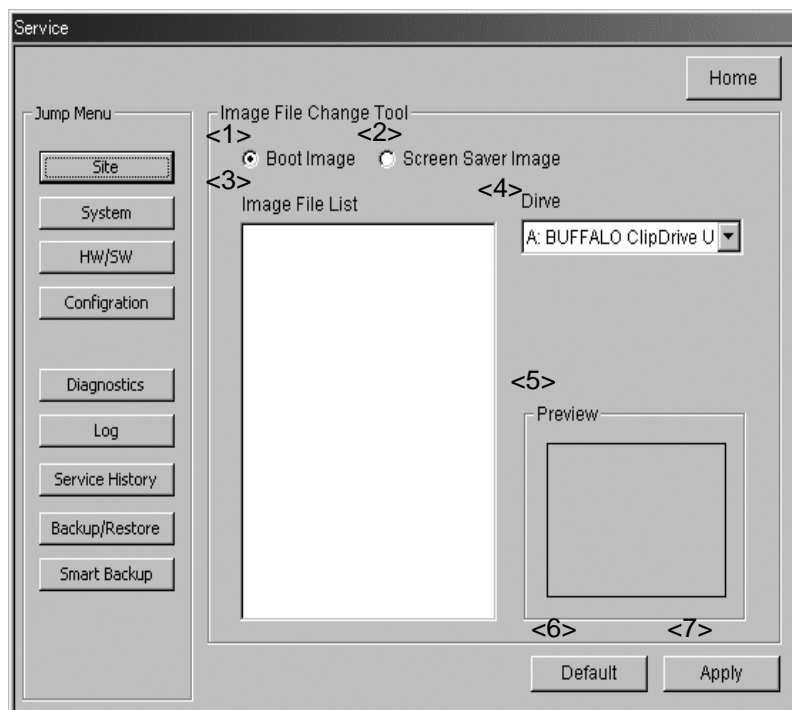
(1) Press [HDD Utility] on the Main Menu of the Service screen. The screen below is displayed.



No.	Item	Function
<1>	HDD Information	Displays the most recent hard disk conditions (updates the display of S.M.A.R.T. Information).
<2>	Defragmentation	Invokes Disk Defragmenter, provided in Windows.
<3>	Scan Disk	Starts up Scan Disk, provided in Windows.
<4>	S.M.A.R.T Information	Displays the hard disk conditions.

15. CHANGING THE STARTUP SCREEN/SCREEN SAVER

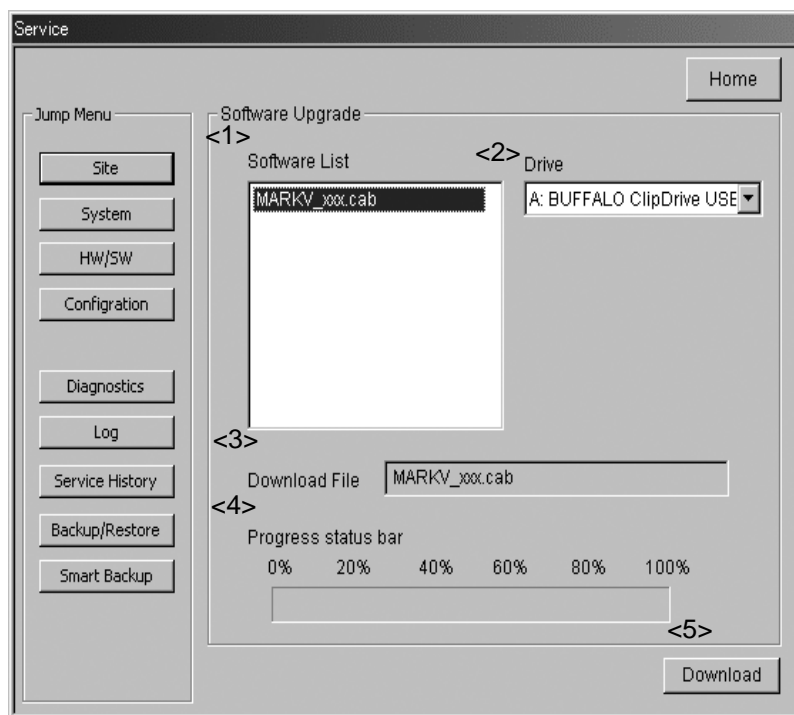
- (1) Press [Image File Change] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Boot Image	Selects changing of the startup screen file.
<2>	Screen Saver Image	Selects changing of the screen saver file.
<3>	Image File List	Displays the names of the image files in the selected drive. The image file that is selected here is displayed in the Preview area.
<4>	Drive	Specifies the drive.
<5>	Preview	Displays the image file that is selected in the Image File List field.
<6>	Default	Sets the default image for the startup screen/screen saver.
<7>	Apply	Sets the image file selected in the Image File List field for the startup screen/screen saver.

16. UPGRADING SYSTEM PROGRAMS

- (1) Press [Software Upgrade] on the Main Menu of the Service screen. The screen shown below is displayed.



No.	Item	Contents
<1>	Software List	Displays the system program files in the selected drive.
<2>	Drive	Specifies the drive.
<3>	Download File	Displays the name of the system program file that is selected in the Software List field.
<4>	Progress status bar	Displays the download progress status.
<5>	Download	Starts the download.