SONY

Multi Format Switcher System

MFS-2000 System

(With MKS-2010/MKS-2015/MKS-2017 Control Panel)

SUPPLEMENT 1

Software Version 1.10

English

Manual to be supplemented

MFS-2000 System User's Guide
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Software Version 1.00 and Later

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This supplement provides supplementary description of the functions newly supported in the MFS-2000 system version 1.10.
Insert this supplement in your copy of the MFS-2000 System User's Guide.

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Functions Newly Supported in Version 1.10

The functions newly supported in the MFS-2000 system version 1.10 are as follows.

Switcher functions

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Functions relating to improved operability

Classification	Supported function	Menu number	See page
Processor	Assigning a preset signal to an output port	9202	–

Software Options Newly Supported in Version 1.10

The software options newly supported in the MFS-2000 system version 1.10 are as follows.

Application	Model number	Product name
Frame memory	BZS-2440M	FM Upgrade Software (Multi)

To use a software option, you need to enter the installation key in the license menu.

For details, see Chapter 9, “Entering an Installation Key (License Menu)” in the User's Guide.

For details of the frame memory function, see “Frame Memory” (page 6).

Color Correction

Color correction (CCR) enables input video color correction (black balance/white balance adjustment, gamma correction, knee correction, etc.).

Note

The following optional boards are required to use the color correction function.
- MKS-2420M Color Corrector Board
- MKS-2440 Frame Memory Board Set

The MKS-2420M is mounted on the MKS-2440.

Selecting the Color Correction Signal

To apply color correction to a signal, capture the signal from the CCR1 bus or CCR2 bus.
The following signals can be selected from these buses.
- All primary inputs
- Frame memory video 1 to 3
- Frame memory key 1 to 3
- White
- Black
- Color background

To select a signal

1 Press the [CCR1] or [CCR2] AUX delegation button.

The cross-point button rows are assigned to the CCR1 bus or CCR2 bus.

2 Press a button in a cross-point button row to select the desired signal.

The button lights in red (high tally) if the signal on the CCR1 bus or CCR2 bus is included in the program video (final output video). Otherwise it lights in amber (low tally).

Output of Color Correction Results

You can assign signals to which color correction has been applied to cross-point buttons, and output the corrected signals by pressing those buttons.

For details of the assignment process, refer to "Selecting Video" in the MFS-2000 System User's Guide.

CCR Menu

For color correction operations, use the CCR menu.
To access the CCR menu, proceed as follows.

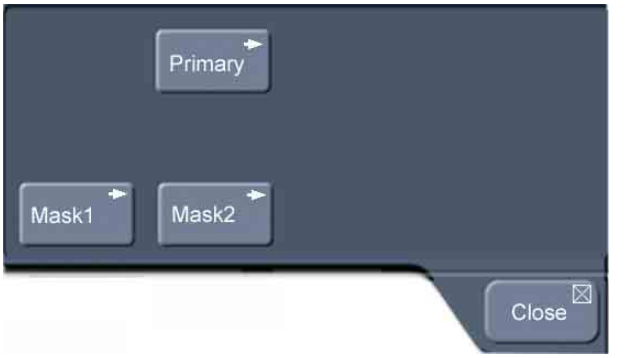
1 In the top menu, select [CCR].

2 In the Sub Menu area, press [CCR1] (or [CCR2]).

The CCR1 (or CCR2) menu appears.

3 Press the third menu title button from the top.

A popup window appears.



Primary: Primary color correction (see the next section)
Mask1: Mask menu 1 *(see page 5)*
Mask2: Mask menu 2 *(see page 5)*

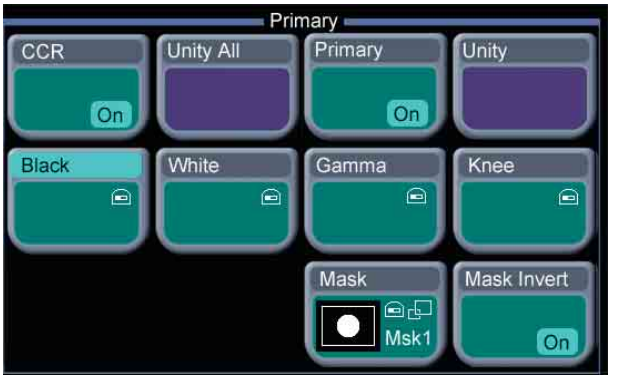
4 Press the button for the menu you want to use, to display the menu.

Primary Color Correction

Adjust the following for RGB signals.
- Black balance
- White balance
- Gamma correction
- Knee correction

To execute primary color correction

Display the Primary menu, and carry out the following operation.



1 Press [CCR], turning it on.

2 Press [Primary], turning it on.

3 Press [Black] and adjust the black balance parameters.

Knob	Description	Setting values
1 (Red)	Black balance of R (red) signal	–100.00 to +100.00
2 (Green)	Black balance of G (green) signal	–100.00 to +100.00
3 (Blue)	Black balance of B (blue) signal	–100.00 to +100.00
4 (All)	Black balance of R, G, and B signals (adjusted at once)	Value of red signal shown.

4 Press [White] and adjust the white balance parameters.

Knob	Description	Setting values
1 (Red)	White balance of R (red) signal	0.00 to 200.00
2 (Green)	White balance of G (green) signal	0.00 to 200.00
3 (Blue)	White balance of B (blue) signal	0.00 to 200.00
4 (All)	White balance of R, G, and B signals (adjusted at once)	Value of red signal shown.

5 Press [Gamma] and adjust the gamma parameters.

Knob	Description	Setting values
1 (Red)	Gamma correction of R (red) signal	–100.00 to +100.00
2 (Green)	Gamma correction of G (green) signal	–100.00 to +100.00
3 (Blue)	Gamma correction of B (blue) signal	–100.00 to +100.00
4 (All)	Gamma correction of R, G, and B signals (adjusted at once)	Value of red signal shown.

6 Press [Knee] and adjust the knee parameters.

Knob	Description	Setting values
1 (Red)	Knee correction of R (red) signal	20.00 to 75.00
2 (Green)	Knee correction of G (green) signal	20.00 to 75.00
3 (Blue)	Knee correction of B (blue) signal	20.00 to 75.00
4 (All)	Knee correction of R, G, and B signals (adjusted at once)	Value of red signal shown.

To return the parameters to their default settings

To return primary color correction settings only to their defaults, press [Unity]. To return all color corrector settings including the mask settings to their defaults, press [Unity All].

If you press [Unity All], a confirmation message appears asking if you want to return all settings to their defaults. Press [Yes] to return them to their defaults, or [No] to cancel.

To mask a part of the primary color correction

Here the procedure for mask 1 operation is described by way of example. You can carry out mask 2 operation in a similar way.

1 Press [Mask] in the Primary menu.

A popup window appears.

2 Press [Mask 1] to apply a mask.

3 Press the 3rd menu title button from the top.

A popup window *(page 4)* appears.

4 Press [Mask 1].

The Mask 1 menu appeas.

5 Set the mask source and mask pattern transformation method.

For details about operation, refer to "Setting Key Mask Shapes and Positions" in the MFS-2000 System User's Guide.

6 Referring to steps **3** and **4** of "CCR Menu" *(page 4)*, open the Primary menu.

7 Press [Mask] and adjust the following parameters.

When Box is selected as the mask source:

Knob	Description	Setting values
1 (Left)	Left edge position	–100.00 to +100.00
2 (Right)	Right edge position	–100.00 to +100.00
3 (Top)	Top edge position	–100.00 to +100.00
4 (Bottom)	Bottom edge position	–100.00 to +100.00
5 (Soft)	Degree of softness of box	0.00 to 100.00

When Pattern is selected as the mask source:

Knob	Description	Setting values
1 (H Position)	Horizontal position	–200.00 to +200.00
2 (V Position)	Vertical position	–200.00 to +200.00
3 (Size)	Pattern size	0.00 to 100.00
4 (Soft)	Degree of softness of pattern edge	0.00 to 100.00
5 (Pattern)	Pattern number	1 to 24

To invert the mask source

Press [Mask Invert] in the Primary menu.

Frame Memory

Frame memory is a function whereby a frame of input video can be frozen and written to memory, for further use as material for editing.

Overview

Frame memory capacity

The number of frames which can be saved in frame memory varies as shown below, depending on the signal format used by the switcher system.

System	Signal format	Frame memory capacity
HD system	720p	88 frames
	1080i	58 frames
	1080PsF	
SD system	480i	444 frames
	576i	

Hardware and software requirements for using frame memory

To use frame memory, the switcher system requires the following options.

- MKS-2440 Frame Memory Board Set
- BZS-2440M Frame Memory Upgrade Software
  However, the BZS-2440M software is not required when the signal format is 480i or 576i.

Flow of Frame Memory Operations

The flow of frame memory operations is as follows.

Assign frame memory output to a cross-point.
↓
Select the input signal (video before freeze, etc.). (*See page 7*.)
↓
Freeze the video at the desired point and save an image file in frame memory. (*See page 7*.)
↓
- Recall a desired freeze image from an image file saved in memory. (*See page 9*.)
- Rename *(see page 10)* or delete *(see page 10)* an image file saved in memory.

Preparations

Assigning frame memory output to cross-point buttons

Frame memory images (freeze images, etc.) can be assigned to either the video or key channels of frame memory 1 to 3.
The following three types of output destinations are available (six channels).
- FM 1 Video and FM 1 Key
- FM 2 Video and FM 2 Key
- FM 3 Video and FM 3 Key

Before using frame memory images, you need to assign one or more of the six channels listed above to cross-point buttons.
You can assign channels in pairs. For example, if you assign FM 1 Video and FM 1 Key as a pair, you can select both the video and the key with the same cross-point button.

For details about assignment operations, refer to "Assigning Signals to Cross-Point Buttons (Operation Menu)" and "Creating a pair from a video signal and key signal" in the MFS-2000 System User's Guide.

Selecting Input Signals for Frame Memory

Select the signal (video, etc.) to be processed with frame memory.
There are two buses for selecting input video signals.
Frame memory video bus: Allows the frame memory video input signal to be selected.
Frame memory key bus: Allows the frame memory key input signal to be selected.

1 In the auxiliary bus control block of the control panel, press the AUX delegation button [FRAME MEM], turning it on.

2 Switch the [SRC BUS] button in the auxiliary bus control block as follows.

- To select the video input signal, turn the [SRC BUS] button off.
  The auxiliary bus switches to the frame memory video bus. In this case, the key assigned as a pair to the selected video is automatically selected on the frame memory key bus.
- To select the key input signal, turn the [SRC BUS] button on.
  The auxiliary bus switches to the frame memory key bus. In this case, you can select the key independently of the video.

3 Select the desired signal in the cross-point button rows of the auxiliary bus control block.

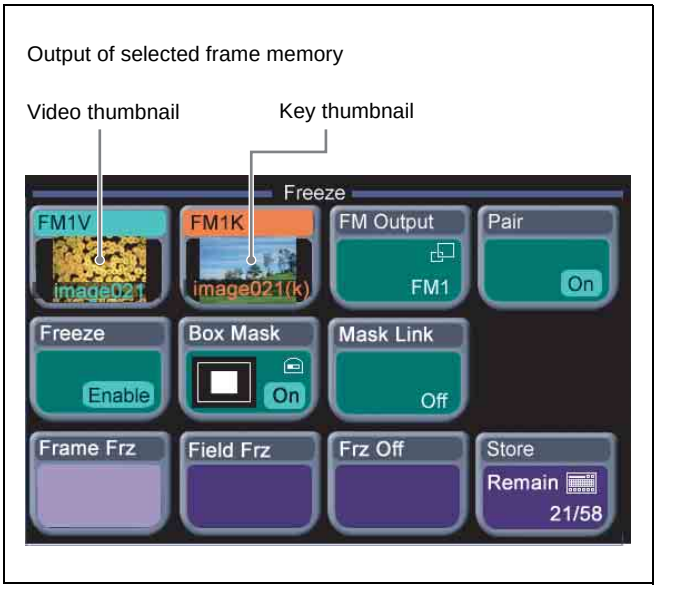
The selected signal is input to frame memory.

Freezing Images and Saving Them to Memory

1 Press [Frame Memory] in the top menu.

2 Press [Freeze] in the Sub Menu area.

The Freeze menu appears.



3 To change the frame memory output destination (FM1 in the above figure), press [FM Output].

For details, see "To select frame memory output" (page 9).

4 To operate on video and key as a pair, press [Pair], turning it on.

5 When [Pair] is turned off in step **4**, press one of the output buttons (in the above figure, [FM1V] or [FM1K]) to select the target.

The selected button turns light blue.

6 Press [Freeze] to display "Enable."

A freeze frame can now be captured.

7 If required, apply a mask to the selected signal. *(See "To apply a box-shaped mask to a freeze image" (page 8).)*

8 At the point you want to freeze, press one of the following.

Frame Frz: Freeze an image frame.
Field Frz: Freeze an image field.

Note
In the following signal formats, a field freeze is not possible.
1080PsF/23.976, 1080PsF/24, 1080PsF/25, 1080PsF/29.97, 720P/59.94

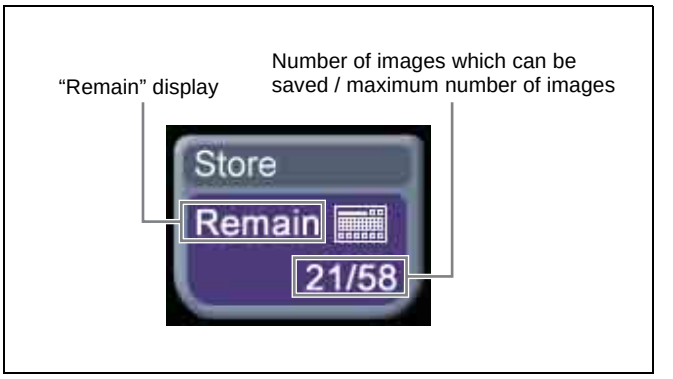
This freezes the input image.
In this state, no freeze image has yet been saved. You can repeat this operation any number of times, until the desired freeze image is obtained.

9 When the desired freeze image is obtained, carry out any of the following operations, to save the freeze image in memory.

- In the Freeze menu, press [Store], then use the keyboard window to confirm the file name.
- Press [FM Output], to switch the frame memory output. (Automatic save)

For details of the saved file names, see the next item, "File names."

The freeze image is saved in memory, and a thumbnail for the video and/or key appears.
The "Remain" count under [Store], showing the number of images that can be saved, decreases by one (or by two if [Pair] is turned on in step **4**).



File names

- When you press [Store], a keyboard window appears, and the default file name, such as "image001" appears. To change this, enter the file name in the keyboard window. (Maximum eight alphanumeric characters)
- For automatic saving, the file name is automatically set to "auto_000," "auto_001," and so on.
- For a key file, "(k)" is automatically appended to the file name.

Saving files with [Pair] on/off

When saving with [Pair] turned off, a file is created for either the video or key. (Referred to below as an "Single file.")
When [Pair] is turned on, both video and key files are created with the same name. (Referred to below as "Pair files.")

To apply a box-shaped mask to a freeze image

1 To link the video and key with a mask, press [Mask Link] in the Freeze menu, turning it on.

2 When [Mask Link] is turned off in step **1**, press one of the output buttons ([FM1V] or [FM1K] in the example display of the Freeze menu on page 7), to select it.

The selected button turns light blue.

Note
Even when [Pair] is on, if [Mask Link] is off, you can apply different masks to the video and key. In this case, press the output button to select it for the operation.

3 Press [Box Mask], turning it on.

4 Set the parameters for the four sides of the box.

Knob	Description	Setting values
1 (Left)	Left edge position	–100.00 to +100.00
2 (Right)	Right edge position	–100.00 to +100.00
3 (Top)	Top edge position	–100.00 to +100.00
4 (Bottom)	Bottom edge position	–100.00 to +100.00

(If you turned [Mask Link] on in step **1**, the parameters for video side are shown.)

To select frame memory output

1 Press [FM Output].

A popup window appears.

2 Press one of the following.

FM1 V/K: Frame memory 1 video and key
FM2 V/K: Frame memory 2 video and key
FM3 V/K: Frame memory 3 video and key

For example, if you select [FM2 V/K], the thumbnails in the Freeze menu *(see page 7)* change to [FM2V] and [FM2K].

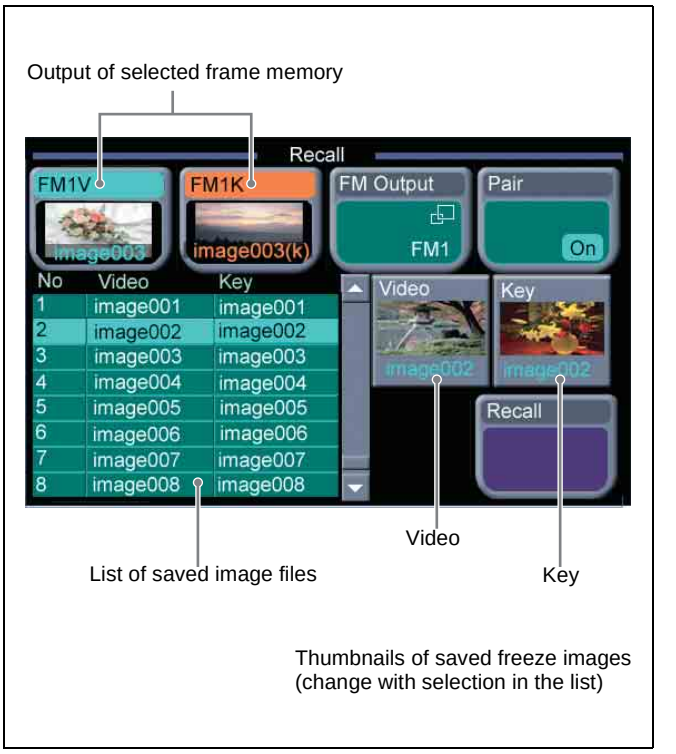
To delete a freeze image

Press [Frz Off]. The thumbnails in the Freeze menu ([FM2V] and [FM2K] in the figure on page 7) change to black.

Recalling Freeze Images Saved in Frame Memory

1 In the top menu, Select Frame Memory >Recall, in that order.

The Recall menu appears.



2 To change the frame memory output destination ([FM1] in the above figure), press [FM Output].

For details, see "To select frame memory output" (page 9).

3 Press [Pair], turning it on/off.

The selection for operation changes as follows.
On: Only Pair files appear in the list, and the operation applies simultaneously to the video and key files.
Off: The list shows both Pair files and Single files, and operations apply separately to the video and key files.

About Single files and Pair files, see "Saving files with [Pair] on/off" (page 8).

4 When [Pair] is turned off, press one of the output buttons, to select it for the operation.

The selected button turns light blue.

5 Do one of the following to select the image file to recall.

- Press directly on the list appearing in the status area.
- Press the list arrow buttons.
- Turn the knob 1.

Knob	Description	Setting values
1 (No)	File number	1 to number of images which can be saved

Freeze image selection in the list is reflected in thumbnail selection, and vice versa.

6 If [Pair] is off, press the [Video] or [Key] thumbnail to select the target.

The selected button turns light blue.

7 Press [Recall].

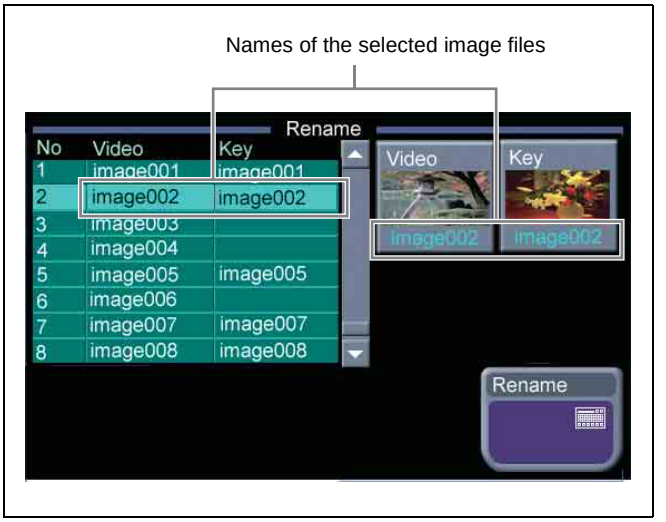
This recalls the freeze image, which appears in [FM1V] and/or [FM1K].

Managing Image Files

Renaming an image file

1 In the top menu, select Frame Memory >Rename.

The Rename menu appears.
Regardless of whether pair mode is on or off, all saved frame memory image files appear in the list.



2 Select the file to operate on.

- Press directly on the list appearing in the status area.
- Press the arrow buttons to select from the list.
- Turn the knob to make the selection.

Knob	Description	Setting values
1 (No)	File number	1 to number of images which can be saved

For Pair files, the video and key files are selected together.
It is not possible to select either individually.

3 Press [Rename].

A popup window appears.

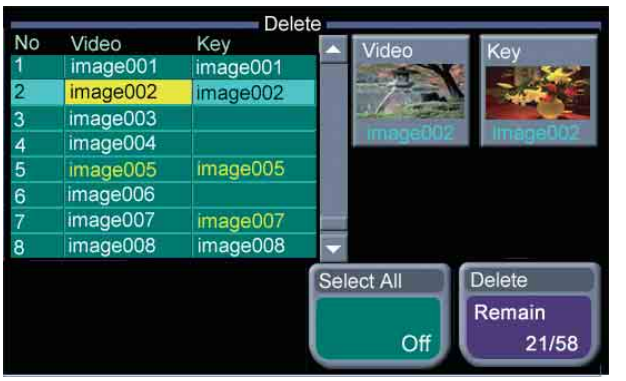
4 Enter the new name, and press [Enter].

This renames the selected file.

Deleting an image file

1 In the top menu, select Frame Memory >Delete.

The Delete menu appears.
Regardless of whether pair mode is on or off, all saved frame memory image files appear in the list.



2 Select the file to be deleted.

- Press directly on the list appearing in the status area.
- Press the arrow buttons to select from the list.
- Turn the knob to make the selection.

Knob	Description	Setting values
1 (No)	File number	1 to number of images which can be saved

- To select all files, press [Select All], turning it on.

If you have selected [Select All], skip to step **5**.

3 Select either video or key.

- To delete a video image file, click [Video] above the thumbnail.
- To delete a key image file, click [Key] above the thumbnail.

The thumbnail button turns yellow. The file name in the list also turns yellow, indicating that this is the file to be affected.

4 To delete more than one file, repeat steps **2** and **3** to select all the files.

5 Press [Delete].

A message appears, asking for confirmation of the deletion.

6 To carry out the deletion press [Yes], and to cancel press [No].

If you press [Yes], this deletes the file or files. The number of files that can be saved shown as the "Remain" indication on the [Delete] button increases by the number of files deleted.
If you press [No], the system returns to the state before step **2**.

Settings Relating to Video Switching (Transition Menu)

For settings relating to video switching, use the Transition menu.
The Transition menu has the following items.

Bus Toggle: For each of the M/E and PGM/PST banks, switch the bus toggle on or off.

PST Color Mix: For each of the M/E and PGM/PST banks, set the stroke mode for a preset color mix and the mode in which the transition type after a transition ends returns to the previous setting.

FTB: Enable or disable fade-to-black for each final program output.

Fader Curve: Set the relationship when carrying out a transition, between the fader lever position and the advancement state of the transition.

Displaying the Transition menu

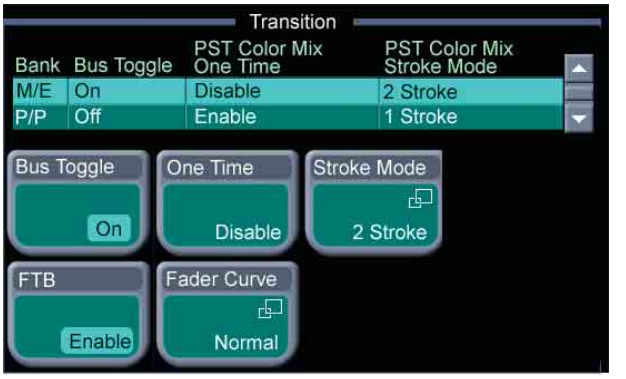
1 In the top menu, select Setup/Diag >Operation.

2 Press the 3rd menu title button from the top.

A popup window appears.

3 Press [Transition].

The Transition menu appears.
The status area and button area show the bus toggle, preset color mix, fade-to-black, and fader curve settings.



Selecting the bank to which the settings apply

When the control panel is a 1.5 M/E panel, in the Transition menu, use any of the following methods to select the bank to which the settings apply, then make the settings. (This operation is not needed for FTB and Fader Curve settings.)

- Press directly on the list appearing in the status area.
- Press the arrow keys to scroll the reverse video cursor.
- Turn the knob.

Knob	Description	Setting values
1 (Bank)	M/E or P/P selection to which settings apply	1 to 2

The selected bank appears in reverse video.

Setting the Bus Toggle On or Off

In the Transition menu, press [Bus Toggle], to switch between on and off.
On: Flip-flop mode
Off: Bus fixed mode

Flip-flop mode and bus fixed mode

The following describes the difference between flip-flop mode and bus fixed mode, taking an M/E bank as an example; the functionality is the same, however, on the PGM/PST bank.
Normally, when a background transition is carried out on the M/E bank, the signals selected on the A and B rows of cross-point buttons are interchanged at the end of the transition. That is to say, except during a transition, the background output is always from the background A bus. This is called "flipflop mode."
The alternative is known as "bus fixed mode," in which there is no bus interchange. In this mode, when the fader lever is at the top of its travel the output from the A bus is always 100%, and when the fader lever is at the bottom of its travel the output from the B bus is 100%.

Setting a Preset Color Mix

In a normal preset color mix, in the first transition, a single color matte is gradually mixed into the current image, and in the second transition the new image is gradually mixed into the color matte. In the preset color mix settings, if you select "one-stroke mode," these two operations are combined into a single transition operation.
With the "one-time mode" enabled, when a preset color mix is completed, the transition type always returns to the immediately previous setting. To set a preset color mix, use the following procedure.

1 In the Transition menu, press [Stroke Mode].

A popup window appears.

2 Select whether to carry out a transition in one stroke or two strokes.

2 Stroke: Carry out a preset color mix with two transition operations.

1 Stroke: Carry out a preset color mix with a single transition operation.

Note
When the bus toggle mode is off (bus fixed mode), a preset color mix is always in "one-stroke mode."

3 If each time a transition ends the transition type is to return to the previous setting, press [One Time], turning it to Enable.

Enable: Each time a transition ends, the transition type returns to the immediately previous setting. (When a transition ends, the [PST Color Mix] button goes off.)
Disable: Even when a transition ends, the preset color mix remains selected. (The [PST Color Mix] button remains lit when the transition ends.)

Enabling or Disabling the Fade-to-Black Function

You can set this so that no fade-to-black occurs, even when you press the [FTB] button in the downstream key/fade to black control block.
In the Transition menu, press [FTB] to toggle between Enable and Disable.
Enable: When the [FTB] button is pressed, a fade-to-black is carried out.
Disable: Even when the [FTB] button is pressed, no fade-to-black is carried out.

Settings Relating to Fader Lever Operations

To select the way in which the fader lever position and the transition progress are related, use the following procedure.

1 In the Transition menu, press [Fader Curve].

A popup window appears.

2 Select the fader lever operation mode.

Normal: The transition progress is linear, according to the fader lever position.
Advanced Tally Mode: When the fader lever is moved from the end of its travel, the tally is output slightly before the transition starts.