Operation Reference

Tektronix

Grass Valley Model 3000
Digital Production Switcher
Software Release 5.3

071-0158-00

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Preface

Welcome to the Model 3000

This manual provides detailed descriptions of the switches and knobs on the control panel, the functions accessed through the menu display, and graphic representations of the menu tree structure for the Model 3000-2 and the Model 3000-3 Digital Switching Systems.

Refer to the Model 3000 User Guide for setup and configuration procedures and task-oriented operating procedures.

Organization of This Manual

The main sections of this manual are arranged as follows:

1 System Overview — Describes the basic architecture of the Model 3000 switcher.

2 Control Panel Descriptions — Describes the Model 3000 panel functions provided via the various buttons and knobs.

3 Menu Descriptions — Describes the menu displays and the functions made available through them.

4 Menu Trees — Illustrates the paths through the menu levels. One tree is provided for each top-level Menu button.

Index — Provides an alphabetical listing of the functions, operations, controls, and menus discussed in this manual.

How to Use This Manual

This manual, the Model 3000 Operation Reference, is intended to be used in conjunction with the Model 3000 User Guide.

Begin by reading the System Overview so that you will be familiar with the basic terminology used in this manual and the structure of the hardware/software system.

Next, turn on the system as described in the Startup section of the User Guide and verify the switcher parameters set up for your site or studio. It is assumed that the system has been installed according to your studio plan and that all inputs and outputs are connected properly.

If you are an experienced switcher operator, you may choose to go directly from Startup to operating the switcher, and refer to the Control Panel and Menu Descriptions sections of this manual only when you need to know more about the operation of a specific control.

If you are not an experienced operator, you should read or scan the Control Panel and Menu Descriptions section to get an idea of the functions of the subpanels, controls, and menus.

Whenever you need to know more about a particular switcher term, turn to the Glossary at the back of the User Guide.

For quickly locating specific areas of interest, refer to the Table of Contents at the front of this manual, to the "local" table of contents provided behind each tabbed divider, or to the Index at the rear of the manual. (The "local" tables of contents allow you to locate the information you want without having to go all the way to the front of the manual.)

How to Contact Us

If you have any comments about this manual, we would like to hear from you. You may FAX comments to Grass Valley Technical Writing at (916) 478-4140 or you may write to us at the following address:

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Conventions Used in This Manual

The following graphical and typestyle conventions are used throughout this manual.

Button and Panel Knob References

A control panel button is shown as follows:

CLEAR
WORK
BUFR

Similarly, a control panel knob is shown as follows:

BRIGHTNESS

Or, when used in the text, they are shown in the following type:

CLR WORK BUFR — (button)

BRIGHTNESS — (knob)

Menu References

Many Model 3000 features may be accessed via the menu display and its associated "soft" buttons and "soft" knobs. The term "soft" merely means that the function of the button or knob is temporary, being assigned via the menu display.

An illustration similar to the following may be used when you need to access a function via the menu.

KEYER MENU							**OPACITY**
keyer							**= 100.00%**

M/E 1	**KEY 1**	**OFF**
	KEY 2	AUTO
	KEY A	AUTO
	KEY B	AUTO

HORIZ KEY POSITION = 0.00 clocks

M/E 1		
M/E 2		**ON**
M/E 3		**OFF**
DSK	KEY 1	AUTO

M/E SELECT	KEYER SELECT	SHAPING	CHROMA TRAP >	KEYER COPY >	CALIBRATE	VIDEO PROCESS >	KEY 1 NAM >

Soft Button and Soft Knob References

In the text, soft buttons and soft knobs are shown in the same type as the panel buttons and knobs, using the button or knob label in the display:

KEYER SELECT — (soft button)

OPACITY — (soft knob)

1 | *System Overview*

Introduction

This section presents a general description of the Grass Valley Group Model 3000 Switching System, pointing out specific areas of interest to the operator. Both the 3000-2 (a two-effects switcher) and the 3000-3 (a three-effects switcher) are covered.

The Control Panel and Signal Processor descriptions given in this section will provide you with a basic knowledge of the Model 3000 structure. Any differences between the two models will be noted.

General Description

The Model 3000 is a multi-format digital switcher that can manipulate a variety of composite digital and analog video and key signals through the use of 10-bit digital processing. Video inputs and outputs can be a combination of analog, digital bit serial, and digital bit parallel, depending upon the configuration of your installation and the optional input and output modules installed.

The Model 3000-2 provides two mix/effects (M/E) systems, a program/preset mixer with dual downstream keyers, and up to 32 video inputs and 32 key inputs selectable at one time from the control panel.

The Model 3000-3 has all the features of the 3000-2 plus a third M/E and up to 48 video inputs and 48 key inputs selectable at one time.

The layout of the control panel is user-friendly and the menu structure is easy to navigate, allowing quick and easy control of video signals.

Standard Features

- Auto-Timed Inputs

- Multi-format Input capability - Composite Analog, Serial Digital, and Parallel Digital

- Multi-format Output capability

- Tineline Keying

- Complex Matte Generators

- Full Complement of Wipe Patterns

- Key Channel Throughout

- 10-Bit Processing Throughout

- Shaped Video Inputs and Outputs

- 100 E-MEM registers

- User-Preference Programming

- Disk Storage of E-MEM and System Parameters

- Extensive Masking

- Mask Draw capability

Optional Features

- Additional video and key inputs, up to 64 total

- Additional video and key outputs

- A Second Wipe Pattern Generator (one module that provides a second wipe pattern for each M/E)

- Borderline on each Keyer

- Dual Chroma Keyers for each M/E

- Preview Outputs

- Aux Buses

- Safe Title/Action Area Generators

- Four-Channel Effects Send

- Redundant Power Supplies (frame and panel)

- Video channel, Key channel, and Mask channel Frame Store

- Chroma Key Auto Setup

Refer to the end of this section for descriptions of the optional features.

Physical Description

The switcher consists of three main areas: the Control Panel, the Signal Processor Frame, and the Frame Power Supply (see Figure 1-1). The electronic circuitry in the Model 3000 is primarily contained on circuit boards and modules in the Signal Processor Frame and Control Panel.

Signal Processor Frame

The Signal Processor Frame is a large rack-mounted unit that houses the system controller, effects logic, video and key processors, and input/output interfaces.

In addition to the basic system, a typical system may have several options such as Chroma Keyers, Secondary Wipe Generator, and Frame Store. Most options are available as circuit board modules to be installed in the Signal Processor Frame.

Refer to the Model 3000 Installation and Service manual for a complete description of the Signal Processor.

A main processor (HOS, or Head-Of-State) and separate M/E processors reside within the Signal Processor Frame. Since each M/E has its own processor, failure of one processor may not disable the entire switcher. Individual effects can continue to operate independently in a limited capacity.

Power Supplies

Two power supplies are used in the basic Model 3000 system: a control panel power supply, located in the control panel tub, and a 19" rack mount power supply used by the Signal Processor Frame. Optional Redundant power supplies are available.

TP0348-01
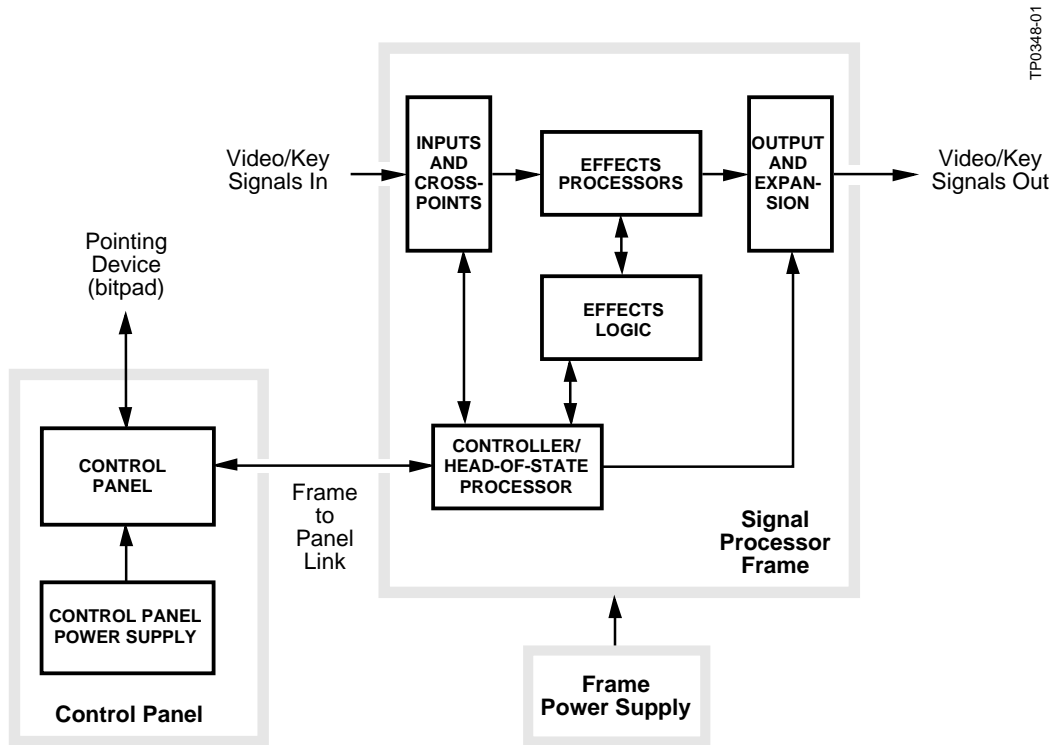
Figure 1-1. Simplified Block Diagram of the Model 3000 Switcher

Control Panel

The Control Panel is the operator interface for the Model 3000 system. The operator performs all actions via physical buttons and knobs and a software-driven menu.
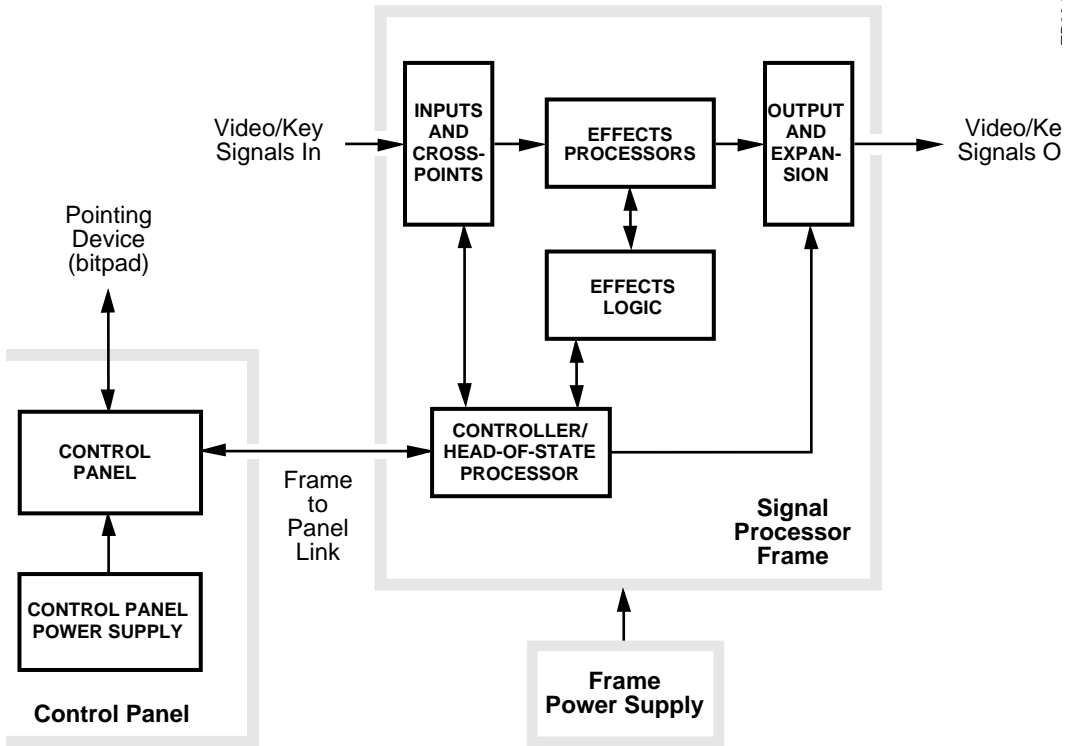
Figure 1-2. Functional Areas of Model 3000-2 Control Panel

The Control Panel also provides connectors for the Mask Draw option and the data link to the Signal Processor Frame.
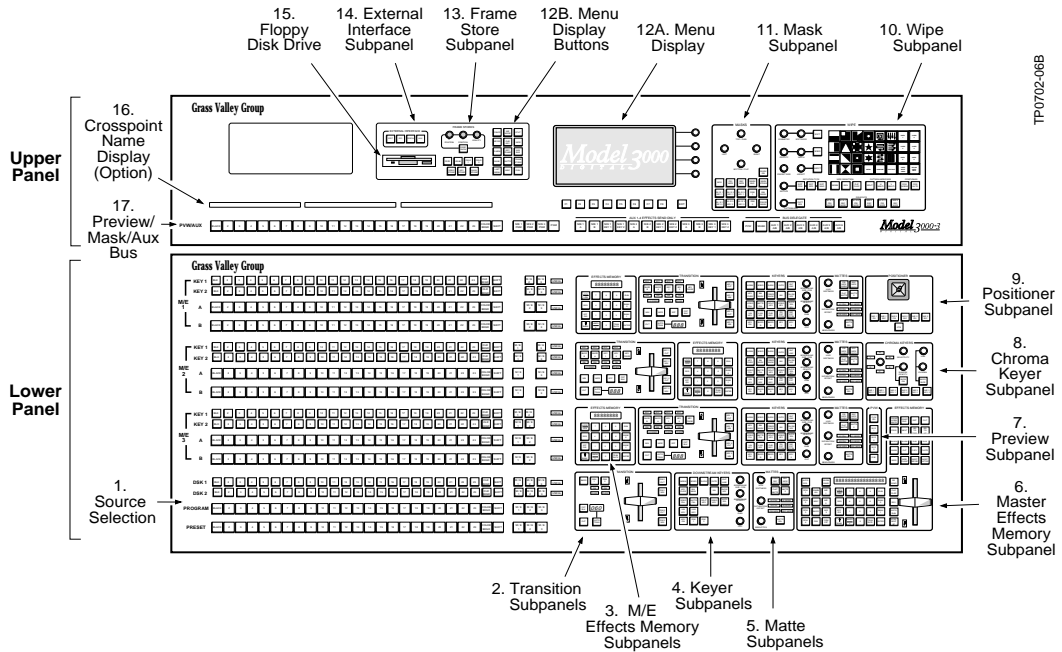
Figure 1-3. Functional Areas of Model 3000-3 Control Panel

Video and Key Inputs and Outputs

Inputs

Three types of input options may be installed in the Signal Processor Frame to suit the needs of your installation. Each input module supports four inputs and provides auto-timing of each input.

The following types of input modules are available.

NOTE: *Each of these inputs can be treated by the switcher as either a video input or a key input.*

- Analog 10-bit Composite Quad Input Module – Provides noise filtering, anti-aliasing, and auto-timing of the input signals, then performs an analog-to-digital conversion of each signal and multiplexes the data onto a video or key bus.

- Digital Bit-Parallel Quad Input Module – Converts the inputs from ECL to TTL, auto-times the signals, and multiplexes them onto the video or key bus.

- Digital Bit-Serial Quad Input Module – Decodes the inputs from serial to parallel, auto-times the signals, and multiplexes the data onto the video or key bus.

In addition, RGB input modules are available with the Dual Chroma Keyer option. Each module supports two sets of RGB inputs (see Figure 1-4).

Refer to the Configuration section of the Getting Started manual for information on assigning input formats and adjusting timing.
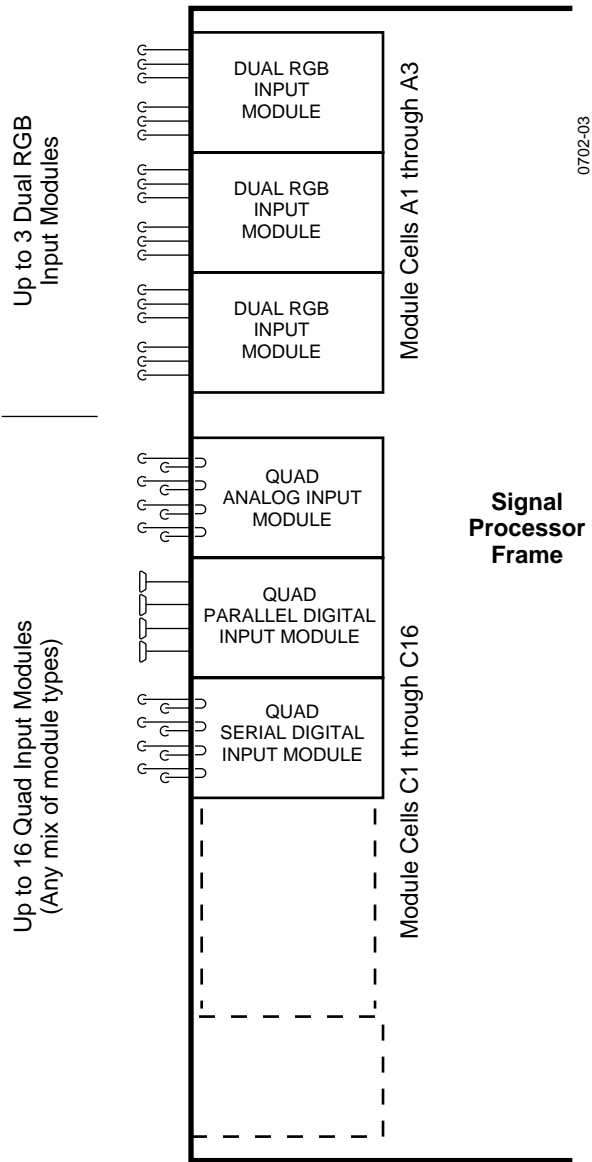
Figure 1-4. Video and Key Inputs

Outputs

Regardless of the format of the input signals, the Signal Processor can provide outputs in any composite format.

Signal outputs are provided by output modules installed in the Signal Processor Frame (see Figure 1-5). Each output module provides four video/key signal outputs of a given type, with up to three buffered outputs per signal channel.

Since each output module *cell* is dedicated to specific functions, the format of each output signal is determined by the type of output module installed in that cell. The following choices of output modules are available:

- Composite Analog (4 signal channels; 3 outputs of each signal)
- Parallel Digital (4 signals; 1 output of each signal)
- Serial Digital (4 signals; 3 outputs of each signal)

Standard (Analog) outputs include:

- (DSK) Program Video
- (DSK) Program Key
- Mask Bus
- Switched Preview Video

Optional outputs (Analog and/or Digital) include:

- M/E 1 Program Video, M/E 1 Program Key
- M/E 1 Preview Video
- M/E 2 Program Video, M/E 2 Program Key
- M/E 2 Preview Video
- M/E 3 Program Video, M/E 3 Program Key (3000-3 only)
- M/E 3 Preview Video (3000-3 only)
- DSK Preview
- DSK Preview Video
- Aux Buses 1A-4B, Aux Buses 5A-7B
- Clean Feed Video
- Frame Store Video and Key
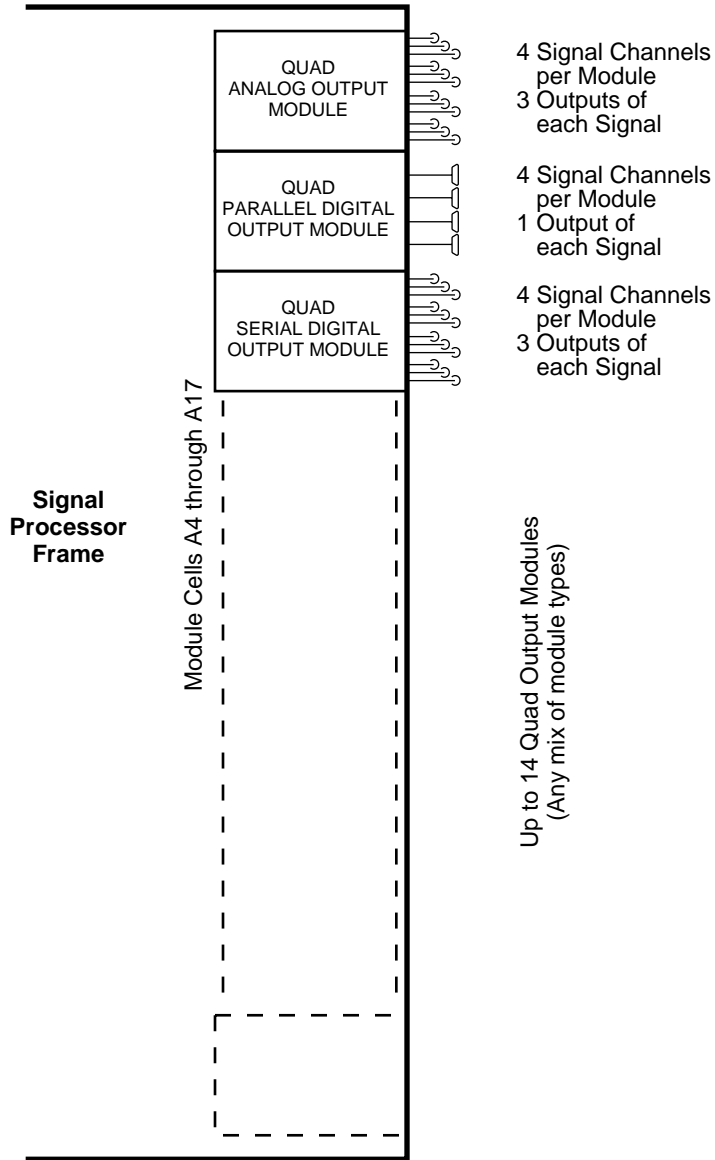
Figure 1-5. Video and Key Outputs

The diagram labels include:

Signal Processor Frame

Module Cells A4 through A17

QUAD ANALOG OUTPUT MODULE
- 4 Signal Channels per Module
- 3 Outputs of each Signal

QUAD PARALLEL DIGITAL OUTPUT MODULE
- 4 Signal Channels per Module
- 1 Output of each Signal

QUAD SERIAL DIGITAL OUTPUT MODULE
- 4 Signal Channels per Module
- 3 Outputs of each Signal

Up to 14 Quad Output Modules (Any mix of module types)

Functional Description

Overview

Figure 1-6 shows the video flow in a typical Model 3000 switching system.

Video and key signals enter the Input Section of the Model 3000, which consists of analog, parallel digital, and/or serial digital modules. The analog signals are converted to digital format, and all inputs are timed and conditioned.

The digital signals are then passed to the Video and Effects Section where keying and mixing take place. This section also provides effect modifications, such as wipes, that can be applied to selected inputs.

In the Output Section, digital video and key signals are converted to any desired composite format (analog, parallel digital, or serial digital), as predetermined by the type of output modules installed, before leaving the Signal Processor.

Video Processing

Input video and key signal selections are made by the Crosspoint Matrix under control of the system Controller, according to operator assignments entered via the Control Panel.

In addition to primary (external) video, secondary (internal) sources such as Masks, M/E re-entry video, and optional Frame Store are available as inputs to the crosspoint matrix.

Two sets of RGB signals may be applied per optional Dual RGB input module. These inputs are forwarded to a Dual Chroma Keyer module.

Keyers in each Mix/Effects bank provide outputs to the Effects Loop crosspoints for sending outside the switcher for external processing or for routing to the M/E mixers and wipe generators.

The Effects Send outputs can also be directed to the Frame Store option for image capture. One optional Effects Loop Crosspoint module services all three Mix/Effects banks.

Each M/E has two keyers and two background buses (A and B) as inputs. In standard mode, Keyers 1 and 2 can be mixed into a composite video and key which can be forwarded to the DSK, the other M/E, or output. In layered mode, Backgrounds A and B are also used as keyers that operate in a manner similar to Keyers 1 and 2.

Optional preview capability allows monitoring of sources at certain points in the signal flow. You can preview video from the M/E mixers, Flip/Flop Mix and DSK mixer, switched preview bus, or mask bus.

Eight pulse- or level-sensitive GPI inputs are provided. You can assign each of these inputs via the GPI Input menu to perform a specific function when triggered.

The editor interface consists of an asynchronous RS-422, 38.4K baud serial communications port, managed by a communications processor.

RGB Inputs → DUAL RGB INPUT MODULES → DUAL CHROMA KEYERS

M/E1, M/E2 & M/E3 Chr. Key

Aux Bus 1A-4B

QUAD INPUT MODULES

ANALOG, PARALLEL DIGITAL, AND SERIAL DIGITAL

Video Signals In

Key Signals In

80 X 48 VIDEO CROSSPOINT MATRIX

M/E Video and Key

QUAD KEYER MODULES – M/E 1, M/E 2, & M/E 3

EFFECTS LOOP CROSS-POINTS

Frame Store Video and Key

M/E Program Video and Key

Clipped Mask and Mask Store Video

Switched Preview and Mask

Clocks

Program, Preset, and DSK Video and Key

0702-05L

SYNC GENERATOR

Black, Back-ground, and Test Signals

Aux Bus 5A-7B Video and Key

CONTROL PANEL

CONTROLLER → To/From All Circuits

(control buses not shown for simplicity)

0702-05R

SECONDARY WIPE OPTION

Aux Bus 1A-4B Video and Key

M/E 1, M/E 2 & M/E 3 MIXERS

FRAME STORE FOR VIDEO, KEY, AND MASK STORAGE

Frame Store Video and Key

Mask Store Input

Mask Store Output

M/E 1, M/E 2, & M/E 3

Program Video and Key

M/E Pvw Video

PREVIEW

DSK Pvw Video

PGM/PST MIXER AND DUAL DSK

Program Video & Key

& Clean Feed Video

Mask and Switched Preview

M/E and DSK Preview

QUAD OUTPUT MODULES

ANALOG, PARALLEL DIGITAL, AND SERIAL DIGITAL

Outputs

Frame Store Video and Key

M/E 1, M/E 2, & M/E 3 Program Video and Key

Program Video and Key

Clean Feed Video

DSK Preview Video

Mask

Switched Preview

M/E1, M/E 2, & M/E 3 Preview

DSK Preview

Aux Bus Video and Key

**NOTE:
Primary Video Paths are
Indicated by Wide Arrows**

Figure 1-6. Video Flow Diagram of Typical Model 3000 Switching System

Description of Options

The following options are currently available for the Model 3000 Switcher. For more details on these options, refer to the appropriate subpanel descriptions later in this manual.

Dual Chroma Keyer

Up to six analog component (RGB, YUV, or Betacam®) or composite inputs can be chroma keyed, two per Dual Chroma Keyer module. Each module is added to a specific M/E.

Borderline Key Edge Generation

Borderline® Key Edge Generators are available for each keyer in the switcher. The Borderline feature is implemented as a mezzanine board that plugs onto the Keyer module of any M/E.

Each Borderline generator supports 1, 2, or 3 line wide borders for border and outline modes and 1 to 6 line wide edges for shadow and extrude modes. Fill within the key edges may be either video or matte.

Secondary Wipe Generator

A Secondary Wipe Generator module provides a second pattern for each of the M/E systems. Only one module is required for enhancing all mix/effect systems.

Safe Title/Action Area Generator

The Safe Title/Action Area Generator provides up to four different patterns that can be superimposed on the switched preview output of the switcher. It may be used to define a safe title area, safe action area, or for screen centering and horizontal/vertical alignment of picture elements.

Mix/Effects Clean Feed

A clean feed output of the wipe/mix signals (the two background bus video signals without any keys added) is provided by a Look-Ahead Preview mezzanine board installed on the Mixer and Primary Wipe Generator module.

Frame Store

The Frame Store option allows storage and retrieval of images at a resolution of 10 bits. Either two two-field pictures and keys or one four-field picture and key can be frozen in the Frame Store. A two-field mask store is also provided.

Effects Send

Effects Send provides a method of integrating digital effects devices into the switcher mix/effects system. Up to four send channels can be used to route the video and key from an M/E to and from an external digital effects system.

Tally Output

The Tally Relay module provides tally outputs that reflect the switcher status. A rear-panel interconnect board provides the relay contacts at two connectors for on-air Tally A and on-air Tally B. Pinouts for the Tally connectors are given in the Installation section of the System Information manual.

Tally Expansion

The Tally Expansion Option increases the number of tally outputs from the Model 3000 Switcher. An unlimited number of Tally Expansion frames, each with up to three tally modules, can be added to the switcher.

Remote Auxiliary Bus Control Panels

Three models of Remote Aux Control Panels are available for controlling your switcher auxiliary buses from a remote location. The one- and two-RU panels each control a single aux bus; the three-RU panel provides delegated control of any number of aux buses.

Chroma Key Auto Setup

The Chroma Key Auto Setup option is a software option that automatically sets up a chroma key when you identify the background color. This option requires the presence of the Frame Store option.

2 | *Control Panel Descriptions*

Introduction

User control of the Model 3000 Switcher is provided through a control panel containing a source-select button matrix, various "subpanels" and a flat panel text and graphics display called the "menu display."

This section provides an overview of the Model 3000-2 and Model 3000-3 control panels, and detailed descriptions of the subpanels. Operation of the 3000-2 and the 3000-3 is essentially identical; however, the 3000-3 has one more M/E, additional crosspoint buttons on the panel, discrete (rather than delegated) key buses, an E-MEM panel for each M/E, and keyer mix and cut buttons.

Main Control Panel

The control panel is physically divided into two areas referred to as the "upper" and "lower" panels (see Figure 2-1 and 2-2).

The upper panel contains the main menu subpanel and the menu display, as well as the Wipes, Masks, Frame Stores, and External Interface subpanels and a 3.5-inch floppy disk drive used for storing setups and other data.

Menu control for selecting and executing software functions is provided by the main menu buttons at the left of the display, plus eight "soft" buttons below the display and four "soft" knobs to the right of the display. The term "soft" means that the functions of these buttons and knobs are defined by software.

Functions available through the Menus are described in the next section of this manual

Frequently-used controls are located on the lower panel for ease of reach by the operator. Rows of subpanels for the Mix/Effects and Program/Preset/Downstream Keyer systems are provided in line with the corresponding source selection buttons for making transitions, keying, creating mattes, and manipulating effects.

Buttons for the Preview bus, Effects Send, Mask bus, and Auxiliary bus selections are located along the top of the lower panel for the Model 3000-2, or along the bottom of the upper panel for the 3000-3.

The subpanel descriptions in this section are arranged in the following sequence, starting at the lower left and moving counterclockwise around the panel:
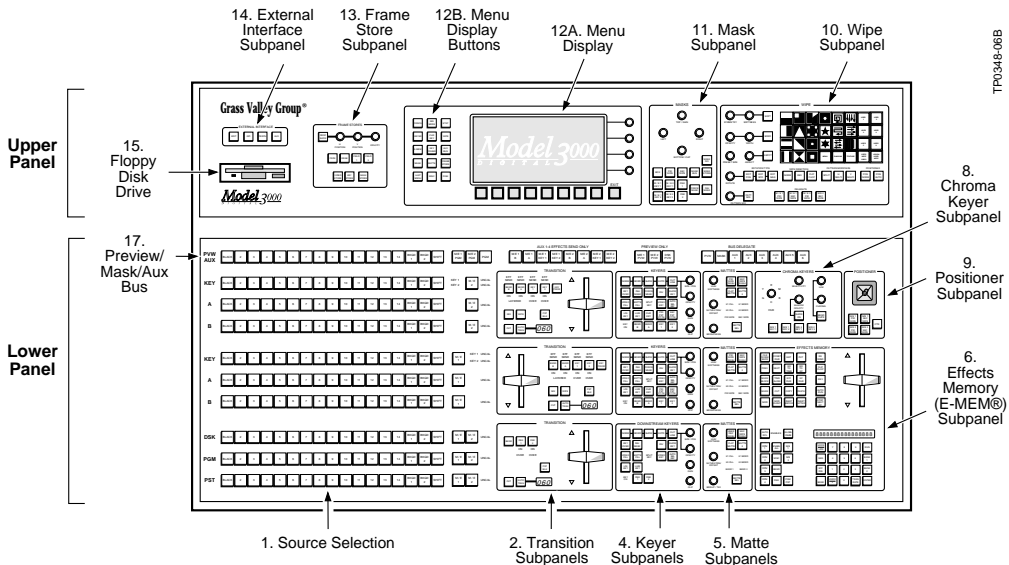
Figure 2-1. Functional Areas of Upper and Lower Control Panels (3000-2)

1. Source Selection
2. Transition Subpanels
3. M/E E-MEM Subpanels (3000-3 only)
4. Keyer Subpanels
5. Matte Subpanels
6. Master Effects Memory Subpanel
7. Preview Subpanel (3000-3 only)
8. Chroma Keyer Subpanel
9. Positioner Subpanel
10. Wipe Subpanel
11. Mask Subpanel
12. Menu Display Subpanel
13. Frame Store Subpanel
14. External Interface Subpanel
15. floppy Disk Drive
16. Crosspoint Name Display (3000-3 Option)
17. Preview/Mask/Aux Bus
18. Preview/Mask/Aux Bus
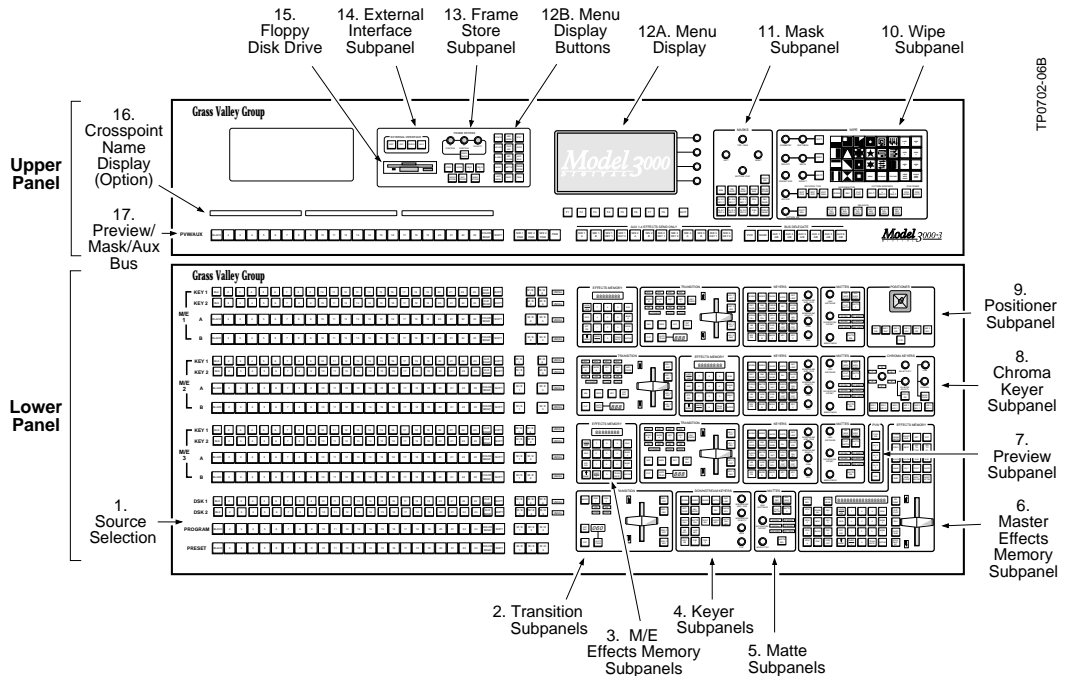
Figure 2-2. Functional Areas of Upper and Lower Control Panels (3000-3)

Auto Delegation

Subpanel Delegation

Some of the subpanels on the Model 3000 Switcher are delegated to other subpanels under conditional control of the operator or system. This feature is called "auto delegation." The effect of auto delegation is that pressing a button on one subpanel may activate the related controls on another subpanel. For example, the single Chroma Keyer subpanel is used for controlling all Chroma Keyers, and is activated by pressing the **CHR KEY** button on any of the M/E Keyer subpanels.

NOTE: Since the joystick positioner can be ganged to several M/E wipe generators, the **POS NORM** *and the* **POS AUTO** *buttons on the Wipe subpanel do not delegate the joystick.*

Table 2-1 shows some of the delegations present in the Model 3000 Switcher.

Table 2-1. Subpanel Delegation

Subpanel	Button Pressed	Delegated Subpanel	Conditions and Comments
Transition (M/E)	**KEY 1** or **KEY 2**	Keyer, Key Bus (same M/E) Mask	**INH MASK** or **FORCE MASK** must be on
		Chroma Keyer	**CHR KEY** must be on
Transition (M/E) (Layered Mode)	**BKGD B** or **BKGD A**	Keyer (same M/E)	
Transition (M/E)	**WIPE**	Wipe	

Table 2-1. Subpanel Delegation - (continued)

Subpanel	Button Pressed	Delegated Subpanel	Conditions and Comments
Transition (DSK)	**DSK 1** or **DSK 2**	Downstream Keyer, DSK Bus Mask	**INH MASK** must be on
Any Input Bus	**BKGD 1** or **BKGD 2** Crosspoint	DSK Matte	Lights **BKGD 1** or **BKGD 2** indicator on DSK Matte subpanel
3000-2 PVW/Aux Bus or 3000-3 Preview Panel	Any **PREVIEW ONLY** Crosspoint (2 M/E) or any **PREVIEW** Crosspoint (3 M/E)	Preview Bus	
Keyer (M/E)	**KEY 1** or **KEY 2**	Key Bus (same M/E) Mask Chroma Keyer	**INH MASK** or **FORCE MASK** must be on **CHR KEY** must be on
	PRI PST PTTN or **SEC PST PTTN**	Wipe	
	CHR KEY	Chroma Keyer	
	INH MASK or **FORCE MASK**	Mask	**INH MASK** or **FORCE MASK** button must be turned on by the press
Keyer (M/E) or Downstream Keyer	Any Borderline mode button except **NORM**	Matte (same M/E or DSK)	Lights **K1 BORD** or **K2 BORD** indicator on Matte subpanel, depending on Keyer or DSK subpanel delegation

Table 2-1. Subpanel Delegation - (continued)

Subpanel	Button Pressed	Delegated Subpanel	Conditions and Comments
Keyer (M/E) or Downstream Keyer	**MATTE FILL**	Matte (same M/E or DSK)	Lights **K1 FILL** or **K2 FILL** indicator on Matte subpanel, depending on Keyer or DSK subpanel delegation
Downstream Keyer	**DSK 1** or **DSK 2**	DSK Bus Mask	**INH MASK** must be on
	INH MASK	Mask	**INH MASK** button must be turned on by the press
Matte (M/E or DSK)	**PRI WIPE WASH** or **SEC WIPE WASH**	Wipe[1] [2] Matte	If Wipe **BORD** is on
E-MEM	Register Recall	Keyer and Key Bus	
Mask	**PRI WIPE** or **SEC WIPE**	Wipe	
Wipe	**BORD**	Matte (same M/E)	**BORD** button must be turned on by the press Lights **PRI WIPE** or **SEC WIPE** indicator on Matte subpanel

1. On an M/E Matte subpanel: Pressing the **PRI WIPE WASH** button causes the Wipe subpanel to be auto delegated to the primary wipe pattern generator for the calling M/E. Pressing the **SEC WIPE WASH** button on the M/E Matte subpanel causes the Wipe subpanel to be auto delegated to the secondary wipe pattern generator for the calling M/E.

2. On the DSK Matte subpanel: Pressing the **SEC WIPE WASH** button causes the Wipe subpanel to be auto delegated to the secondary wipe pattern generator for M/E 1.

Menu Delegation

The Model 3000 also delegates certain menus to be displayed when specific buttons on the subpanels are *double-pressed.* (The second press must occur within a predetermined amount of time.) Table 2-2 lists the buttons that support this function.

NOTE: *An opened menu is delegated, where appropriate, to the button that opened the menu. For example, double-pressing the* **KEY 1** *delegation button on the M/E 1 Keyer panel causes the keyer menu to open and the menu controls to be delegated to Keyer 1 of M/E 1.*

Table 2-2. Menu Delegation

Subpanel	Button Double-Pressed	Delegated Menu	Comments
Transition	**WIPE**	Wipe Pattern menu	
Keyer (any M/E)	**KEY 1** and **KEY 2**	Keyer menu	
Keyer (any M/E) (Layered Mode)	**BKGD B**, **BKGD A**, **KEY 1**, and **KEY 2**	Keyer menu	
Keyer (any M/E)	**PRI PST PTTN** or **SEC PST PTTN**	Wipe menu	
	CHR KEY	Chroma Key menu	
Downstream Keyer	**DSK 1** and **DSK 2**	Keyer menu	
Chroma Keyer	**M/E 1 KEY 1** through **M/E 2 KEY 2 -**3000-2 or through **M/E 3 KEY 3** on 3000-3	Chroma Key menu	
DSK Matte	USER DEF WASH	Matte menu	Used to set default font parameters

Table 2-2. Menu Delegation - (continued)

Subpanel	Button Double-Pressed	Delegated Menu	Comments
Frame Store	VIDEO STORE, KEY STORE or MASK STORE	Frame Store menu	
Wipe	Wipe Pattern **MENU**	Wipe Pattern menu	
	M/E 1 PRI through **M/E 2 SEC** on 3000-2 or through **M/E 3 SEC** on 3000-3	Wipe Modifiers menu	
	Wipe Pattern **TEXTURE**	Wipe Texture menu	
Crosspoint Source Select	SHIFT	User Preference menu	
Mask	**INH MASK** or **MASK BUS**	Mask menu	

Source Selection

The Source Select portion of the control panel consists of Primary source select buttons, Secondary (re-entry) source select buttons, **SHIFT** buttons, and uncalibrated indicators (see Figure 2-3). Each M/E on the 3000-2 has a delegated key bus, rather than the two discrete key buses shown for the 3000-3 and key bus delegation indicators that show which bus is currently delegated.
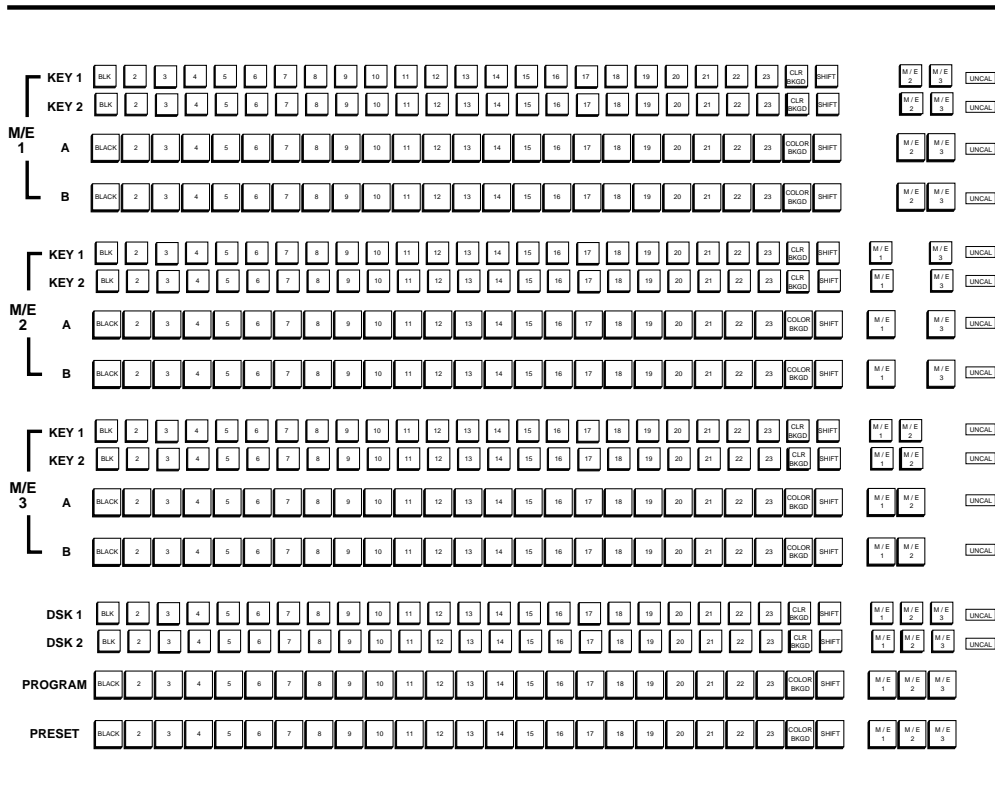
Figure 2-3. Source Select Panel (3000-3 shown)

All buttons on the Source Select panel have three levels of illumination, known as "tally":

■   OFF indicates not selected

■   DIM or "low tally" indicates selected, but not on-air

■   BRIGHT or "high tally" indicates selected <u>and</u> on-air

Only one button in each row is illuminated at any time (not including the **SHIFT** button).

Primary Source Selection (Primary Crosspoints)

ary source selection buttons consists of 16 00-2 or 24 buttons for the 3000-2, each having a d designation under a clear lens cap.

Each input, including **BLACK** and **BKGD**, can be mapped to any vertical column of source select ("crosspoint") buttons. Thus, each column of buttons may be visualized as an input bus of video and key crosspoints.

External video and key inputs connected to the switcher are numbered 1 through 64. Each input can be treated as either a video signal or a key signal, as defined in the Configuration menu.

For the 3000-2, up to 32 video/key pairs may be assigned at one time to the crosspoint buttons — 16 "unshifted" and 16 "shifted" selections. For the 3000-3, up to 48 video/key pairs may be assigned at one time to the crosspoint buttons — 24 "unshifted" and 24 "shifted."

On each column of crosspoint buttons, you can map a video signal, a key signal, and a chroma key signal. The video and luminance keys can be any combination of external video, external key, and a variety of internal signals.

When you press the crosspoint button at the intersection of the column and the row, the appropriate signal on each input column is switched onto any output bus (horizontal row)—the mapped key signal onto the selected key bus or the mapped video signal

onto the selected video bus (Background A, Background B, Program, or Preset).

Any video or key input may be selected on any number of output buses; however, only one output signal may selected at one time on each output bus.

SHIFT

The **SHIFT** button located at the right end of each primary source selection row is used to access the 16 or 24 shifted inputs. In Normal mode, you select a shifted input by holding **SHIFT** down (button lamp comes on) and pressing a crosspoint button on that bus. The **SHIFT** button lamp then remains lit to show that the selection is a shifted selection.

NOTE: In Normal mode (Shift Lock off) the Shift mode will turn off if another selection is made on that bus without holding down the **SHIFT** *button. So, even if the* **SHIFT** *button is already lit, in order to select another shifted crosspoint on that bus, you must press and hold the* **SHIFT** *button while selecting the new crosspoint.*

Shift Lock Mode

A Shift Lock mode is also available that allows a bus to be held in the shifted state. This will allow ready access to those input sources that have been mapped to shifted crosspoints. This mode is enabled in the Configuration/User Preferences Menu by selecting **LATCH**.

When in Shift Lock mode (with the **SHIFT** button lamp off), to select a shifted input, press and hold the **SHIFT** button (lamp comes on) and press a crosspoint button on that bus. The **SHIFT** button lamp then remains lit to show that the selection is a shifted selection and that the bus is in the shifted state. (So far it looks pretty much the same as Normal mode). The difference comes when you select another crosspoint on the same bus. In Shift Lock mode, whenever the **SHIFT** button is lit, if you make another selection on that bus without pressing the **SHIFT** button, the

selection will be a shifted crosspoint, whereas in Normal mode it would be an unshifted crosspoint.

In Shift Lock mode, to select an <u>unshifted</u> crosspoint, press and hold the **SHIFT** button (lamp goes out) and select a crosspoint on that bus.

---

*NOTE: In Shift Lock mode, you must press **SHIFT** plus a crosspoint button in order to revert to the unshifted state. Simply pressing **SHIFT** will not have any effect.*

Crosspoint Button Flashing

A primary crosspoint button may flash if the timing of a selected input cannot be corrected by the automatic input timing circuit. This flashing caution can be disabled through the Configuration menu.

Secondary Source Selection (Re-entry Crosspoints)

The secondary source ("M/E re-entry") buttons, **M/E 1**, **M/E 2**, and **M/E 3** (3000-3 only) are located at the right end of each row of primary crosspoint buttons.

Unlimited re-entry is supported for outputs of the Mix/Effects (M/Es). The program output of any M/E may be reentered as an input on any other M/E or in the Flip-Flop Mix/DSK system, or it may be used as a key source on any other M/E or the DSK.

Since multiple re-entry is allowed, lockout logic prevents one M/E from entering another M/E at the same time the other M/E is entering the first. If a circular re-entry is attempted, the request for the second re-entry will be ignored.

Uncal Indicators

Each **UNCAL** indicator LED, located in line with a row of source select buttons, lights if one or more of the following variables are set to non-default values for the selected crosspoint on that bus: opacity, luminance gain, chroma gain, dc offset, coring, or horizontal key position.

Key Delegation Indicators (Model 3000-2 Only)

KEY 1

KEY 2

The **KEY 1** and **KEY 2** indicator LEDs, located adjacent to the reentry source selection buttons and in line with each row of key crosspoint buttons, light to indicate which keyer the row of buttons is currently delegated to control.

Transition Subpanels

A Transition subpanel is supplied for each M/E and for the PGM-PST/DSK mixer (see Figure 2-4 and 2-5). Controls common to all Transition subpanels are: a **lever arm** for manual transitions; transition direction indicators; **CUT**, **AUTO TRAN**, and **PST BLK** buttons; and a three-digit LED display that shows the auto transition duration in frames.
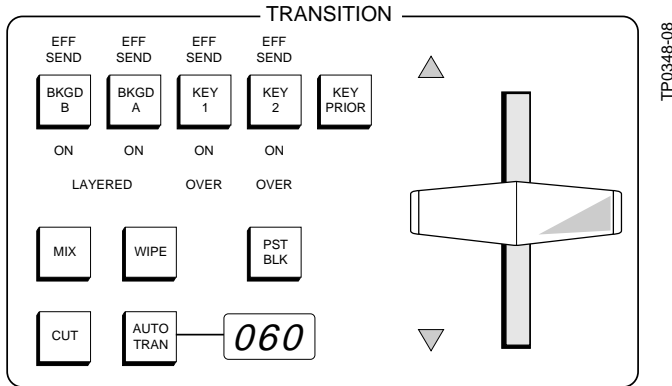
Figure 2-4. Mix/Effects Transition Subpanel
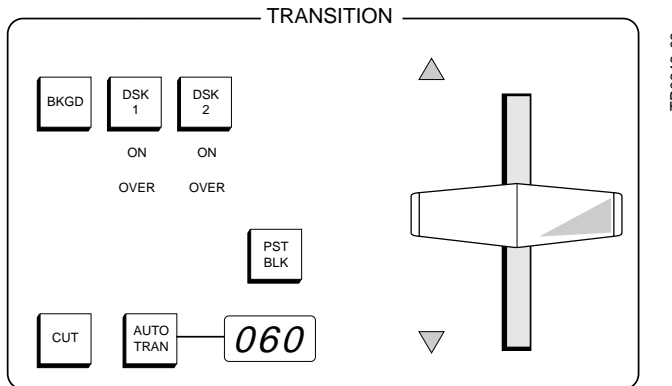
Figure 2-5. DSK Transition Subpanel

Next Transition Buttons

The five next transition buttons in each M/E—**BKGD B**, **BKGD A**, **KEY 1**, **KEY 2**, and **KEY PRIOR**—select the M/E output signals that will change during the next transition.

The three next transition buttons in the PGM-PST/DSK—**BKGD**, **DSK 1**, and **DSK 2**—similarly select the PGM-PST output signals that will change during the next transition.

ON

An **ON** indicator located beneath each key next transition button is lit when the associated signal is an active part of the M/E output.

NOTE: The way the M/E Next Transition buttons operate depends on whether the M/E is operating in Standard Mode or in Layered Mode. The mode of operation is set in the M/E MODE menu, described in the next section of this manual.

EFF

The **EFF** (Effects Send) indicator located above each key next transition button is lit when the associated keyer output is selected as an effects send output by one of the **AUX 1-4 EFFECTS SEND ONLY** buttons.

M/E Next Transition Buttons (*Standard Mode*)

In Standard Mode, only the **BKGD A**, **KEY 1**, **KEY 2**, and **KEY PRIOR** next transition buttons and the **ON** and **OVER** indicators below the **KEY** buttons are functional. (The **BKGD B** button and the **ON** indicators below the **BKGD** buttons are not functional and the **LAYERED** indicator is not lit.)

The transition can affect Background only, Key 1 only, Key 2 only, Key Priority only, or any combination thereof. Multiple-layer transitions are selected by simultaneously pressing more than one button.

BKGD
A

Pressing **BKGD A** selects background video to change during the next transition. That is, the background video output of the M/E will change from the source selected on the A Background bus to the source selected on the B Background bus.

At the end of the transition, the inputs selected on the background buses will interchange, or "flip-flop." The "new video" on the B Background bus will transfer to the A Background bus, and the "old video" on the A Background bus will transfer to the B Background bus.

KEY
1

KEY
2

Activating the **KEY 1** or **KEY 2** button (lamp lit) causes the next transition to bring on or remove the selected key. Selecting **KEY 1** or **KEY 2** delegates the M/E Keyers subpanel and Key bus to the selected keyer so that the characteristics of that key may be adjusted (see Keyer subpanel description).

One or both of the **KEY** buttons can be activated at the same time and one or both keys can be on (**ON** indicator lit) at the same time.

KEY
PRIOR

Pressing **KEY PRIOR** causes the next transition to swap the Key 1/Key 2 priority. This can be performed as a mix, wipe, or cut transition. Key priority always involves both Key 1 and Key 2

OVER

The **OVER** indicator indicates whether Key 1 is over Key 2, or Key 2 is over Key 1. (The key whose **OVER** indicator is lit is over the other key.)

M/E Next Transition Buttons (*Layered Mode*)

LAYERED

In Layered Mode, *all* of the next transition buttons and indicators are functional and the **LAYERED** indicator is lit. In this mode, **BKGD B** and **BKGD A** are keyers.

The transition can affect Background A only, Background B only, Key 1 only, Key 2 only, Key Priority only, or any combination thereof. Multiple-layer transitions can be selected by simultaneously pressing more than one button.

NOTE: *Flip-flop operation occurs only when operating in Standard mode. Operating in layered mode causes the A and B Background layers to transition in a manner similar to the Key 1 and Key 2 layers (see the descriptions for Key 1 and Key 2).*
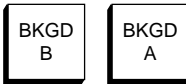
BKGD B   BKGD A

In Layered mode, the **BKGD A** and **BKGD B** buttons also delegate the keyers subpanel. (The key bus delegation remains unchanged when the keyer subpanel is delegated to either of the background layers.)

PGM-PST/DSK Next Transition Buttons

BKGD   DSK 1   DSK 2

The PGM-PST/DSK next transition buttons function the same as the M/E next transition buttons in Standard Mode, except that there is no **KEY PRIOR** button. (The PGM-PST/DSK **BKGD**, **DSK 1**, and **DSK 2** buttons correspond to the M/E **BKGD A**, **KEY 1**, and **KEY 2** buttons.)

Transition Type Buttons

The *type* of transition at the next transition is determined by the **WIPE**, **MIX**, and **PST BLK** buttons.

The **WIPE** and **MIX** buttons are mutually exclusive; pressing one selects it and de-selects the other.

WIPE

A **WIPE** transition uses the output of the wipe generator to shape the selected transition(s). Your selected wipe pattern appears over the old video/key and moves across the screen, revealing the new video/key as it moves. Use either the **lever arm** or the **AUTO TRAN** button to perform the **WIPE** transition.

MIX

Pressing **MIX** selects a transition that mixes video, keys or backgrounds, during the change from one source to the other. A mix transition gradually fades the new video and/or key over the old video and/or key. You can use either the **lever arm** or **AUTO TRAN** button to perform a **MIX** transition.

PST
BLK

Pressing the **PST BLK** button selects a two-stage transition that inserts black between the two video sources being mixed, wiped, or cut. For example, instead of mixing directly between the A Background and B Background buses during a background transition, a preset black transition mixes, wipes, or cuts from the A Background bus to black. When a second transition is performed, black mixes, wipes, or cuts, away to the B Background. After completion of the two transitions, **PST BLK** turns itself off automatically.

In addition to this automatic cancellation, you can toggle **PST BLK** on and off manually. If you turn off **PST BLK** while the transition is on the black limit, the M/E or PGM-PST output will immediately switch from black to the original signal. If you turn off **PST BLK** when it is off limit, the transition to or from black will stop.

The **PST BLK** function is provided in each M/E and in the PGM-PST mixer. **PST BLK** affects only the effect where it is selected and not the entire switcher. The button lights when pressed and turns off automatically when the second transition is complete. The **BLACK** video input button on the A Bus remains lit while the M/E is on the black limit. The preview output for the M/E does not go to black. The preview monitor continues to show the final result of the two-stage preset black transition.

MIX and **WIPE** are unaffected when **PST BLK** is turned on. **MIX** and **WIPE** can be changed at any time during a preset black operation.

Preset Black always fades to a full screen black regardless of whether the switcher is operating in layered mode or standard mode.

An abort of Preset Black occurs when the operator selects a crosspoint on the A Background bus while the M/E transition is on the black limit. This abort causes the following to occur: the preset black transition is cancelled, the **PST BLK** button lamp turns off, all keys are dropped, and the selected crosspoint is taken fully on-air. If the abort occurs in Layered Mode, the M/E is forced to Standard Mode to ensure that the selected crosspoint is a full raster image.

A new background source may be selected on the B Background bus when you are at the midpoint of a preset black mix. In the same manner, next-transition delegation buttons, keyer modes, or keyer sources may also be changed. None of these changes will abort the preset black transition.

Configuring the BLACK Crosspoint — When mapping inputs to pushbuttons, one of the choices in the Configuration menu is **BLACK**, and another choice is **NONE**. Your selection will have an effect on how **PST BLK** operates, and what will happen in the event the controller CPU fails.

When the first transition during a preset black operation is completed, the **BLACK** crosspoint is automatically selected on the A Background bus. If black has not been assigned to any pushbutton, the **PST BLK** button is disabled and the preset black function is not permitted. On the other hand, if black has been assigned to more than one pushbutton, preset black will select the leftmost **BLACK** pushbutton. If a pushbutton is assigned to *NONE*, black appears when that button is selected; however the preset black function will not use this as the **BLACK** crosspoint. This action permits the user to have a known signal appear when an undefined pushbutton is pressed, while also allowing the preset black function to select a specific **BLACK** crosspoint.

To summarize operation: if the user has *NONE* assigned to one or more pushbuttons, but does not have black assigned to any pushbutton, the preset black function will think black is not available and will be disabled as described above.

Processor Failure—The **BLACK** crosspoint is also important in the situation where the Controller main CPU fails while one of the M/Es is performing a re-entry. When it fails, the M/Es are required to abandon their re-entry crosspoints and select **BLACK** on the same bus. In the case where black was never assigned to a pushbutton, the M/E selects the leftmost crosspoint on the bus.

Transition Controls
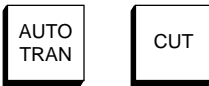
You can perform a transition using any of three different controls: the **lever arm**, the **AUTO TRAN** button, or the **CUT** button.
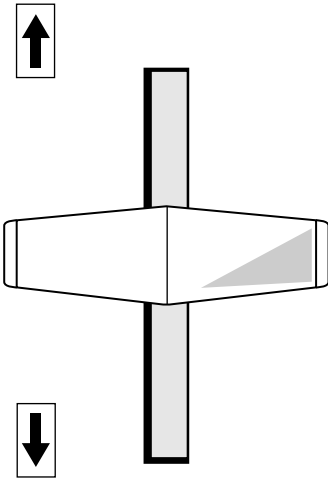
The **lever arm** is used to perform "manual" transitions. The **BKGD B**, **BKGD A**, **KEY 1**, **KEY 2**, **KEY PRIOR** buttons, or any combination thereof, can be delegated to the **lever arm** to perform the transition. You can move the **lever arm** in either direction due to the flip-flop architecture of the buses. Moving the **lever arm** from one limit to the other always performs a complete transition.

> Using the **lever arm**, it is possible to start a transition, stop it at any point, reverse it, and even return to the original limit, without completing the transition. The green arrow at the top or bottom of the **lever arm** travel lights to indicate the direction that the **lever arm** has to move to complete the transition.

You can use the **lever arm** in combination with the **AUTO TRAN** button to perform a transition. You can start the transition by moving the **lever arm** off its limit, and finish the transition by pressing **AUTO TRAN**. The transition is completed at a rate proportional to the rate set for a full **AUTO TRAN** transition. For example, if the **lever arm** is moved halfway and the transition is completed by pressing **AUTO TRAN** at a rate of 200 frames, the remaining half of the transition will take 100 frames.

NOTE: The **lever arm** *will be left off-limit any time you begin a transition with the* **lever arm** *and finish it with* **AUTO TRAN***. The* **lever arm** *will not function properly again until is moved to either limit (this action will not change the M/E output). While the* **lever arm** *is non-functional, both* **lever arm** *direction indicators are on.*

Pressing **CUT** cannot, however, complete a transition begun with the **lever arm**. In this case, **CUT** reverses the inputs during the background transitions. During key transitions, it changes the logic state of the key.

E-MEM recall operations result in another set of conditions for **lever arm** transitions. When an E-MEM recall places a transition at a point different from that of the **lever arm**, the **lever arm** becomes inactive until it is moved to catch up with the transition. For example, assume the **lever arm** is on a limit and an E-MEM recall puts the transition at some midpoint. In such a case, the **lever arm** would be inoperative until you moved it far enough to catch up with the transition. At that point, you could use the **lever arm** to complete the transition or return it to the beginning limit. (Or, you could press **AUTO TRAN** to complete the transition). Another example of use with E-MEM is a case where the **lever arm** is off limit and an E-MEM recall puts the transition on a limit. In this instance, both lever direction lights would be lit, indicating the **lever arm** is inoperative. Moving the **lever arm** to either limit will turn the direction lights off and reactivate the **lever arm**. (You could also use **AUTO TRAN** to resume the transition since auto transitions continue to function even when the **lever arm** is inoperative.)
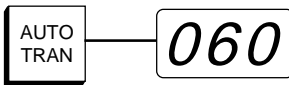
AUTO TRAN | *060*

Pressing the **AUTO TRAN** button starts an automatic S-linear transition at the rate displayed on the LEDs next to the button. The **AUTO TRAN** button supports the same transitions as the **lever arm**: **BKGD B**, **BKGD A**, **KEY 1**, **KEY 2**, **KEY PRIOR**, or any combination thereof.

You can specify a transition rate by entering a value from 0 to 999 frames on the numeric keypad on the Effects Memory subpanel. A zero frame transition is equivalent to a cut. (Refer to the M/E and Master Effects Memory subpanel descriptions later in this section for further information on setting the rate.) The lamp in the **AUTO TRAN** button remains lit for the duration of the transition.

Pressing **AUTO TRAN** a second time during a transition, stops the transition at the current point. The transition can be completed by pressing the button a third time or by moving the **lever arm** to its opposite limit. The **lever arm** becomes active when it catches up with the auto transition in progress. Pressing the **CUT** button leaves the transition where it stopped but reverses the two videos or the logic state of a key. Similarly, you can start a transition by using the **lever arm** and complete it by pressing the **AUTO TRAN**

button. However, performing a transition in such a manner leaves the **lever arm** off limit.

CUT

Pressing the **CUT** button causes an immediate transition. The M/E or PGM-PST output changes instantaneously. (The **CUT** button lights for one-half second.) The **CUT** button supports the same transitions as the **lever arm**: **BKGD B**, **BKGD A**, **KEY 1**, **KEY 2**, **KEY PRIOR**, or any combination thereof.

Key Transition Buttons (3000-3 Only)

M/E
Trans

DSK
Trans

The four key transition buttons at the right edge of each transition panel provide a quick way of doing a simple cut or mix on any keyer in that M/E or DSK.

KEY 1
CUT

DSK 1
CUT

KEY 1
MIX

DSK 1
MIX

Pressing the **KEY 1 CUT** or **KEY 2 CUT** button on the M/E Transition subpanel cuts the corresponding key ON if it was OFF, or OFF if it was ON, as indicated by the **ON** LED under the next transition button for that key. Similarly, pressing the **KEY 1 MIX** or **KEY 2 MIX** button mixes the key ON if it was OFF, or OFF if it was ON.

KEY 2
CUT

DSK 2
CUT

KEY 2
MIX

DSK 2
MIX

Pressing the **DSK 1 CUT** or **DSK 2 CUT** button on the DSK Transition subpanel cuts the corresponding key ON if it was OFF, or OFF if it was ON; pressing the **DSK 1 MIX** or **DSK 2 MIX** button mixes the key ON if it was OFF, or OFF if it was ON.

Key Mix Rates

The mix rates used by the **KEY 1 MIX** and **KEY 2 MIX** buttons on the M/E Keyer panels are independently programmable, as detailed under the E-MEM panel **TRAN RATE** button description. After the M/E keyer mix rate has been programmed for each button, the rate is shown in the Transition panel readout *only* while the mix is in progress or while the **SHOW KEY** button on the Keyer or DSK panel is being pressed.

The mix rates used by the **DSK 1 MIX** and **DSK 2 MIX** buttons at the right edge of the PGM-PST/DSK Transition panel are similarly independently programmable, but those rates may also be used as auto transition rates by the **DSK 1** and **DSK 2** buttons on the PGM-PST/DSK Transition panel.

DSK Key Transition Rates

When an auto transition is done on the PGM-PST/DSK Transition panel, all transitions (**BKGD**, **DSK 1**, and/or **DSK 2**) take place at the same rate. What that rate is depends on what transitions are enabled at the time, with the programmed rate for the left-most enabled button taking precedence.

In other words, if a **BKGD** transition is enabled (**BKGD** button lit), the auto transition rate will be the rate displayed in the readout on the Transition panel. However, if **BKGD** is <u>not</u> enabled, the auto transition rate will be the programmed rate for the leftmost DSK button—**DSK 1** if it is enabled, or **DSK 2** if that is the only enabled transition.

Mix/Effects Effects Memory Subpanel (3000-3 Only)

The Effects Memory (E-MEM®) subpanel for each M/E (see Figure 2-6) allows you to learn and recall effects setups for the mix/effects system in which the subpanel resides. It also provides effects dissolves and sequences between effects stored in its own registers.

Refer to the Master Effects Memory subpanel description, later in this section, for a description of the use of the mix/effects E-MEM panels when controlled by Master E-MEM to produce the overall output of the switcher.

NOTE: *Much of the following information is repeated in the description of the Master E-MEM panel; however, it is included here so that you can see the differences between the operation of the mix/effects E-MEM panel and that of the Master E-MEM keypad and readout.*
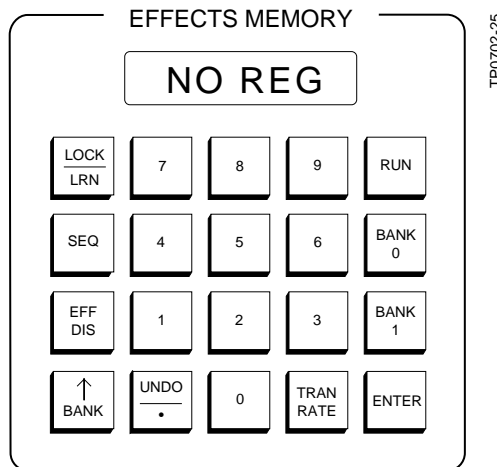
Figure 2-6. Mix/Effects E-MEM Subpanel (3000-3 Only)

Learn and Recall Operations

Effects setups are stored in E-MEM registers. The following parameters are learned and recalled in learn/recall operations on the mix/effects E-MEMs: standard or layered mode operation, crosspoint settings, transition settings, keyer settings, masks and mattes, chroma key settings, wipes, positioner settings and full additive mix (FAM) settings.

E-MEM Registers

There is a total of 100 registers in each mix/effects E-MEM, grouped in ten banks of ten registers. Each register belongs to a specific bank (0 through 9) and has a unique number (0 through 9) within that bank. For example, register 46 means bank 4, register 6.

When the system is powered up, the keypad readout comes up with a "NO REG" message.

Learning Effects

To learn an effect setup into a register, press the following sequence of buttons on the E-MEM subpanel:

LRN, BANK, bank number, register number

NOTE: *If the next desired register is in the current bank, you may omit* **BANK** *and* **bank number** *in the above sequence.*
Also, if the desired bank is 0 or 1, you may substitute **BANK 0** *or* **BANK 1** *for* **BANK**, **bank number** *in the above sequence.*

Recalling Effects

To recall a register, press the following buttons:

BANK, bank number, register number

(The previous *NOTE* for learning applies also to recalling.)

When an E-MEM register is recalled, the key memory for any recalled crosspoint is updated.

Crosspoint Override

During an E-MEM recall, if you don't want the crosspoint to change, you can manually hold down the present crosspoint button while the E-MEM register is recalled. If key memory is off at this time, the video and key crosspoint are held. If key memory is on, the video and key crosspoint and the current keyer memory state are held.

Mix/Effects E-MEM Keypad

```
┌─────────────┐
│   NO REG    │
└─────────────┘
```

LOCK / LRN	7	8	9	RUN
SEQ	4	5	6	BANK 0
EFF DIS	1	2	3	BANK 1
↑ BANK	UNDO / •	0	TRAN RATE	ENTER
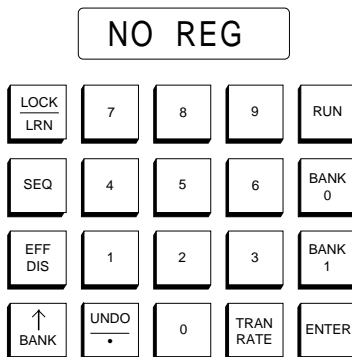
In addition to learning and recalling effects, the E-MEM keypad is used as a numerical entry pad for the following buttons: **TRAN RATE**, **LRN**, **LRN SEQ**, **LOCK**, and **BANK.**

Pushing a numerical button at any time other than when preceded by one of the above buttons recalls the corresponding register within the current bank. To recall a register in a different bank, enter the recall sequence described on the previous page.

Mix/Effects E-MEM Readout

L B0 R04

The alphanumeric readout at the top of the E-MEM keypad provides status information about E-MEM operations and registers.

During normal learn and recall operations, the display informs you what the current Bank ("B...") and Register ("R...") are. If the register is locked, there is an "L" shown at the left end of the display. Other messages on the E-MEM readout include "NO REG" at bootup, and "NO EMPTY" if no register is available for a **LRN •** operation.

↑/**BANK**

≠/**BANK** is a two-function key that can be used for bank selection or for accessing "second" functions, for example, **LOCK** and **UNDO**. Pressing the ≠/**BANK** button enables single-digit bank selection (0 through 9) on the keypad, and delegates buttons with second functions to the second function. The button lights when pressed, and stays lit until the delegation is completed. Pressing ↑/**BANK** a second time terminates the delegation.

Refer to the "Learn and Recall Operations" description earlier in this section for use of the **BANK** button, and to the **LOCK** and **UNDO** headings for use of the ↑ (second) function button.

LOCK / LRN

LRN is used for storing or "learning" the current panel setup into a register or for learning a register sequence.

Refer to the "Learn and Recall Operations" description earlier in this section for learning effects into E-MEM registers. Also refer to the **SEQ** button description for learning a register sequence.

↑/BANK   LOCK / LRN

The **LOCK** function locks a single register. Locking a register prevents the contents of that register from being changed. To lock the current register whose number is displayed, press the following buttons:

≠, **LOCK**

When locked, an "L" is displayed at the left end of the E-MEM readout. To unlock the register, press the buttons again:

≠, **LOCK**

NOTE: *You cannot lock an entire E-MEM bank from the subpanel; a menu selection is provided for this action.*

BANK
0

Pressing the **BANK 0** button makes bank 0 the current bank, and causes buttons 0 through 9 on the keypad to become one-button recall registers for registers 00 through 09. This button is lit whenever bank 0 is the current bank.

BANK
1

Pressing **BANK 1** makes bank 1 the current bank, and causes buttons 0 through 9 on the keypad to become one-button recall registers for registers 10 through 19. This button is lit whenever bank 1 is the current bank.

TRIM
ENTER

ENTER confirms a numerical entry on the keypad, such as for **TRAN RATE**. The **ENTER** button lights only when pressed.

SEQ

SEQ is used for creating automated register-recall sequences.

Sequences are *created* by pressing the following buttons (parameters in parentheses are optional):

SEQ, **LRN**,
register, TRAN RATE, **delay**,
register, TRAN RATE, **delay**,
 ...

NOTE: **SEQ** *and* **LRN** *may be pressed in either order to start the command sequence;*
TRAN RATE *and* **delay***, in parentheses, are optional.*
TRAN RATE *enables a user-defined delay to be introduced between register recalls;*
delay *is a 1- to 3-digit number entered on the keypad that specifies an amount of delay in TV frames. (If the number entered is a 1- or 2-digit number, the entry must be terminated by pressing* **ENTER***;*
register *is any desired register number, as described previously (that is,* **BANK***,* **bank number***,* **register number***).*

A sequence loop may be created by again pressing the *first* register button as the *last* register in the sequence.

Sequences are *initiated* by pressing the following buttons:

SEQ, register

The sequence starts at the register indicated, and proceeds through the linked sequence to the last register. If a loop has been programmed, the sequence loop continues until the **SEQ** button is pressed to terminate the sequence.

A sequence loop can be broken by double-pressing a register button. This clears the sequence link that existed in that register and makes that the last register in the sequence.

Different sequence delays may be learned into the different mix/effects E-MEM registers. With software version 3.1 and later, these sequence delays are completely independent; thus the sequencing may be occurring at different times on the different M/Es.

EFF
DIS

EFF DIS causes an S-linear transition from the current state to the next recalled register. The current state may be a setup you have just done on the mix/effects panel or the state of the panel resulting from a register recall.

An effects dissolve may be learned into a register, so that recalling that register will initiate a dissolve to another specified register.

The following button sequence is used to learn a dissolve (parameters in parentheses are optional):

LRN, EFF DIS, (TRAN RATE, eff dissolve rate), register

---

*NOTE: **LRN** and **EFF DIS** may be pressed in either order to start the command sequence;*
***TRAN RATE** enables a user-defined effects dissolve rate to be introduced in the dissolve;*
***eff dissolve rate** is a 1- to 3-digit number entered on the keypad that specifies the effects dissolve rate in number of TV frames. (If the number entered is a 1- or 2-digit number, the entry must be terminated by pressing **ENTER**);*
***register** is any desired register number, as described previously (that is, **BANK**, **bank number**, **register number**).*

The effects dissolve rate is the same as the auto transition rate indicated in the readout on the Transition subpanel of that M/E.

When the register with the learned effects dissolve is recalled, the **EFF DIS** button high tallies, turning off when the dissolve ends.

Different sequence delays may be learned into the different mix/effects E-MEMs. With software version 3.1 and later, these sequence delays are completely independent; thus the sequencing may be occurring at different times on the different M/Es.

As with sequence delays, the effects dissolve rates on different mix/effects are completely independent. Different effects dissolve rates may be learned separately into different mix/effects E-MEMs; thus the dissolves may be running at different rates on the different M/Es.

```
UNDO
  •
```

The • (dot button is used to represent the next empty register when used with the **LRN** operation. (At register 99, the search for an empty register will wrap around to 0).

LRN • learns the current switcher state into the next empty register, and that register becomes the current register.

NOTE: *If there are no empty registers, the operation will not be done, an error beep will sound, and the keypad readout will show "NO EMPTY."*

UNDO is used to back out of a recall, learn, or another **UNDO** register operation. The **UNDO** button lights when pressed, confirming that it has been pressed. An **UNDO** must be done immediately after an undesired operation, otherwise it may not be able to undo the operation.

For these register functions, pressing ↑, **UNDO** repeatedly allows you to toggle back and forth between the two last states. (For toggling **UNDO**, you have to press ↑/**BANK** then **UNDO** each time.)

TRAN RATE is used with the keypad to set the transition/mix rates used by the **AUTO TRAN** (auto transition) and **KEY MIX** buttons on the Transition subpanels, and by the **EFF DIS** button on the M/E E-MEM keypad.

When **TRAN RATE** is pressed, the E-MEM readout displays the currently set auto transition rate, for example:

AUTO:030

To change the auto transition rate for that M/E, enter the desired rate using the number buttons on the M/E E-MEM keypad. Pressing three number buttons on the keypad automatically enters the rate. If only one or two number buttons are pressed, the entry must be completed by pressing **ENTER**. Rates from zero through 999 frames may be entered. (If one or two incorrect number keys have been pressed, the entry may be aborted and the previous rate restored by pressing **TRAN RATE** again.)

As soon as the new rate is confirmed, it is displayed in the auto transition rate display on the Transition subpanel and the E-MEM readout will then display the Key 1 mix rate, for example:

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KEY1:060

This display refers to the mix rate of the **KEY 1 MIX** button at the right edge of the Transition panel. To change the Key 1 mix rate, follow the same procedure as described above for the auto transition rate.

As soon as the new rate is confirmed, it is entered into memory for that M/E, but is not displayed. The readout then displays the third transition/mix rate:

KEY2:060

Repeat the procedure again to set the mix rate for the **KEY 2 MIX** button.

---

*NOTE: The mix rate for either key is displayed on the auto transition readout when the **KEY 1 MIX** or **KEY 2 MIX** button is pressed (initiating a mix) or when the **SHOW KEY** button is pressed and the desired key is enabled (**KEY 1** or **KEY 2** button on Keyer panel lit).*

Any of the three transition/mix rates can be skipped simply by pressing the **ENTER** button when the display appears.

When the sequence of transition/mix rates has been completed, the **TRAN RATE** button turns off and the keypad display returns to its previous state.

RUN

The **RUN** button on the M/E E-MEM panel is non-functional at this time.

Keyer Subpanels

One Keyer subpanel is provided for each M/E, and one Keyer subpanel serves the two Downstream Keyers (see Figure 2-7 and Figure 2-8).
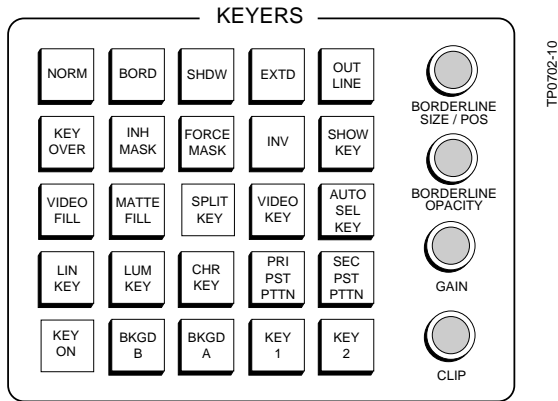
Figure 2-7. Mix/Effects Keyers Subpanel
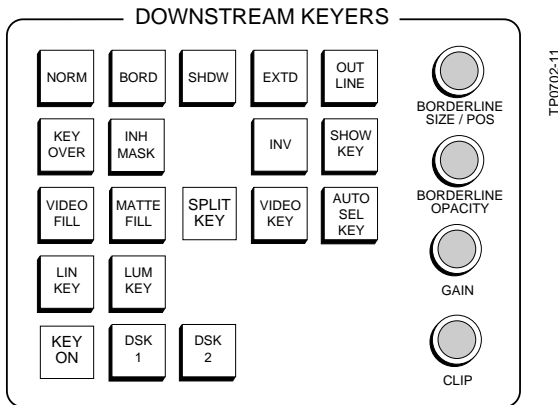
Figure 2-8. Downstream Keyers Subpanel

The Keyer subpanels provide control over the following features for a specified M/E or DSK:

- Key masking

- Video key type selection—preset pattern, chroma key, luminance key, or linear key. (The DSK has only luminance and linear keys.)

- Key fill: matte or video fill

- Key source: video key or auto-selection of key signals based on user preferences

- Show key on Switched Preview monitor

- Borderline settings

- Key invert

- Key priority

- Clip and Gain

Keyer Delegation
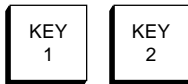
In standard mode, the Keyer subpanel located in each M/E row can be delegated between Key 1 and Key 2.

In layered mode, four keyers are available—Key 1, Key 2, Background B, and Background A.

The Downstream Keyer subpanel can be delegated to DSK 1 or DSK 2.

KEY ON Indicator

KEY
ON

The **KEY ON** indicator lamp displays whether the delegated keyer is in use or not. This indicator is a logical AND of the **ON** indicator in the transition subpanel and the keyer delegation selection.

Key Type Buttons

| LIN KEY | LUM KEY | CHR KEY | PRI PST PTTN | SEC PST PTTN |

The second row of buttons from the bottom of each Keyer subpanel selects one of five keyer modes.

LIN
KEY

Pressing the **LIN KEY** button selects a linear key with a gain fixed at unity, clip fixed at 50%, and no S-shaping. The **LIN KEY** lamp (only) is illuminated when this linear key is selected.

CLIP

If a linear key is desired, but the key signal is not at the correct level, adjustments can be made with the **CLIP** and **GAIN** knobs. **CLIP** adjusts the offset of the key signal (over a small range) in linear key mode. **GAIN** adjusts the amplitude of the key signal (over a small range).

GAIN

If either knob is adjusted away from unity, the **LUM KEY** button lights in addition to the **LIN KEY** button lamp. When both buttons are illuminated, that indicates to the operator that a linear key is being performed with non-unity gain and/or clip. If key memory is on, the non-unity clip and gain settings are recalled whenever the input associated with these settings is selected.

When gain and clip are returned to unity, the **LUM KEY** button lamp goes off. Because it is difficult to adjust the knobs back to exact unity, provision is made to force the unity values by pressing the **LIN KEY** button a second time while the button is lit. This action restores unity and turns off the **LUM KEY** button lamp.

LUM
KEY

The **LUM KEY** button selects a luminance key that has variable clip and gain adjustment and S-shaping of the key signal. Key **CLIP** (offset) and **GAIN** (amplitude) settings are remembered for each source on each keyer when key memory is enabled via the

software menu. The **CLIP** control has enough range to clip down to superblack.

A menu selection is available that switches a chroma trap into the key path to remove unwanted chroma from video used for keying.

```
CHR
KEY
```

Pressing the **CHR KEY** button delegates the Chroma Keyer subpanel to that M/E. (The **CHR KEY** button is functional only when the chroma keyer option is installed.) Refer to the Chroma Keyer subpanel description later in this section for details on chroma keyer operation. **CHR KEY** does not function with background keyers (layered mode), and is not available on the DSKs.

```
PRI
PST
PTTN
```

Pressing the Primary Preset Pattern **PRI PST PTTN** button selects the output of the primary (transition) wipe generator as the key source. Pattern adjustment is provided by the Wipe subpanel (see the Wipe subpanel description later in this section for details). The key **CLIP** and **GAIN** knobs are non-functional when this mode is selected.

In the signal path through the Model 3000 switcher, keys, including preset patterns, occur before the effect send crosspoints. This allows any key, including a preset pattern, to be sent to an external digital video effects device via an effects send. Transition wipes, however, occur after the effects send crosspoints.

After pressing **PRI PST PTTN**, the **VIDEO KEY** and **AUTO SELECT KEY** functions are ignored and the **SPLIT KEY** indicator is turned off; however the **VIDEO KEY** and **AUTO SELECT KEY** buttons and lamps continue to operate.

*NOTE: Double-pressing the **PRI PST PTTN** or **SEC PST PTTN** button in the Keyer Subpanel opens up a menu that allows you to set the preset pattern wipe direction. A single press of either the **PRI PST PTTN** or the **SEC PST PTTN** button auto delegates the Wipe Subpanel.*

SEC
PST
PTTN

Pressing the **SEC PST PTTN** (Secondary Preset Pattern) button selects the optional secondary wipe generator as the key source. Operation of the keyer while **SEC PST PTTN** is selected is similar to that when **PRI PST PTTN** is selected.

The secondary wipe generator option provides wipe pattern selection independent of the primary wipe generator (no interaction occurs between them). Without the secondary wipe option, only secondary preset pattern edge attributes are independent (preset size, softness, soft symmetry, border width, border matte, border opacity, and normal/reverse).

All pattern controls are present on the Wipe subpanel and Wipe menus. Refer to the Wipe subpanel description, later in this section, for a discussion of these controls.

Primary and Secondary Preset Patterns can be used with all keyers in layered mode. Preset patterns are not available on the DSKs.

VIDEO
FILL

MATTE
FILL

The **VIDEO FILL** and **MATTE FILL** buttons determine whether the key is filled with key bus video or a locally generated matte. These buttons are mutually exclusive; pressing one button de-selects the other. One of the two buttons is always active and illuminated.

VIDEO FILL and **MATTE FILL** operate independently from the key source buttons. All keyer modes except the A and B keyers operate with either video or matte fill.

When the key bus is contributing to the switcher Program output, pressing **MATTE FILL** does not low tally the key bus, even though the key fill *video* is not visible.

Video fill mode operates with background keyers in layered mode. When the keyer is delegated to a background layer, the **VIDEO FILL** button is turned on automatically (**MATTE FILL** is turned off).

Key Source Buttons

The **VIDEO KEY** and **AUTO SELECT KEY** buttons determine the source of the key, or "hole cutter."

Pressing the **VIDEO KEY** button forces derivation of the key from a video source. The "video source" is the video selected on the key bus (for Keyers 1 and 2) or on the background bus (for background keyers in layered mode only).

If **VIDEO KEY** and **VIDEO FILL** are both selected, the result is a self-key.

Pressing **VIDEO KEY** while in Chroma Key mode causes an encoded chroma key, using the fill video as the source for the encoded chroma keyer.

Pressing the **AUTO SEL KEY** button forces the key to be derived from a user-defined source.

User preferences selected in the Configuration/User Preferences menu determine whether a luminance or linear key is a self-key or an external key (and determine which external key is used). They also specify whether chroma keys are encoded or analog component (YUV, BETA or RGB).

Split Key Operation

A Split Key uses any key source other than a key derived from the key fill (self key) or a key source pre-selected in user preferences or a preset pattern. Split Keys can be used in all keyers, in either standard or layered mode.

A Split Key is set up by first selecting the key fill source on the Key bus, then holding down the **VIDEO KEY** button or the **AUTO SELECT** button while pressing a second button on the key bus. The second source provides the key signal. For **AUTO SELECT** that key is the external key signal mapped to that column of crosspoint buttons; for **VIDEO KEY** the key is the video signal mapped to that column of crosspoints.

SPLIT
KEY

When a split key is operational with an auto select key or a video key, the **SPLIT KEY** indicator is lit.

Other Key Modifier Buttons

KEY
OVER

Pressing **KEY OVER** swaps the priority of the two keyers, **KEY 1** and **KEY 2**, regardless of which keyer the subpanel is delegated to. The **KEY OVER** button lights when the Keyer subpanel is delegated to the key that is over the other. It may be pressed whether or not either keyer is on-air.

In Layered mode, the **KEY OVER** button does not light if the keyer subpanel is delegated to either background keyer, but the button still controls the priority of Keyers 1 and 2. It does not affect the priority of the background keyers, which have a fixed priority.

OVER

One of the two key **OVER** indicators on the associated Transition subpanel is always on, indicating the priority of Keyers 1 and 2. The indicator is on regardless of the on-air status of either keyer.

INV

The **INV** toggle button inverts the polarity of the delegated key source. Inversion is applied to the incoming key source before key processing is applied. **INV** operates in all keyers in layered mode.

SHOW
KEY

The **SHOW KEY** button is used for viewing the key signal on a particular keyer. This button does not affect the on-air video. When held down, the Switched Preview bus output shows the key signal from the keyer currently delegated to the Keyer subpanel. The key signal displayed is the key after clipping, masking, and chroma trapping have taken place.

The **SHOW KEY** button does not affect the program output of the M/E or DSK, and operates in all keyers in layered mode.

Borderline Controls

| NORM | BORD | SHDW | EXTD | OUT LINE |

The buttons at the top of the Keyer subpanel control the Borderline option. The **NORM**, **BORD**, **SHDW**, **EXTD**, and **OUTLINE** buttons are interlocked; only one button can be active at a time. Pressing a button de-selects any other button.

NOTE: *The background keyers (layered mode) do not have Borderline capability.*

Border, Shadow, and Extrude modes operate with video or matte filled keys. The Borderline matte is separate from the fill matte and has its own delegate button in the Matte subpanel.

The Borderline matte is adjusted on the Matte subpanel after selecting **K1 BORD** or **K2 BORD**, as appropriate, with the **MATTE SEL** delegation button.

| NORM |

The **NORM** button turns Borderline off.

| BORD |

The **BORD** button turns on symmetrical Borderline mode. The border width may be one, two, or three video lines wide, as adjusted by the **SIZE/POS** control. (This adjustment is shared with Outline mode.)

| SHDW |

The **SHDW** button turns on Shadow mode. The **SIZE/POS** knob is used to adjust the shadow width and position from one to six lines down and to the to the right or left.

| EXTD |

The **EXTD** (extrude) button operates like **SHDW** except for the aesthetic appearance of the shadow effect on the screen. The shadow width and position adjustments are shared with Shadow mode.

OUT
LINE

Pressing the **OUTLINE** button produces an outline of the key signal. The border width is adjustable to one, two, or three lines. In Outline mode, there is no fill video or fill matte; only the background video and outline border matte are output. As a result, the **VIDEO FILL** and **MATTE FILL** buttons have no effect when **OUTLINE** is active.

BORDERLINE
SIZE/POS

The **BORDERLINE SIZE/POS** knob adjusts the width of all Borderline borders. The control also moves the shadow or extruded shadow either down to the left or down to the right.

BORDERLINE
OPACITY

The **BORDERLINE OPACITY** knob adjusts the transparency of the Borderline borders.

Auto Preview Operation

In normal operation, the Switched Preview output of the system may be set to monitor any of the M/E preview outputs, DSK preview output, or preview primary bus.

The Auto Preview feature is activated by pressing one of the keyer delegate buttons (**KEY 1**, **KEY 2**, **BKGD B**, or **BKGD A**) for 1/2 second or longer. When Auto Preview is active, the delegated key is inserted over the M/E preview or DSK preview output on the Switched Preview bus so that you may preview the key setup.

Holding down the keyer delegate button or turning the **CLIP** and/or **GAIN** controls prolongs the Auto Preview mode. The preview returns to normal after the delegate button is no longer held down <u>and</u> there is no activity on the **CLIP** or **GAIN** controls.

Mask Control
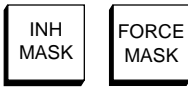
INH MASK   FORCE MASK

The **INH MASK** and **FORCE MASK** toggle buttons are illuminated when turned on, and can be turned on individually or together.

When either button is pressed, the Masks subpanel is automatically delegated for adjusting the mask, if auto delegation is enabled.

The background keyers (layered mode) do not have mask capabilities and the mask buttons are inoperative when the subpanel is delegated to a background keyer.

Pressing **INH MASK** inhibits the key from being displayed wherever the mask is present. (Normally, the mask generator is used to define areas of the screen where the key is inhibited.)

Pressing **FORCE MASK** causes the key to be fully turned on where the mask is present, rather than suppressing the key.

The **INH MASK** and **FORCE MASK** buttons are inoperative for preset pattern keys.

Matte Subpanels

Matte subpanels (Figure 2-9 and 2-10) are provided in each M/E and the DSK. Controls are provided in the Matte subpanels for creating and modifying mattes and for assigning the delegation of the subpanels.
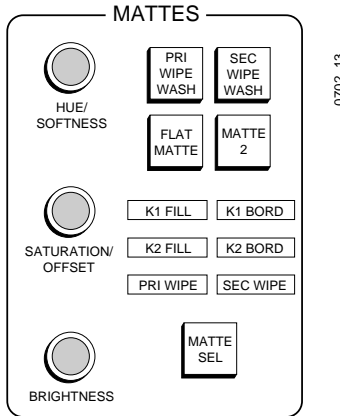
Figure 2-9. Mix/Effects Matte Subpanel
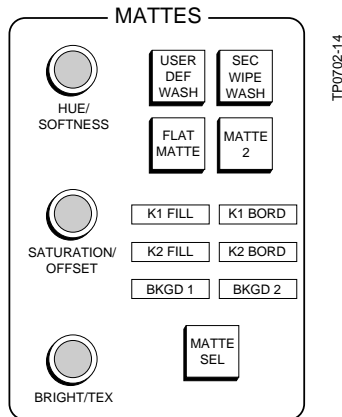
Figure 2-10. DSK Mattes Subpanel

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Matte Delegation

MATTE
SEL

Each Matte subpanel has a **MATTE SEL** button used to select which of the six matte generators that particular subpanel will control. Above the **MATTE SEL** button are six indicators, which illuminate to show the current delegation at any given time. Pressing the **MATTE SEL** button repeatedly cycles the selection through all six matte generators. Holding the button down causes it to cycle through the selections automatically until the button is released. If the Borderline option is not installed in Key 1 or Key 2, the **K1 BORD** and/or **K2 BORD** selections will be skipped.

MATTE SEL Indicators

The six indicators above the **MATTE SEL** button indicate delegation as follows:

M/E Mattes
Panel

K1 FILL	K1 BORD
K2 FILL	K2 BORD
PRI WIPE	SEC WIPE
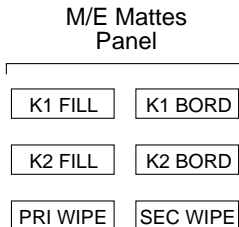
K1 FILL and **K2 FILL** LEDs—Indicate that the Matte subpanel is delegated to one of the matte generators for an area determined by the key hole cutter. However, when the keyer is in Video Fill mode, the matte is not visible. All key types (LIN, LUM, CHR, PST PTTN) are operational with matte fill.

K1 BORD and **K2 BORD** LEDs—Indicate that the Matte subpanel is delegated to a matte generator for adjusting the characteristics of the key border matte in all Borderline modes. (See the Keyer subpanel description for related keyer buttons **BORD**, **SHDW**, **EXTRUDE**, and **OUTLINE**.)

PRI WIPE LED on the M/E Matte subpanel—Indicates delegation of the matte generator for controlling the transition wipe border matte. The **PRI WIPE** LED also indicates that the M/E Matte subpanel is delegated to create the primary preset pattern border in preset pattern mode. (See the **PRI PST PTTN** button description under the Keyer subpanel description.)

DSK Mattes
Panel

K1 FILL	K1 BORD
K2 FILL	K2 BORD
BKGD 1	BKGD 2
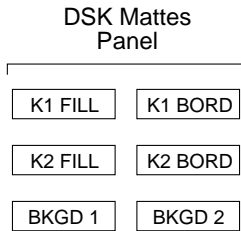
SEC WIPE LED on the M/E Matte subpanel—Indicates that the M/E Matte subpanel is delegated to create the secondary preset pattern border in preset pattern mode (see **SEC PST PTTN** button under the Keyer subpanel description).

BKGD 1 and **BKGD 2** LEDs on the DSK Matte subpanel—Indicate that the DSK Matte subpanel is delegated to background generator 1 or 2.

System Background Mattes

When **BKGD 1** and **BKGD 2** are delegated on the DSK Matte subpanel, the controls on that subpanel adjust the characteristics of the two system background mattes that are mapped to the **BKGD 1** and **BKGD 2** source selection buttons.

Matte Modifier Controls

Four buttons and three control knobs on each Matte subpanel control the characteristics of the delegated background matte.

FLAT
MATTE

The **FLAT MATTE** button selects a non-wash matte for the delegated matte generator. Pressing this button deselects all other matte mode buttons (**MATTE 2**, **PRI WIPE WASH**, and **SEC WIPE WASH** on the M/E Matte subpanel, or **MATTE 2**, **USER DEF WASH**, and **SEC WIPE WASH** on the DSK Matte subpanel).

MATTE
2

The **MATTE 2** button delegates the matte controls to the second matte generator when a matte wash is selected. To select a matte wash, press either **PRI WIPE WASH** or **SEC WIPE WASH** on the M/E Matte subpanel or **USER DEF WASH** or **SEC WIPE WASH** on the DSK Matte subpanel.

PRI
WIPE
WASH

PRI WIPE WASH on the M/E Matte subpanel selects the primary (Transition) wipe generator to modulate between the two mattes during a wash. Pressing and holding this button allows you to change the transition softness with the **HUE/SOFTNESS** knob and the offset (position) with the **SATURATION/OFFSET** knob.

SEC
WIPE
WASH

SEC WIPE WASH causes the secondary (optional) wipe generator to be used to modulate between the two mattes in a wash. Holding down this button performs the same function as with **PRI WIPE WASH**.

USER
DEF
WASH

USER DEF WASH on the DSK Matte subpanel selects the user wash generator to modulate between the two mattes during a wash. The **USER DEF WASH** pattern is a straight line that can be rotated via the **USER DEF WASH ANGLE** soft knob located in the Matte menu. (This menu may be opened by double-pressing the **USER DEF WASH** button.)

When **USER DEF WASH** is held down, the **HUE/SOFTNESS** knob adjusts the transition softness, the **SATURATION/OFFSET** knob adjusts the transition offset (position), and the **BRIGHT/TEX** knob adjusts the texture.

The texture consists of a random-like pattern (the same as the texture wipe pattern) that is mixed with the **USER DEF WASH** pattern. To control the texture, you make adjustments in the same manner as the wipe texture control, except that the buttons are in the Matte Texture menu.

HUE/SOFTNESS knob—Adjusts the hue of the matte. The knob also adjusts the softness (gain) of the transition between the two matte generators when you hold down the **PRI WIPE WASH**, **SEC WIPE WASH**, or **USER DEF WASH** button. Softness is not adjustable while **FLAT MATTE** is active.

HUE/
SOFTNESS

SATURATION/OFFSET knob—Adjusts the color saturation of the matte. The knob adjusts the offset (position) of the wash modulation when you hold down the **PRI WIPE WASH**, **SEC WIPE WASH**, or **USER DEF WASH** button. Offset is not adjustable while **FLAT MATTE** is active.

SATURATION/
OFFSET

BRIGHTNESS, BRIGHT/TEX knob—Adjusts the color brightness of the matte. On the DSK Matte subpanel, this knob also allows adjustment of the texture of the matte when the **USER DEF WASH** is held down.

BRIGHTNESS

When a Matte subpanel is delegated away from a matte generator and then returned, the status of the knobs and buttons is remembered.

Chroma Keyer Subpanel

The Chroma Keyer option, which consists of a dual Chroma Key input module and a dual Chroma Keyer (processor) module, adds two Chroma Keyers to an M/E.

With a Chroma Keyer option installed in one or more M/Es, the Model 3000 switcher can generate key signals on the basis of color information contained in a video picture. User control of chroma keying is provided by the Chroma Keyers subpanel (Figure 2-11) and the **CLIP** and **GAIN** controls on the Keyer subpanel.

In addition to the controls provided on the Chroma Keyers subpanel, several Chroma Keyer controls are provided via the Menu Display.
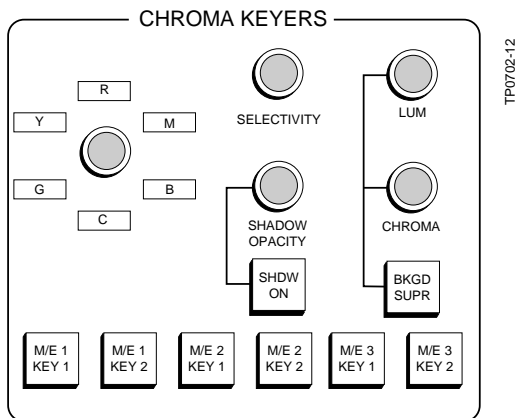
Figure 2-11. Chroma Keyers Subpanel (3000-3 shown)

Chroma Keyer Delegation

M/E 1 KEY 1	M/E 1 KEY 2	M/E 2 KEY 1	M/E 2 KEY 2	M/E 3 KEY 1	M/E 3 KEY 2

The Chroma Keyers subpanel may be delegated between any of the chroma keyers using the four (2 M/E) or six (3 M/E) buttons located at the bottom of the subpanel.

Chroma Keyer Controls
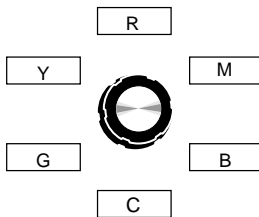
The **HUE** control sets the color in the chroma key scene from which the key signal will be derived. The foreground and background suppress mattes also use this color unless otherwise set in the menu. The six indicators near the **HUE** knob indicate the color the knob is currently set to (R=red; M=magenta; B=blue; C=cyan; G=green; Y=yellow).

SELECTIVITY sets the acceptance angle of hues used to make the key signal.

The **SHDW ON** button turns the chroma key shadow on or off.

The **SHADOW OPACITY** control sets the opacity of the chroma key shadow.

The **BKGD SUPR** button turns background suppression on or off. When suppression is turned on, the associated control knobs are used to define the amount of suppression.

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The **BKGD SUPR LUM** control adjusts the amount of luminance subtracted from the background region of the foreground video.

LUM

The **BKGD SUPR CHROMA** control adjusts the amount of chrominance subtracted from the background region of the foreground video.

CHROMA

Chroma Keyer Operation

The following procedure describes manual adjustment of a chroma key. Automatic adjustment is provided by the Chroma Key Auto-Setup Option.

The chroma keyer performs the fundamental suppression operation by subtracting mattes from the foreground. This results in a shaped foreground without a multiply operation. The primary hue selector chooses the hue to be subtracted out of the foreground. Chroma is subtracted off first, followed by a luminance subtraction.

NOTE: Adjustment of chroma keys is aided by having a waveform monitor mounted in or near the control room console.

1.   Select **CHR KEY** on the appropriate Keyer panel.

2.   For an RGB chroma key, select **AUTO SEL** on the Keyer panel; for an encoded chroma key (with a Decoder board installed), select **VIDEO KEY** on the Keyer panel.

3.   Select the chroma key source on the KEY bus.

4.   Bring up the Chroma Key menu by pressing the main menu **CHR KEY** button.

5.   Set **BACKGROUND VIDEO** to **OFF** and set **FOREGROUND CORING** to **FIXED** in the Chroma Key menu.

6. Select the background hue to be suppressed. Select **BKGD SUPR** on the Chroma Keyer panel, then set the **CHROMA** and **LUM** knobs fully counterclockwise. Turn the **HUE** knob for maximum effect on the desired suppression hue.

7. Adjust the **SELECTIVITY** knob for the desired amount of selectivity (range of hues admitted by the hue selector). Counterclockwise widens the selectivity; clockwise narrows the selectivity.

8. Adjust the **CHROMA** knob until all chroma has been subtracted out of the background. Clockwise allows greater suppression.

9. **SELECTIVITY** and **CHROMA** may be readjusted to optimize suppression of the background chroma.

10. Adjust the **LUM** knob until the background is subtracted down to black.

11. In the Chroma Key menu, set **BACKGROUND VIDEO** to **ON**. To aid in the adjustment of background video, you may also wish to set **FOREGROUND VIDEO** to **OFF**.

12. Select a background on the M/E to present the desired background. Adjust the **CLIP** and **GAIN** controls on the Keyer subpanel to achieve the desired effect. Use the lowest gain that still allows a fully opaque key. Small adjustments of the **HUE** and **LUM** knobs may be made as desired.

13. If you turned off **FOREGROUND VIDEO** in step 11, turn it back on at this time.

14. You may verify the desired appearance of the chroma key by selecting **SHOW KEY** on the Keyer subpanel and observing the key on the Preview monitor. Readjustment of the **CLIP** and **GAIN** controls on the Keyer subpanel may be made, if desired.

A secondary hue selector in the Model 3000 adds a color vector opposite the background hue to selected foreground objects. This can be used to tint foreground objects to counteract the color from the background. The secondary hue selector affects only the chroma suppression of the foreground. It does not contribute to the background key signal nor to luminance suppression. This function is enabled by the **SECONDARY COLOR SUPPRESS** selection in the Chroma Key/Secondary Color menu.

Refer to the Menu Descriptions section of this manual for additional features provided by the Chroma Key menu.

Preview Subpanel (3000-3 only)

The Preview subpanel (Figure 2-12) allows you to select the preview output to be viewed on the switched preview monitor.

Choices available on the switched preview output are Preview Primary (current selection on PVW/AUX bus), M/E 1 Preview, M/E 2 Preview, M/E 3 Preview, and DSK (switcher) Preview.

The buttons on the Preview panel are mutually exclusive, such that pressing one button de-selects any other button that was active.
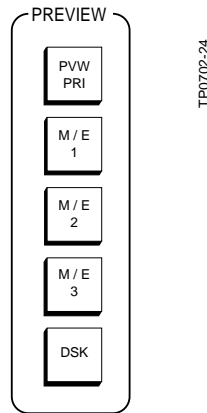
Figure 2-12. Preview Subpanel (3000-3 only)

PVW PRI selects the currently active input on the PVW/AUX bus. This selection can be any primary or secondary input.

M/E
1

M/E
2

M/E
3

M/E 1 through **M/E 3** select the corresponding M/E preview output.

DSK

DSK selects the preview output of the Program /Preset and Downstream Keyers.

Master Effects Memory (E-MEM) Subpanel

The Effects Memory (3000-2) or Master Effects Memory (3000-3) subpanel shown in Figure 2-13 allows you to define, store, and recall effects setups for the entire switcher. (See the following page for definitions of effects and keyframes.)

The (Master) E-MEM subpanel contains enable buttons, a keypad with readout, effect editing buttons, effect run buttons, and a run lever arm.
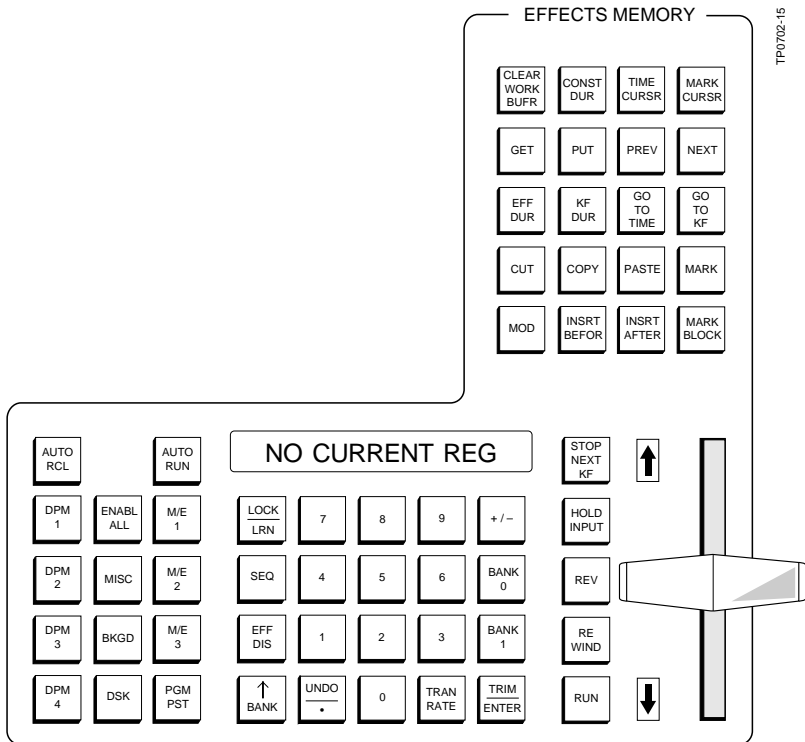
Figure 2-13. Effects Memory Subpanel (3000-3 shown)

E-MEM Registers

Effect setups are stored in E-MEM registers. There is a total of 100 registers in the Master E-MEM, grouped in ten banks of ten registers. Each register belongs to a specific bank (0 through 9) and has a unique number (0 through 9) within that bank. For example, register 46 means bank 4, register 6.

When the system is powered up, the keypad readout comes up with a "NO CURRENT REG" message.

Effects and Keyframes

An E-MEM "effect" has generally been considered to be whatever was stored in an E-MEM register. This consisted of the status of enabled levels of the switcher as set up on the control panel and in the menus, at the time the E-MEM effect was stored ("learned").

However, the Model 3000 Switcher is now able to store more than one switcher state ("a keyframe") on each enabled level in a single E-MEM register, and to transition, or "run," between keyframes. Therefore, a keyframe effect is considered to be a sequence of keyframes stored in a single E-MEM register.

You may think of an E-MEM effect as being the same as a keyframe effect, but consisting of a single keyframe on each enabled level. This mode of operation (single-keyframe effects) may still be used, and may be preferable to multiple-keyframe effects in many instances.

Enable Buttons

When you learn a switcher state (or insert a keyframe) into an E-MEM register, the only switcher parameters that are learned are those that are enabled by the Enable buttons on the E-MEM subpanel.
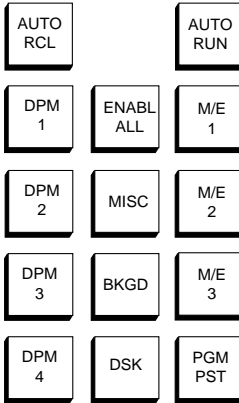
Each E-MEM register is partitioned into sections (or "levels") corresponding to the Enable buttons and representing functional areas of the control panel and associated menu selections.

All register manipulations, including Learn, Recall, Put, Get, and Run operations, affect only the enabled register levels. This allows you to build independent effects on each level and to recall or run the levels independently.

For example, an effect using both M/E 1 and M/E 2 could be built with both being enabled, and either the M/E 1 or M/E 2 part of the effect could run separately by enabling only one and recalling the register. Conversely, separate effects built at different times, in different levels of the same register, could run together by enabling both M/E 1 and M/E 2.

The **M/E 1**, **M/E 2**, **M/E 3** (3000-3 only), **PGM PST**, and **DSK** buttons are also used when setting transition rates in the effects systems, as described later (see **TRAN RATE**).

Pressing **ENABL ALL** lights all Enable buttons (enables all levels) if any or all of them are not presently on, or turns all Enable buttons off if all of them are already on. This action allows all levels to be enabled or disabled with a maximum of two button presses.

M/E
1

M/E 1, **M/E 2**, and **M/E 3** (3000-3 only) enable the following areas for learn and recall operations on a specific M/E: standard or layered mode operation, crosspoint settings, transition settings, keyer settings, masks and mattes, chroma key settings, wipes, positioner settings and full additive mix (FAM) settings.

M/E
2

M/E
3

PGM
PST

PGM PST enables the crosspoint settings and transition settings for learn and recall operations on the Program and Preset buses.

DSK

DSK enables the following areas for learn and recall operations on the two downstream keyers: DSK crosspoints, DSK keyer settings, DSK masks, and four mattes (**K1 FILL**, **K1 BORD**, **K2 FILL**, and **K2 BORD** on the DSK Mattes subpanel), excluding matte wash.

BKGD

BKGD enables the two background matte generator settings (**BKGD 1** and **BKGD 2** on the Mattes subpanel) for learn and recall operations, excluding matte wash.

MISC

MISC enables the following user-defined areas for learn and recall operations: frame store settings, peripheral settings, GPI settings, aux bus settings, mask bus settings, preview bus settings, and matte wash settings for Backgrounds 1 and 2 and the DSK. All aux buses default to the **MISC** level unless assigned to a DPM level using the Config/DPM Setup and DPM Map Aux Buses menus.

All aux buses are user-definable to be assigned to the **MISC** button or to the **DPM 1**, **DPM 2**, **DPM 3**, or **DPM 4** buttons. Unless assigned to a DPM level using the Configuration/DPM Setup and DPM Map Aux Buses menus, all aux buses default to the **MISC** level.

DPM 1, DPM 2, DPM 3, and DPM 4 enable certain parameters of the associated DPMs (Digital Picture Manipulators) for learn and recall operations. The specific functions to be learned and/or recalled are determined by the type of DPM, its capabilities, and the configuration of the DPM port.

Aux buses can be assigned to a DPM level by use of the Config/DPM Setup menu. Refer to the Startup section of the User Guide for setting up the DPMs.

AUTO RCL allows the state of the Enable buttons to be learned or recalled as part of an effect.

If AUTO RCL is on while an effect is learned, the state of the Enable buttons is learned as part of the effect. If AUTO RCL is off while an effect is learned, the enables are not learned, and any subsequent recall (even if AUTO RCL is on during the recall) does not change the state of the enables.

If AUTO RCL is on during a recall, the enables (as learned) are first recalled, then the resulting enabled portions of the switcher are recalled. If AUTO RCL is off during a recall, the enables remain as set on the Enable panel, and those parts of the effect are recalled.

AUTO RUN enables effect Recall-and-Run operations. When AUTO RUN is active, a register recall causes a recall of the register, sets the Time Cursor at Time 0, and causes an immediate run if the effect contains more than one keyframe.

NOTE: Refer to "Effect Editing Controls," later in this section, for a description of inserting keyframes into existing stored effects.

Learning Effects

To learn the <u>first</u> (and perhaps the only) keyframe of an effect into an E-MEM register, enable the appropriate register levels, then press the following sequence of buttons on the E-MEM subpanel:

LRN, **BANK**, **bank number**, **register number**

NOTE: If the next desired register is in the current bank, you may omit **BANK** *and* **bank number** *in the above sequence.*
Also, if the desired bank is 0 or 1, you may substitute **BANK 0** *or* **BANK 1** *for* **BANK**, **bank number** *in the above sequence.*

A Learn operation initializes a register as a single-keyframe effect (that is, a single keyframe on each enabled level). More keyframes can be added to a single-keyframe effect by using **INSRT BEFOR**, **INSRT AFTER**, or **PASTE** (if there is a keyframe on the clipboard to be pasted).

CAUTION

If a Learn is done in a register that already has a multiple-keyframe effect, the Learn erases all existing keyframes at all enabled levels and stores the new state. An immediate Undo will restore the erased effect!

The **LRN** button may also be used to learn the current state of each enabled level into the next unlocked empty register by pressing **LRN •**.

NOTE: More information on adding, deleting, moving, and modifying keyframes is provided in the User Guide.

Recalling Effects

To recall an effect in an E-MEM register, press the following buttons:

BANK, **bank number**, **register number**

or use the shortcuts described in the NOTE under "Learning Effects".

On recall, registers are positioned at Time 0 with Keyframe 1 data. If Auto Run mode is enabled and there is more than one keyframe in the effect, an immediate run then occurs.

NOTE: When an E-MEM register is recalled, the key memory for any recalled crosspoint is updated, if Key Memory is enabled in the Keyer menu.

Crosspoint Override

During an E-MEM recall, if you don't want the crosspoint on an individual bus to change, you can manually hold down the present crosspoint buttons while the E-MEM register is recalled. This is referred to as "crosspoint override." When this is done, the video and key crosspoints are held, and if key memory is on at this time, the current keyer memory state is also held.

See the **HOLD INPUT** button description, later in this section, for a method of holding *all* sources while E-MEM registers are recalled.

Keypad with Readout

```
┌─────────────────────────┐
│    NO  CURRENT  REG      │
└─────────────────────────┘
```

LOCK / LRN	7	8	9	+ / −
SEQ	4	5	6	BANK 0
EFF DIS	1	2	3	BANK 1
↑ BANK	UNDO / •	0	TRAN RATE	TRIM ENTER
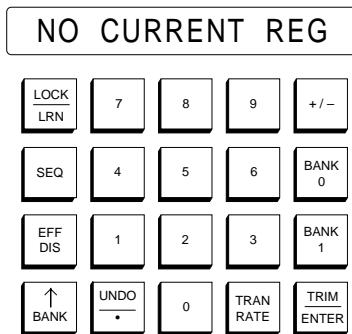
The Master E-MEM keypad is used for effect learns and recalls, and serves as a numerical entry pad for the following buttons: **TRAN RATE**, **LRN**, **LOCK**, **BANK**, **LRN SEQ, KF DUR**, **GET**, **PUT**, **GO TO KF**, and **GO TO TIME.** (The last four of these buttons are located in the E-MEM effect editing group of buttons.)

Pushing a numerical button at any time other than when preceded by one of the above buttons recalls the corresponding register within the current bank. To recall a register in a different bank, enter the recall sequence described previously.

Master E-MEM Readout

```
┌─────────────────────────┐
│   L  B0  REG  04         │
└─────────────────────────┘
```

The alphanumeric readout at the top of the Master E-MEM keypad provides status information about E-MEM operations and registers.

During normal Learn and Recall operations, the display informs you what the current Bank ("B..."), Register ("REG..."), and Keyframe ("KF ...) are. If the register is locked, an "L" is shown at the left end of the display. Other messages on the Master E-MEM readout include **"NO CURRENT REG"** at bootup, **"NO EMPTY REGS"** if no register is available for a **LRN •** or **PUT •** operation, and **"REG IS LOCKED"** if you attempt to put an effect into a locked register. During Gets and Puts, the display provides prompts asking you for the source or destination register.

One condition that can exist under certain circumstances is having two different enabled levels that were recalled by two different registers. In this case there are actually two Current Registers, but only one can be shown in the display.

```
┌─────────────────────────┐
│   L  B0ΔREG04  KF01      │
└─────────────────────────┘
```

The existence of this condition is indicated by a "Δ" between the apparent current bank number and the apparent Current Register number.

This condition would occur if (with **AUTO RCL** off) you enabled one level, recalled a register, turned off that enable, turned on another enable, recalled another register, and re-enabled the first level. In this situation, the locations of the contributing registers can be determined by turning on one enable at a time.

↑**/BANK** is a two-function key that can be used for bank selection or for accessing "second" functions, e.g., **LOCK** and **UNDO**. Pressing the ↑**/BANK** button delegates the numeric keypad to single-digit bank selection, and delegates buttons with second functions to the second function. The button lights when pressed, and stays lit until the delegation is completed. Pressing ↑**/BANK** a second time will also terminate the delegation.

Refer to "Learning Effects" and "Recalling Effects" earlier in this section for use of the **BANK** button, and to the **LOCK** and **UNDO** headings for use of the ↑ (second) function button.

LRN is used for storing or "learning" the Current Switcher State as a single keyframe (on each enabled level) in an register, or for learning a register sequence.

Refer to "Learning Effects" earlier in this section for learning switcher data into E-MEM registers, and to the **SEQ** button description for learning a sequence of registers.

In a multiple-keyframe effect, a **LRN MOD** operation is used to change register header information, such as Auto Recall on/off status, Effects Dissolve rate or on/off status, DPM Effect Number, and Source Hold. The **LRN MOD** operation is described in the User Guide and under the heading Learn Modify on page 2-84 of this section.

The **LOCK** function locks a single register. Locking a register prevents the contents of that register from being changed. To lock the Current Register whose number is displayed, press the following buttons:

↑, **LOCK**

When locked, an "L" is displayed at the left end of the E-MEM readout, next to the register number. To unlock the register, press the buttons again:

↑, **LOCK**

NOTE: You cannot lock an entire E-MEM bank from the subpanel; a menu selection is provided for this action. (Refer to the E-MEM Menu description in the Menu section of this manual.)

Pressing the **BANK 0** button makes Bank 0 the current bank, and causes buttons 0 through 9 on the keypad to become one-button recall registers for registers 00 through 09. This button is lit whenever bank 0 is the current bank.

Pressing **BANK 1** makes Bank 1 the current bank, and causes buttons 0 through 9 on the keypad to become one-button recall registers for registers 10 through 19. This button is lit whenever Bank 1 is the current bank.

ENTER confirms a numerical entry on the keypad, such as for the following functions: **GET**, **PUT**, **KF DUR**, **GO TO TIME**, **GO TO KF**, and **TRAN RATE**. The **ENTER** button lights when pressed. (The **TRIM** function of this button is not implemented at this time.)

SEQ is used for creating automated register-recall sequences.

Sequences are *created* by pressing the following buttons (parameters in parentheses are optional):

> **SEQ**, **LRN**,
>
> **register, TRAN RATE, delay**,
>
> **register, TRAN RATE, delay**,
>
>   **...**

NOTE: SEQ *and* **LRN** *may be pressed in either order to start the command sequence;*
TRAN RATE *and* **delay***, in parentheses, are optional.*
TRAN RATE *enables a user-defined delay to be introduced between register recalls;*
delay *is a 1- to 3-digit number entered on the keypad that specifies an amount of delay in TV frames. (If the number entered is a 1- or 2-digit number, the entry must be terminated by pressing* **ENTER***;*
register *is any desired register number, as described previously (e.g.,* **BANK***,* **bank number***,* **register number***).*

A sequence loop may be created by again pressing the first register button as the last register in the sequence.

Sequences are *initiated* by pressing the following buttons:

> **SEQ**, **register**

The sequence starts at the register indicated, and proceeds through the linked sequence to the last register. If a loop has been programmed, the sequence loop continues until the **SEQ** button is pressed to terminate the sequence.

A sequence loop can be broken by double-pressing a register button, which clears the sequence link that existed in that register and making that the last register in the sequence.

If **AUTO RUN** is off, a sequence that includes a multiple-keyframe effect will recall the first keyframe in the register, but will not run the effect, then will proceed on to the next register in the sequence. If **AUTO RUN** is on, the sequence will recall the first keyframe, then run the effect before proceeding to the next register.

During a sequence of registers with multiple levels, the **SEQ** button will high tally if *any* of the enabled levels was learned with a sequence. However, this does not necessarily mean that *all* enabled levels are sequencing.

Different sequence delays may be learned separately into different enabled levels. The sequence delays on different levels are completely independent, and thus the sequencing may be occurring at different times on different levels. (The register sequence information is displayed in the E-MEM Register menu.

If an E-MEM level is disabled (its Enable button turned off) while it is actively sequencing, the sequence will continue. Turning off the **SEQ** button at that time will not halt the sequence, because the sequencing level is not delegated. To ensure halting all actively running sequences, all E-MEM levels must be enabled (**ENABL ALL**) and then **SEQ** turned off.

EFF
DIS

EFF DIS causes an S-linear transition from the Current Switcher State to the next recalled register. The Current Switcher State may be a setup you have just done on the control panel or the state resulting from a register recall.

An effects dissolve may be learned into a register, so that recalling that register will initiate a dissolve to another specified register. Note that only the levels that are enabled on the E-MEM Enable subpanel will be learned as effects dissolves.

If **AUTO RUN** is off, an effects dissolve to a multiple-keyframe effect will stop at the first keyframe of the effect. If **AUTO RUN** is on, the current state will dissolve to the first keyframe and the effect will run.

The following button sequence is used to learn an effects dissolve (parameters in parentheses are optional):

LRN, EFF DIS, (TRAN RATE, eff dissolve rate), register

NOTE: **LRN** *and* **EFF DIS** *may be pressed in either order to start the command sequence;*
TRAN RATE *enables a user-defined effects dissolve rate to be introduced in the dissolve;*
eff dissolve rate *is a 1- to 3-digit number entered on the keypad that specifies the effects dissolve rate in number of TV frames. (If the number entered is a 1- or 2-digit number, the entry must be terminated by pressing* **ENTER***);*
register *is any desired register number, as described previously (for example,* **BANK***,* **bank number***,* **register number***).*

The effects dissolve rate is the same as the auto transition rate indicated in the readout on the corresponding Transition subpanel.

When the register with the learned effects dissolve is recalled, the **EFF DIS** button will high tally until the dissolve is completed, then will turn off.

During a recall of a register with multiple levels, the **EFF DIS** button will high tally if *any* of the enabled levels contains an effects dissolve. This does not necessarily mean that *all* enabled levels are dissolving.

Different effects dissolve rates may be learned separately into different enabled levels. The effects dissolve rates on different levels are completely independent, and thus the dissolves may be running at different rates on different levels.

A **LRN MOD** operation can be used to change the effects dissolve rates on delegated levels of the effect.

UNDO
•

The • (dot) button is used to represent the next unlocked empty register when used with the **LRN** and **PUT** buttons. The next unlocked empty register is defined as the next register that is unlocked and empty on all levels, not just enabled levels. The search for an unlocked empty register starts at the Current Register and proceeds to register 99, then wraps around to register 0 and continues.

> **LRN •** learns the enabled levels of the Current Switcher State into the next unlocked empty register, and that register becomes the Current Register. This initiates the register as a single-keyframe effect.

> **PUT • ENTER** copies the enabled levels of the Current Register into the next unlocked empty register. If multiple keyframes are contained in the enabled levels of the Current Register, they are copied into the new register. The Current Switcher State and the Current Register are not affected by this operation.

NOTE: *If there are no unlocked empty registers, the operation will not be done, an error beep will sound, and the keypad readout will show "NO EMPTY REGS"*

GET • ENTER clears out all levels of the Current Register, which makes it an empty register. The Current Switcher State is not affected.

The • function is also used to separate seconds, frames, and field parameters in time entry commands such as **GO TO TIME** and **KF DUR**.

↑
BANK

UNDO
•

UNDO is used to back out of a Recall, Learn, Put, Get, or another Undo register operation. The **UNDO** button lights when pressed, confirming that it has been pressed. An Undo must be done immediately after an undesired operation, otherwise it may not be able to undo the operation.

For the above register functions, pressing ↑, **UNDO** repeatedly allows you to toggle back and forth between the two last states. (For toggling **UNDO**, you have to press ↑/**BANK** then **UNDO** each time.)

NOTE: *Editing operations such as Cut, Copy, Paste, and Mod cannot be undone with the **UNDO** function on the E-MEM keypad.*

```
TRAN
RATE
```

TRAN RATE is used with the keypad to set the transition/mix rates used by the **AUTO TRAN** (auto transition), **KEY MIX**, and **DSK MIX** buttons on the Transition subpanels, and by the **EFF DIS** button on the E-MEM keypad.

When **TRAN RATE** is pressed, the E-MEM display queries:

> **SET WHICH RATE?**

and any Enable buttons that are on turn off.

The transition rate is then delegated to the desired Transition subpanel by pressing **M/E 1**, **M/E 2**, **M/E 3** (3000-3 only), **PGM PST**, or **DSK**. All of these functions may be enabled simultaneously by pressing **ENABL ALL**.

NOTE: *When **TRAN RATE** has been selected, **ENABL ALL** enables only those levels that have programmable transition rates (**M/E 1**, **M/E 2**, **M/E 3** (3000-3 only), **BKGD**, **DSK**, and **PGM PST**).*

After the desired levels are enabled, the display queries:

> **RATE = ?** (3000-2)
>
> > **or**
>
> **AUTO RATE = ?** (3000-3)

(This is the first of 3 rates that the display will ask for.)

To set the auto transition rate for all enabled levels, enter the desired rate using the number buttons on the keypad. Pressing three number buttons on the keypad automatically enters the rate. If only one or two number buttons are pressed, the entry must be completed by pressing **ENTER**. Rates from zero through 999 frames may be entered. (If one or two incorrect numbers have been entered, the entry may be cleared and the previous rate restored by pressing **TRAN RATE** again.)

As soon as the new rate is confirmed, it is displayed in the auto transition rate display on the Transition subpanel of each enabled level.

The Master E-MEM display then queries:

> **KEY 1 RATE = ?**

This refers to the mix rate of the **KEY 1 MIX** buttons or **DSK 1 MIX** button at the right edge of each Transition panel. To set the Key 1 and/or DSK 1 mix rate for all enabled levels, follow the same procedure as described above for the auto transition rate. (If you want to set each key mix rate separately, enable each level separately.)

As soon as the new rate is confirmed, it is entered into memory for each enabled level, but is not displayed. The display then asks for the third rate to be set:

> **KEY 2 RATE = ?**

Repeat the procedure again to set the mix rate for the **KEY 2 MIX** buttons and **DSK 2** button.

NOTE: *The mix rate for either key is displayed on the auto transition readout when the **KEY 1 MIX/DSK 1 MIX** or **KEY 2 MIX/DSK 2 MIX** button is pressed (initiating a mix) or when the **SHOW KEY** button is pressed on the appropriate panel and the desired key is enabled (**KEY 1/DSK 1** or **KEY 2/DSK 2** button on Keyer panel lit).*

Any of the three transition/mix rates can be skipped simply by pressing the **ENTER** button when the query appears.

If there are no enabled levels that require one of the above-mentioned rates, that query will be skipped. For example, **PGM PST** does not require a key rate, and **DSK** does not require an auto transition rate.

When the sequence of transition/mix rates has been completed, the **TRAN RATE** button turns off and the Enable buttons return to their previous state, as does the keypad readout display.

The **+/–** key is provided for future keypad operations.

+ / –

Effect Editing Controls

The effect editing controls are located in the upper portion of the Master E-MEM subpanel.

CLEAR WORK BUFR	CONST DUR	TIME CURSR	MARK CURSR
GET	PUT	PREV	NEXT
EFF DUR	KF DUR	GO TO TIME	GO TO KF
CUT	COPY	PASTE	MARK
MOD	INSRT BEFOR	INSRT AFTER	MARK BLOCK

The **CLEAR WORK BUFR**, **GET**, and **PUT** buttons on the effect editing panel are at low tally whenever they are enabled to perform their respective functions.

All other buttons on the effect editing panel must be enabled by a menu selection in the main Keyframe menu. (Select **ENABLE** with the **KEYFRAME EDITING** soft button.)

When enabled, the effect editing buttons are at low tally; when disabled, the effect editing buttons are off. (Some of the buttons may also be off under certain conditions, as described under the individual button descriptions.)

CLEAR WORK BUFR

CLEAR WORK BUFR is used to restore user-defined default switcher state values to the Working Buffer, clearing out any previous values that were stored there. This button is normally off, but lights for one-half second when pressed.

CLEAR WORK BUFR is always functional, even when the other effects editing buttons are not enabled (**KEYFRAME EDITING** set to **DISABLE** in the Keyframe menu).

NOTE: *The "Current Register" is defined as the active register on each E-MEM level. If all enabled levels are in the same register, the Current Register is the same as that shown in the E-MEM keypad display. However, if the enabled levels have different Current Registers, as indicated by a "Δ" between the bank number and the register number, the Get and Put operations will operate on different registers. For example, if enabled level M/E 1 is in Register 1, and enabled level M/E 2 is in Register 2, a "PUT CUR INTO 03" operation will copy M/E 1 Register 1 into M/E 1 Register 3, and M/E 2 Register 2 into M/E 2 Register 3.*

Clear Working Buffer Modes of Operation

With Version 5.0 and later software, there are four modes of operation for the **[CLEAR WORK BUFR]** button:

1.   Single press of the **[CLEAR WORK BUFR]** button — Clears the Current Working Buffer *except* Keyers. This clears the CWB to User-Defined Defaults for all enabled levels, but leaves the key memory portion of the CWB unaffected.

2.   Double press of the **[CLEAR WORK BUFR]** button — Clears the Current Working Buffer *including* Keyers. This is the same as a single press of the button, with the addition of key memory parameters being cleared (crosspoints are unaffected).

3.   Single press of the **[CLEAR WORK BUFR]** button while holding down a key bus crosspoint button — Clears only the key memory portion of the Current Working Buffer for the selected key crosspoint. (This includes clearing any split keys for that key crosspoint.)

4.   Double press of the **[CLEAR WORK BUFR]** button while holding down a key bus crosspoint button — Clears the Current Working Buffer for a selected E-MEM level and clears any split keys for that key crosspoint.

GET

GET provides a method of copying or "getting" the contents of a specified register into the *Current Register*.

The Current Switcher State and the Current Register number are not affected by the Get operation.

The **GET** button is at low tally whenever a Get operation is permissible and off when the operation is not permissible (when there is no Current Register or the Current Register is locked).

When pressed, the **GET** button high-tallies and the E-MEM readout provides a prompt. For example, if Bank 0 and Register 7 are currently selected, the display will prompt:

> **GET 0x INTO CUR**

> (If the bank were 1 and the Current Register 7, the display would show: GET 1x INTO CUR)

To get the effect from a specific bank and register, change the bank number if the correct bank is not already selected, then enter the register number of the effect to be copied. Press **ENTER** to complete the Get operation.

The Get operation does not copy sequence link information (sequence link register or sequence delay) to the Current Register.

An Undo of the Get operation will restore the previous contents to the current register, without affecting the Current Switcher State or changing the current register number.

Also, as mentioned previously under the • button description, the **GET** button may be used for clearing out the Current Register by pressing **GET • ENTER.**

PUT

The **PUT** button provides a method of copying or "putting" the contents of the Current Register into another E-MEM register. If multiple keyframes are contained in the enabled levels of the Current Register, they are copied into the new register.

The **PUT** button is at low tally whenever a Put operation is permissible and off when the operation is not permissible (no Current Register).

When pressed, the **PUT** button high-tallies and the E-MEM readout provides a prompt. For example, if a register in Bank 0 is currently selected, the display will prompt:

> **PUT CUR INTO 0x?**

To put the current effect into a specific bank and register, change the bank number if the correct bank is not already selected, then enter the destination register number. Press **ENTER** to confirm the Put operation.

The Put operation does not copy sequence link information (sequence link register or sequence delay) to the destination register.

If the destination register is locked, the Put operation will not be performed, an error beep will sound, and the keypad readout will show "REG IS LOCKED".

An Undo of the Put operation will restore the previous contents to the destination register, without affecting the Current Switcher State or changing the Current Register number.

Also, as mentioned previously, the **PUT** button may be used to copy the Current Register contents into the next empty register by pressing **PUT • ENTER**.

NOTE: *The remainder of the Effect Editing controls deal primarily with effect keyframes and effect timelines.*

Refer to "Effects and Keyframes" near the beginning of this section for general definitions of *effects* and *keyframes*.

In the Model 3000, a *Timeline* is a graphical representation (in the Timeline menu) of the keyframes and their time relationships on a given enabled level in the current E-MEM register. Each enabled register has its own timeline.

The *Master Timeline* (the top timeline in the Timeline menu) is a composite representation of the timelines of all enabled levels in the current E-MEM register. All time positions of the effect are referenced to the Master Timeline.

A *Master Timeline Keyframe* is a point on the Master Timeline that has a keyframe on one or more levels at that point in time.

The *Current Time* is the time position of the Time Cursor on the Master Timeline of the effect.

The *Current Keyframe* is the keyframe and its duration on which the Time Cursor is positioned.

| TIME CURSR | Pressing the **TIME CURSR** button once brings up the Timeline menu of the current E-MEM register. If there is more than one keyframe in the effect, the position of the Time Cursor may be positioned on the timeline by the **RUN TIME)** soft knob in the menu, the Run lever arm on the E-MEM panel, or any of the effects positioning buttons **GO TO KF, GO TO TIME, NEXT, PREV**, or **REWIND**). |

| MARK CURSR | The **MARK CURSR** button is provided for future editing operations; however, pressing **MARK CURSR** once brings up the Timeline menu. |

Modes of Insertion/Deletion

The editing mode selected determines the way keyframes are added to or removed from an effect. The editing mode is selected by the **CONST DUR** button on/off) on the E-MEM Effects Editing panel and by the **DELEGATES/ENABLES** selection in the Main Keyframe menu or the Timeline menu.

The four editing functions that add keyframes or delete keyframes from an effect (**Cut**, **Paste**, **Insert Before**, and **Insert After**) are affected by the selected editing mode and by the position of the Time Cursor on the Master Timeline.

NOTE: Cuts, Inserts, and Pastes cannot be performed on any locked level of an E-MEM register.

Only those levels that are *delegated* are affected by timeline editing. When **ENABLES** is selected in the Timeline menu or the main Keyframe menu, *all* enabled levels are also delegated; thus all levels are affected. When **DELEGATES** is selected in the menu, only specified enabled levels are delegated; all other enabled levels are *enabled* but *not delegated*.

With previous software versions

■   If the Master Timeline cursor was on a keyframe, an Insert operation (**Insert Before** or **Insert After**) used the "on a keyframe" rule; that is, a new keyframe was added before or after the current keyframe on each delegated level, and that added keyframe lengthened the overall duration of those timelines.

■   If the Master Timeline cursor was not on a keyframe, the Insert operation used the "on the path" rule; that is, a new keyframe was added at that point-in-time on each delegated level, subtracting the added keyframe's duration from the current keyframe's duration. Therefore, the added keyframe did not add to the overall duration of that timeline.

With software version 5.2, the system makes decisions as to whether to use the "on a keyframe" or "on the path" rules based on whether keyframes are present on the *delegated* levels, not whether they are present on the Master Timeline.

The new rules are as follows:

■   If *any* delegated level has no keyframe at the current time (location of cursor), an Insert operation does an insert "on the path" on each delegated level. As before, an insert "on the path" does not increase the overall length of the timelines.

■   If *any* delegated level has a keyframe at the current time, an Insert operation does an insert "on a keyframe" on each delegated level. An insert "on a keyframe" increases the length of the timeline of each delegated level(s) by the duration of the inserted keyframe (equal to the duration of the current keyframe on the Master Timeline).

   Note that in Constant Duration mode, inserting "on a keyframe" is inhibited because that would add to the duration of the delegated timeline.

These new rules apply to all corresponding Insert, Paste, and Mod operations.

Constant Duration Off

The following pages describe the operation of the keyframe insertion/deletion functions when *not* in Constant Duration mode (**CONST DUR** button at low tally) and with **ENABLES** selected in the Timeline menu or main Keyframe menu.

NOTE: *Refer to the **CONST DUR** button description for the operation of keyframe insertions and deletions in Constant Duration mode.*

*The **DELEGATES** selection in the Timeline menu is discussed in the Menus section of this manual.*

When **CONST DUR** is *off*, the overall duration of the effect is the sum of the durations of the individual keyframes (on the Master Timeline). Adding or deleting keyframes or changing the duration of one or more keyframes may change the overall duration of the effect.

INSRT
BEFOR

Insert Before, On a Keyframe. When the Time Cursor is positioned on a Master Timeline keyframe, **INSRT BEFOR** inserts a keyframe and its duration into each delegated level just *prior* to the current keyframe. All subsequent keyframes are "rippled" (pushed out) in time by an amount equal to the newly inserted keyframe duration. This increases the overall duration of the effect by the duration of the inserted keyframe.

The data entered into the keyframe on each delegated level is the data in the Current Working Buffer, which is the same as the Current Switcher State for that level.

Unless otherwise specified (see **KF DUR**), the duration of the inserted keyframe is the same as that of the current keyframe.

Any delegated level that does not have a keyframe at that point in time will have a keyframe and its duration inserted at the location of the Time Cursor.

Insert Before, On-the-Path. When the Time Cursor is "on-the-path" (not on a Master Timeline keyframe), the **INSRT BEFOR** button is tallied off and the Insert operation is not allowed.

INSRT
AFTER

Insert After, On a Keyframe. When the Time Cursor is positioned on a Master Timeline keyframe, **INSRT AFTER** inserts a keyframe and its duration into each delegated level immediately *following* the duration of the current keyframe (in other words, *just before the next keyframe on the Master Timeline*). All subsequent keyframes are "rippled" (pushed out) in time by an amount equal to the newly inserted keyframe duration. This increases the overall duration of the effect by the duration of the inserted keyframe.

The data entered into the keyframe on each delegated level is the data in the Current Working Buffer, which is the same as the Current Switcher State for that level.

The position of the Time Cursor moves to the location of the newly-inserted keyframe.

Unless otherwise specified (see **KF DUR**), the duration of the inserted keyframe is the same as that of the current keyframe.

Any delegated level that does not have a keyframe at that point in time will have a keyframe and its duration inserted at the same point in time as the other inserted keyframes (that is, just before the next keyframe on the Master Timeline).

Insert After, On-the-Path. When the Time Cursor is located "on-the-path" (not on a Master Timeline keyframe), **INSRT AFTER** inserts a keyframe on each delegated level but does not add time to the overall effect.

The data entered into the keyframe on each delegated level is the data in the Current Working Buffer, which is the same as the Current Switcher State for that level. This includes the values of all parameters at that point, interpolated on-the-path between the two keyframes, plus any changes that may have been made on the control panel and in the menus since stopping at that point on the timeline.

The duration of the inserted keyframe is the difference between the point of insertion and the position of the *next* keyframe. The duration of the previous keyframe (what had been the current keyframe) is decreased by the same amount. The current time position remains at the point of the newly-inserted keyframe.

CUT

When the Time Cursor is positioned on a Master Timeline keyframe, **CUT** deletes the keyframe from any delegated level that has a keyframe, and deletes the duration of the Master Timeline keyframe from all delegated levels, even those that do not have a keyframe at that point. All subsequent keyframes are rippled backward in time (toward Time 0) by an amount equal to the duration on the Master Timeline of the deleted keyframe. This decreases the overall duration of the effect by the duration of the cut keyframe.

The Cut operation can also be used to clear a single keyframe to produce an empty register.

When the Time Cursor is not on a Master Timeline keyframe, the **CUT** button is tallied off and the Cut operation is not permitted.

COPY

COPY makes a copy of the data in the Current Working Buffer, for all delegated levels, and places it in the Clipboard Buffer. No changes are made to the effect.

If the Time Cursor is on a keyframe on the Master Timeline when the Copy is done, the duration of the copied keyframe is the duration of the Master Timeline keyframe. If the current time position is on-the-path on the Master Timeline, the keyframe duration is the difference between the current time position and the position of the next keyframe.

The keyframe can then be pasted into another effect (same levels) or into another point in the same effect (same levels).

PASTE

The **PASTE** button inserts a keyframe (on all delegated levels) into an effect. This operation is essentially the same as doing an Insert After, with the following exceptions: For a Paste, the data to be inserted comes from the Clipboard Buffer, rather than from the Current Working Buffer, and the keyframe duration also comes from the Clipboard if the Paste is done on a keyframe. If the Paste is done on-the-path, the keyframe duration is handled the same as that of an Insert After, adding no time to the effect.

Constant Duration Mode

The following paragraphs describe the operation of keyframe insertion/deletion in Constant Duration mode. Refer to the previous portion of this section for operation with Constant Duration turned *off*.

CONST DUR forces the overall duration of an effect to be constant during editing, except as noted here. The length of the existing effect is unchanged by keyframe deletions (cuts) or additions (inserts or pastes). When **CONST DUR** is on, the button is high-tallied; when off, it is low-tallied if edit mode is enabled, or tallied off if edit mode is off.

Also, in Constant Duration mode, the **KF DUR** button is tallied off, indicating that keyframe duration modifications are not allowed.

All Inserts and Pastes in Constant Duration mode must be made *on-the-path*—they are not allowed *on keyframes*—except as follows:

> An Insert Before may be done on the first keyframe of an effect, or an Insert After or Paste may be done on the last keyframe of an effect. The duration and timing of the *original* effect are not affected, but the inserted keyframe is appended to the effect, increasing its overall duration.

When an Insert or Paste is done on-the-path in Constant Duration mode, the duration of the inserted keyframe is subtracted from that of the previous keyframe.

A Paste operation in Constant Duration mode is similar to an Insert After, except that the data to be pasted comes from the Clipboard Buffer, rather than the Current Working Buffer.

A Cut must be made *on* a keyframe, whether **CONST DUR** is on or off. If a Cut is done in Constant Duration mode, the keyframe state is deleted and the duration of the cut keyframe is added to the duration of the previous keyframe. The Time Cursor remains positioned at the point of deletion.

NOTE: *The following operations are the same whether **CONST DUR** is on or off.*

Modify Keyframes

MOD

When the Time Cursor is positioned on a Master Timeline keyframe, pressing the **MOD** button *once* enters any modification that has been made on any delegated level. When **MOD** is pressed, the button high-tallies for one-half second to confirm the Mod operation.

If an individual delegated level does not have a keyframe at the time location where a Mod is being done, the Mod operation will insert a keyframe on-the-path if any changes have been made on that level. The duration of the inserted keyframe is taken from that of the previous keyframe. No change is made to the overall effect duration.

Modify All Keyframes (Relative)

When the Time Cursor is positioned on a Master Timeline keyframe, pressing the **MOD** button *twice* applies any modification that has been made on any delegated level to all keyframes *on that level.* For instance, if you want to change the background color by 180° in all keyframes on the M/E 1 level, place the cursor on any keyframe, change the background color, and press **MOD** twice (generally referred to as Mod All Relative operation).

It is also possible to modify all keyframes on a given level to a single value (for example, changing the background to Blue in all keyframes on that level) by doing a Mod All Absolute operation. This function is accessed through the Keyframe menu, as described in the menu descriptions portion of this manual.

Learn Modify

LOCK / LRN   MOD

Each E-MEM register contains a block of data called "register header" information. This data is not changeable on a keyframe basis, but it can be modified for the entire register using a **LRN MOD** operation. The following header data can be modified:

- Auto Recall on/off

- Effects Dissolve on/off

- Effects Dissolve rate

- DPM Effect Number (DPM level)

- Source Hold (in the E-MEM/Source Hold menu)

E-MEM Register

Register Header Data
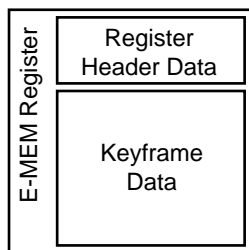
Keyframe Data

The differences between the "learn" operations are defined below:

- An E-MEM "Learn" operation modifies both the register header data and the keyframe data

- An Effect Editing operation modifies only the keyframe data

- A "Learn Mod" operation modifies only the register header data

To use LRN MOD, modify the desired parameter and enter:

[LRN] [MOD]

CAUTION

*A simple "Learn Register" operation **not** using [MOD] **erases** all keyframes in a multiple keyframe E-MEM register.*

KF
DUR

KF DUR allows you to change the duration of the current keyframe or to set the duration of a keyframe to be inserted. If not all delegated levels are on a keyframe, or if different delegated levels have differing keyframe durations, pressing **KF DUR** will add an appropriate change to the current keyframe duration on all levels.

When pressed, **KF DUR** high-tallies and the E-MEM display shows the current keyframe duration:

KF DUR SSS:FF.f

where SSS=Seconds, FF=Frames, and f=field(s) of the desired keyframe duration.

A new duration may be entered as follows on the E-MEM keypad:

[S] [S] [S] [•] [F] [F] [•] [f] [ENTER]*

The keyframe duration is then applied to all delegated levels by pressing **MOD** once.

————————————

*Not all digits are required for defining the time. The system will recognize the • button presses to determine which digits are seconds, which are frames, and which are fields. For instance, to enter 2 seconds and 5 frames (65 frames or 130 fields), you would need only to enter:

[2] [•] [5] [ENTER]

or [•] [6] [5] [ENTER]

or [•] [•] [1] [3] [0] [ENTER]

In all of these cases, the display will show:

KF DUR 002:05.0

EFF
DUR

EFF DUR permits editing of the overall length of an effect. The duration of an effect is the time from the beginning of the effect (time 0) to the last keyframe. Effect duration "slides" the overall duration of an effect and scales the delegated levels. Setting Effect Duration applies to all delegated levels.

A "natural" duration is one that results from building an effect from scratch. A "forced" duration results when you modify a duration from the "sum of all keyframes" time.

When **EFF DUR** is pressed, the E-MEM Subpanel displays EFFDUR N — for natural duration, or EFFDUR F — for forced duration. If any delegated levels have a forced duration, the display indicates forced duration.

EFF DUR applies only to delegated levels. If the delegated levels are not the same as the enabled levels, the display will show DELDUR N, OR DELDUR F, to indicate the effect duration of the delegated levels.

The **EFF DUR** button may be used to change the overall duration of an effect by scaling the effect proportionately.

PREV   NEXT

PREV and **NEXT** are used to step the effect forward or backward to the next keyframe on the Master Timeline.

When the **PREV** or **NEXT** button is pressed, it high-tallies for one-half second to confirm the operation.

The **PREV** button is off at the *beginning* of an effect or if the effect has zero or one keyframe. The **NEXT** button is off at the *end* of an effect or when the effect has zero or one keyframe.

GO
TO
TIME

GO TO TIME enables positioning of the effect to a specific position on the Master Timeline. When **GO TO TIME** is active, the desired time is entered as follows on the E-MEM keypad:

[S] [S] [S] [•] [F] [F] [•] [f] [ENTER]

where SSS=Seconds, FF=Frames, and f=field(s) of the desired point in time or as abbreviated previously under **KF DUR**.

GO
TO
KF

GO TO KF moves the Time Cursor to the specified keyframe on the Master Timeline.

To move to the desired keyframe, press the **GO TO KF** button, enter the number on the keypad, then press the **ENTER** button. (A 3-digit number is entered automatically without pressing **ENTER**).

MARK

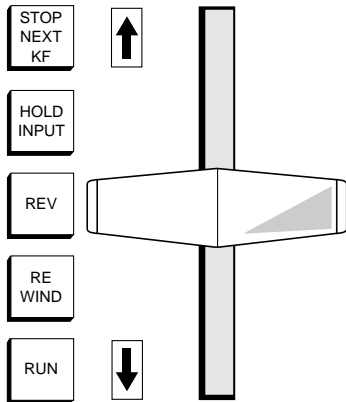The **MARK** button is provided for future clipboard operations.

MARK
BLOCK

The **MARK BLOCK** button is provided for future clipboard operations.

NOTE: *Refer to the User Guide for additional information on use of the Effect Editing controls.*

Run Controls

The Run controls on the Master E-MEM subpanel determine the manner in which the selected E-MEM effect will run.

Pressing **STOP NEXT KF** causes an effect to be stepped through, one Master Timeline keyframe at a time. When on, **STOP NEXT KF** causes run commands to last the duration of one keyframe, and each **lever arm** transition to advance the run only one keyframe at a time. The button is at high tally when the function is selected, at low tally when enabled but not selected.

When **HOLD INPUT** is enabled (high tally), all crosspoints (video and key) on all buses of the switcher are held. That is, the state of the crosspoints do not change when an E-MEM recall is done. If key memory is on at this time, the current keyer memory state is also held. (See "Crosspoint Override" earlier in this section for holding crosspoints on individual buses.)

Pressing the **RUN** button causes an effect to begin running from its current position. The **RUN** button is also used to stop and resume an effect during the run by acting as a run toggle button. The **RUN** button lights during a run, then turns off when the run is complete.
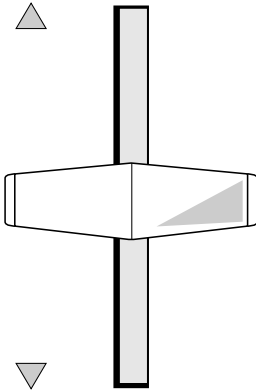
The **Run lever arm** can be used to manually run an effect. Moving the **lever arm** causes the current effect to run.

Normally, the position of the **lever arm** directly corresponds to the relative percentage of run completion; however, if the **lever arm** and the effect get out of sync (for example, the **lever arm** is not at an endpoint when a register is recalled), the remaining **lever arm** movement is scaled to the remaining effect duration. (Forward direction is scaled to the end of the effect; reverse direction is scaled to the start of the effect.)

The **Run lever arm** may also be used for positioning the Time Cursor in the Timeline menu when building an effect.

REV

REV causes an effect to run backwards. The button may be pressed before or during the effect run (on-the-fly). The button lights and stays lit when pressed, then toggles off when pressed again.

RE WIND

REWIND positions the current effect at Time 0. If an effect is already running when this button is pressed, the effect run stops and the effect returns to Time 0. The **REV** button inverts the **REWIND** function. In other words, it positions the effect at the last keyframe of the effect. The **REWIND** button lights for one-half second any time it is pressed.

NOTE: *Refer to the Effects Editing section of the User Guide for additional information on use of the Run controls.*

Positioner Subpanel

The Positioner joystick allows wipe patterns to be moved from their current position to another position on the screen.

M/E 1 PRI	M/E 1 SEC	M/E 2 PRI	M/E 2 SEC	M/E 3 PRI	M/E 3 SEC

The delegation buttons located below the joystick (see Figure 2-14) enable control of the primary and (optional) secondary wipe patterns to be delegated to any or all M/Es.

If all of the delegation buttons are turned off, the joystick is disabled.

NOTE: *The position of a wipe pattern cannot be changed if both* **POS NORM** *and* **POS AUTO** *are off for that wipe generator, even if the joystick is delegated via its delegation button.*

TP0702-16
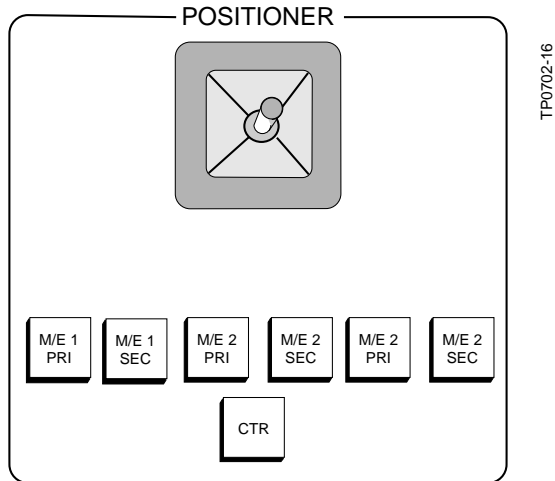
Figure 2-14. Positioner Subpanel (3000-3 shown)

Direction and speed of pattern movement are determined by the direction and distance the joystick is moved. The farther it is moved from the center position, the faster the pattern moves. When released, the joystick returns to its center position, leaving the pattern where it is currently positioned.

CTR

Pressing the **CTR** button causes the assigned patterns to automatically center on the screen.

Wipe Subpanel

The Wipe subpanel (Figure 2-15) is delegated to controlling any one of the six available wipe pattern generators in the switcher. Each M/E has a primary wipe generator and may have an optional secondary wipe pattern generator. The secondary wipe pattern generator option allows complete independence between the primary and secondary wipes with no interaction between them.

Even if the secondary wipe pattern generator option is not installed, secondary wipes are available, but only the edge attributes of the secondary wipe are independent. (Edge attributes include preset size, softness, soft symmetry, border width, border matte, border opacity and normal/reverse.) Pattern select, rotation modes, positioner modes, and pattern modifiers are the same values as those of the primary wipe generator on the same M/E.
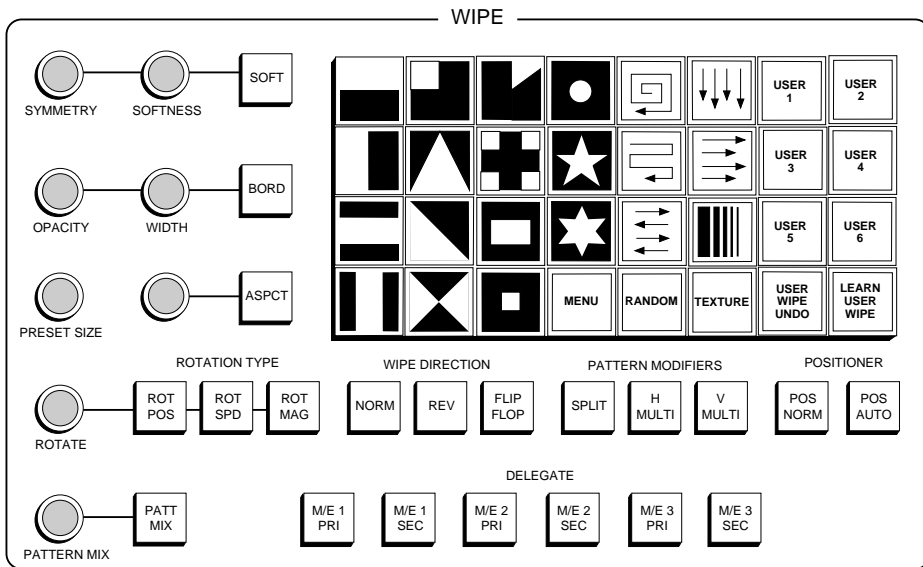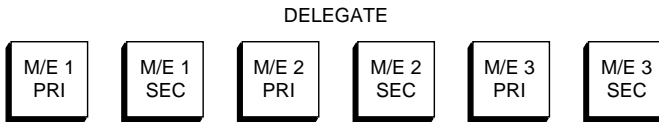

Figure 2-15. Wipe Subpanel (3000-3 shown)

The transition **WIPE** button on the Transition subpanel always uses the primary wipe generator. Preset wipes, masks, and matte wash can also use the secondary wipe generator.

Wipe Delegation

DELEGATE

| M/E 1 PRI | M/E 1 SEC | M/E 2 PRI | M/E 2 SEC | M/E 3 PRI | M/E 3 SEC |

Pressing any one of the Wipe delegation buttons at the bottom of the Wipe subpanel delegates the entire Wipe subpanel to the named wipe generator.

Pattern Select Buttons

MENU

Pressing any of the Wipe pattern buttons (see Figure 2-15) selects that wipe pattern and lights the button. These buttons are mutually exclusive (including **MENU**); pressing one selects a pattern and de-selects the previously active pattern. Pressing the **MENU** pattern button selects a pattern that was previously chosen in the pattern menu. Double-pressing the **MENU** button opens the wipe pattern menu. Wipe patterns not available on the pattern select panel may be selected through the Wipe menu, described in the Menu section of this manual.

RANDOM

RANDOM selects one of the available random patterns.

TEXTURE

TEXTURE selects a user-adjusted texture pattern, selected in the Wipe Texture menu.

USER 1

USER 2

USER 3

USER 4

USER 5

USER 6
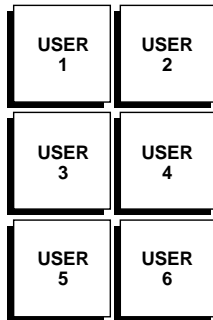
LEARN USER WIPE

LEARN USER WIPE – The six **USER...** wipe buttons let you learn a wipe effect into memory and then recall it all at once. Everything on the Wipe subpanel is learned except the delegate buttons. Upon recall, the stored wipe parameters are transferred to the delegated wipe generator. This shared system allows you to transfer wipe effects from one wipe generator to another.

To store a wipe setup, press the **LEARN USER WIPE** button, followed by any one of the six **USER** buttons. The current wipe pattern selection and all modifiers will be memorized into the **USER** register. To recall the wipe effect later, press that **USER** button. After a **USER** button is pressed, either for a learn or recall operation, the button remains lit as a reminder that it was the last one used.

USER WIPE UNDO

USER WIPE UNDO allows an accidental **USER** wipe recall or learn to be "un-done." When undoing a recall, pressing this button restores the panel to the state that existed before the last learn; when undoing a learn, it restores the user register to its previous state (the control panel is not affected).

Wipe Control

SOFT

Pressing the **SOFT** button toggles the wipe edge softness on and off. When the button is illuminated, wipe edge softness can be adjusted with the **SOFTNESS** knob.

SOFTNESS

The **SOFTNESS** knob controls the amount of wipe edge softness when **SOFT** is on. A setting of full counter-clockwise rotation causes zero softness, while full clockwise rotation causes maximum softness.

Turning the **SYMMETRY** knob controls the relative softness between the inside and outside wipe border edges, when the **SOFT** and **BORD** buttons are turned on. The last value of **SYMMETRY** is remembered when either **BORD** or **SOFT** is turned off.

BORD toggles control of the wipe border on and off. When **BORD** is on, the adjacent **WIDTH** and **OPACITY** knobs become active for modifying the wipe border. The wipe border is functional on transition and preset wipes only.

The **WIDTH** knob sets the width of the wipe border when **BORD** is on. When **BORD** is turned off, the last value of **WIDTH** is remembered and is recalled when **BORD** is turned on again.

The **OPACITY** knob controls the opacity or translucence of the wipe border when **BORD** is on. The **OPACITY** value is remembered when **BORD** is turned off.

PRESET SIZE adjusts the wipe pattern size for preset patterns used in non-transitional wipe patterns. It is also used to adjust the size of masks that use the wipe generator.

The **ASPCT** button toggles control of the **ASPECT** knob (horizontal to vertical ratio) of the wipe pattern on and off.

Turning the **ASPECT** knob clockwise from mid-position stretches the horizontal axis of the wipe pattern. Similarly, turning the knob counter-clockwise from mid-position stretches the vertical axis.

2-95

Rotation Type

ROT POS   ROT SPD   ROT MAG

The 3 rotation type buttons, **ROT POS**, **ROT SPD**, and **ROT MAG** are mutually exclusive and toggle on and off. Only one of these buttons can be on at a time.

The **ROTATE** knob, located adjacent to the three rotation type buttons, controls whichever mode is enabled. The knob setting for each of the three rotation modes is remembered even when the modes are de-selected.

ROTATE

ROT POS

ROT POS (rotate position) allows rotation of the wipe pattern to a fixed angle. With this mode on, turning the **ROTATE** knob from its mid-position rotates the entire wipe pattern up to four complete rotations, either clockwise or counterclockwise.

ROT SPD

ROT SPD (rotate speed) allows constant rotation of the wipe pattern at a rate adjusted by the **ROTATE** knob. Turning the knob clockwise or counterclockwise from mid-position causes the wipe pattern to rotate up to a maximum of four rotations per second.

ROT MAG

ROT MAG (rotate magnitude) causes the wipe pattern to rotate as a function of the transition position (lever arm or auto transition). The amount and direction of rotation is adjusted by the **ROTATE** knob. Turning the knob clockwise or counterclockwise causes the wipe pattern to rotate up to a maximum of four rotations during the course of the wipe transition. The starting angle (or position) of the pattern is determined by the **ROT POS** value.

Pattern Mix

PATT
MIX

PATT MIX toggles the pattern mix mode on or off. When **PTN MIX SOURCE** is set to **NORMAL** in the menu, the pattern mix mode causes the delegated wipe generator to mix its pattern with the other wipe generator pattern on a given M/E. (The "other wipe generator" is the secondary generator if delegated to the primary, or the primary generator if delegated to the secondary.) When **PTN MIX SOURCE** is set to **TEXTURE**, the pattern mix mode causes the delegated wipe generator to mix its pattern with the texture pattern.

PATTERN MIX

The adjacent **PATTERN MIX** knob controls the mix ratio between the two pattern generators. If the **PTN MIX TYPE** is NAM+ or NAM- (as selected in the Wipe Modifier menu), the pattern mix knob controls the relative size of the two patterns. The knob value (shared by mix and NAM modes) is remembered when the **PATT MIX** button is turned off.

Wipe Direction

NORM   REV

NORM and **REV** select the wipe direction (normal or reverse). One of these buttons is always on.

FLIP
FLOP

FLIP FLOP toggles flip-flop mode on and off. When flip-flop mode is on, the wipe direction changes at the end of each wipe transition. (The **NORM** and **REV** lights alternate on and off during a wipe, every time the transition reaches the opposite limit.)

*NOTE: The **NORM**, **REV**, and **FLIP FLOP** buttons on the Wipe subpanel do not affect the primary preset pattern key. Instead, a menu selection provides a choice of either **NORM** or **REV**.*

Pattern Modifiers

SPLIT

The **SPLIT** button toggles split mode on and off. When split mode is on, the selected wipe pattern is split into two. Split operation is affected by the **SPLIT OFFSET** button and knob in the Wipe Modifier menu.

H MULTI

V MULTI

H MULTI and **V MULTI** allow multiple copies of the same wipe pattern to appear.

Pressing **H MULTI** results in an additional copy of the wipe pattern being arranged horizontally (in a row). One additional copy of the pattern is supplied for each push of the button, up to a maximum of eight rows. Similarly, **V MULTI** produces multiple patterns arranged vertically in a column. Pressing both **V MULTI** and **H MULTI** at the same time results in a grid alignment of multiple patterns.

If either button is held down for 1/2 second, that aspect (horizontal or vertical) returns to a single pattern.

Additional modifiers are available through submenus available under the Wipe menu. These menus are described in the Menu section of this manual.

Positioner Buttons

POS NORM

POS AUTO

The **POS NORM** and **POS AUTO** buttons are mutually exclusive; only one can be on, although both can be off. If both are off, delegating the joystick has no effect on the pattern.

Pressing **POS NORM** allows you to move the center of the wipe solid with the delegated joystick on the Positioner subpanel. When used for a wipe transition, the **POS NORM** button may cause the wipe edge to pop if the pattern is too far off center when a transition is performed.

POS AUTO offers the same ability as **POS NORM**, plus it scales the size of the pattern according to the distance it is positioned off-center. (This action eliminates any popping.) This feature does not apply to matrix (non-solid) wipe patterns.

Masks Subpanel

The Masks subpanel (Figure 2-16) services and controls all video key masks in the switcher. A mask is a control signal used to modify a key signal. Delegation of the subpanel allows it to control any of the masks. Buttons and knobs are provided for controlling mask position and aesthetic features.
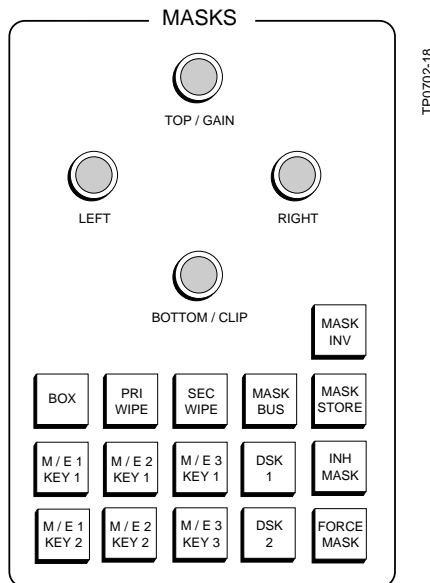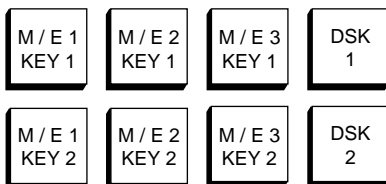

Figure 2-16. Masks Subpanel (3000-3 shown)

Mask Delegation

Pressing one of the M/E or DSK Mask Delegation buttons selects the corresponding mask generator. Only one button can be on (high tally) at a time; pressing a button de-selects the previous button (lamp turns off).

INH
MASK

INH MASK delegates the Mask subpanel controls for adjusting the inhibit mask. The actual selection of mask inhibit is performed on the Keyer subpanel (see the **MASK INH** discussion under the Keyer panel description).

FORCE
MASK

FORCE MASK delegates the Mask subpanel controls for making adjustments to a forced mask. The actual selection of force mask is performed on the Keyer subpanel (see the **FORCE MASK** discussion under the Keyer panel description. The DSK cannot perform a forced mask.

Auto delegation of the Mask subpanel may occur when other buttons on the control panel are pressed. (Refer to the Auto Delegation discussion earlier in this section.)

Mask Source Selection

The top row of buttons select sources that determine the shape of the mask. These buttons are mutually exclusive and one is always active.

BOX

BOX uses a rectangular box generator for the mask. The box is completely independent of the wipe systems. The four knobs at the top of Masks subpanel determine the position of the four sides of the box. The box mask has hard edges. Each keyer has its own box, so it is possible to have up to six differently sized box masks in use at a time. A box mask is the only type of mask available on the DSKs.

PRI
WIPE

PRI WIPE selects the primary (transition) wipe generator to produce the mask. The primary wipe generator in the same M/E provides the mask signal. Wipe subpanel controls select the pattern, size, position and edge softness. This is not available on the DSKs.

SEC
WIPE

SEC WIPE selects the secondary (optional) wipe generator to produce the mask. The secondary wipe generator in the same M/E provides the mask signal. If the secondary wipe option is not installed, the pattern shape and position are the same as the

primary wipe generator. Pattern size and edge softness are still independent of the primary wipe mask source. This is not available on the DSKs.

MASK BUS

MASK BUS selects a video source to generate the mask. The mask bus is a dedicated video bus in the primary matrix accessed with a bus delegate button in the Aux Bus area of the panel. The mask bus permits any primary or re-entered input to be used as a mask source. A clip and gain circuit in the mask generator processes the selected video input for display in the mask. When **MASK BUS** is selected, the **TOP/GAIN** knob becomes a gain control and the **BOTTOM/CLIP** knob becomes a clip control. This is not available on the DSKs.

MASK STORE

MASK STORE selects the output of the mask store for use as a mask. The Mask bus (after the clipper) is used as the input to the Mask Store. This allows the clipped mask bus to be frozen and used as a mask. If the Mask Store option is not installed, the **MASK STORE** button does not light. This is not available on the DSKs.

Mask Controls

Several knobs and one button on the Masks subpanel control the size and edge characteristics of the mask.

An edge of the mask cannot be moved past the edge of the raster or past the opposite mask edge. On a box mask, as one edge is adjusted to reach the opposite mask edge or the edge of the raster, the control function stops and the knob beeps. Turning the knob in the other direction then shows the mask edge.

The Mask **TOP/GAIN** and **BOTTOM/CLIP** knobs function as gain and clip controls only when the mask source is delegated to the Mask bus. The clip and gain-adjusted Mask bus can be frozen in the mask frame store (or mask store).

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TOP/GAIN is a two-purpose knob whose operation is dependent on whether the **BOX** button or the **MASK BUS** or **MASK STORE** button is pressed. If **BOX** is active, the **TOP/GAIN** knob controls the top side of the box-style mask (see **BOX** button description). If **MASK BUS** or **MASK STORE** is active, the **TOP/GAIN** knob controls the gain of the Mask bus clipper.

BOTTOM/CLIP is a two-purpose knob whose operation is dependent on whether the **BOX** button or the **MASK BUS** or **MASK STORE** button is pressed, just as with the **TOP/GAIN** knob. If **BOX** is active, the **BOTTOM** knob controls the bottom of the box-style mask (see **BOX** button description). If **MASK BUS** or **MASK STORE** is active, this knob controls the Mask bus clipper.

The **LEFT** and **RIGHT** knobs control the left and right sides of the box-style mask. They are inactive if **BOX** is not selected.

The **MASK INV** button inverts the polarity of the signal used to create the mask. A mask that normally allows a key inside of a box will allow a key outside the box when **MASK INV** is on. Mask Invert functions with all mask sources.

Frame Stores Subpanel

The primary functions of the Frame Store option are storage of still video and key images and creation of dropshadows behind keys. Controls for manipulation of these functions are found on the Frame Stores subpanel, shown in Figure 2-17, and in the Frame Store menu, described in the Menu section of this manual.

The Frame Store option includes three hardware memory arrays: video channel, key channel, and mask channel.
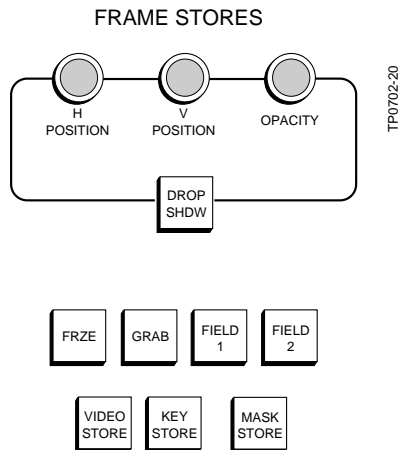

Figure 2-17. Frame Stores Subpanel (3000-3 shown)

Input Selection

Aux bus pair 4A/4B can be used to supply inputs to the frame store video and key channels.

The clipped mask bus is the only input for the mask channel.

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Output Routing

Video and key outputs from the frame store are routed to the switcher crosspoint matrix and may be used as primary switcher inputs. The video and key outputs are also routed to an output module for use by external devices.

The mask channel output may be used as a source for the mask generators. It is also routed to the switcher crosspoint matrix for use as a primary switcher input, and to an output module for use by external devices.

If the frame store is not in Freeze mode, its output is delayed by 2 fields if 2-Field mode is selected in the Frame Store menu, or by 4 fields if 4-Field mode is selected. (Mask Store has no 4-Field mode.)

Still Image Storage

Video and key can be frozen either separately or simultaneously through the use of panel controls. In addition, the system has read-before-write capability, so stills can be layered in a recursive manner. The system accomplishes this by sending the output of the frame store to the input of an M/E for combination with another image. A composite is generated that can be fed back to the input of the frame store and re-frozen.

The **VIDEO STORE**, **KEY STORE**, and **MASK STORE** buttons select whether the Frame Stores subpanel is assigned to the video channel, key channel, or mask channel. One of these buttons is always lit, and **VIDEO STORE** and **KEY STORE** may be selected simultaneously.

Operations that can be independently set for video, key and mask channels are as follows:

- Freeze

- Grab

- Field 1 and Field 2

When **VIDEO STORE** and **KEY STORE** are selected simultaneously, the key channel settings are automatically aligned with the video channel settings.

FRZE

The **FRZE** button provides a freeze/unfreeze function that toggles between states. Press once to freeze, press a second time to unfreeze. When enabled, this button stops data from being written to the frame store, resulting in a frozen image.

GRAB

Pressing the **GRAB** button updates the frame store with new input data and freezes the new data. If freeze is off (moving video is coming out of the frame store), pressing **GRAB** turns on freeze. Freeze can be turned off again by pressing the **FRZE** button. If freeze is on and **GRAB** is pressed, the frame store is unfrozen for two or four fields and then frozen again (2 fields if in 2-field mode, or 4 fields if in 4-field mode). The **FRZE** button remains lit to indicate that freeze is still on. Since the **GRAB** button initiates a single one-time action, it lights only while the button is pressed and for a short instant afterward.

FIELD 1   FIELD 2

FIELD 1 and **FIELD 2** determine the field, or fields, that are read out while the image is frozen. Either field may be selected, or both may be selected at the same time. When unfrozen, the Field buttons have no effect.

A full frame is always frozen, regardless of the state of these buttons. This method of storage allows the operator to decide between fields and frames after the image is frozen.

2-105

When an image is read from the frame store in field mode, the "other" field is replicated from the selected field (indicated by the illuminated **FIELD** button), if **REPLICATE** mode is selected in the Video Store menu. If **INTERPOLATE** mode is selected in the menu, the "other" field is interpolated from the selected field.

A two-field sequence is the normal default image frozen in the frame store. However, the memory architecture also allows storage of a complete four-field color frame. A **FRAME TYPE** button located in the Frame Store menu allows you to switch between two-field storage mode and four-field storage mode. At the present time, either mode allows storage of only one image.

When in four-field mode, not all of the Frame Store functions are available, but this mode produces the highest quality video, since there is no decode/encode processing.

Dropshadows

DROP
SHDW

The **DROP SHDW** button turns shadow mode on and off.

H
POSITION   V
POSITION   OPACITY

When shadow mode is on, the **H POSITION** and **V POSITION** knobs adjust the horizontal and vertical offset of the shadow from the main key signal. A third knob, **OPACITY**, adjusts the opacity of the shadow.

DROP SHDW mode is functional only with primary video inputs that have an associated linear key signal. No clip and gain adjustments are available to the user. Dropshadow mode does not reduce the bandwidth of the key channel.

External Interface Subpanel

The External Interface subpanel (Figure 2-18), located at the left end of the upper control panel, provides selection of the type of interface to be used to communicate with external devices.
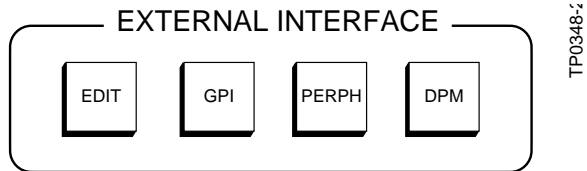

EXTERNAL INTERFACE

EDIT   GPI   PERPH   DPM

TP0348-2

Figure 2-18.   External Interface Subpanel

The buttons on the subpanel perform the following functions:

EDIT

The **EDIT** button enables or disables editor access to the switcher. Initially pressing the button illuminates it and allows external control of the switcher through the Editor port. Pressing the button a second time turns off the button lamp and disables editor control of the switcher. With **EDIT** off, editor protocol messages that affect the switcher are still acknowledged by the switcher, although it does not act under Editor control. For example, the switcher will still send status information to the editor.

NOTE: *An editor cannot control the **EDIT** button via software protocol. In addition, the **EDIT** button does not affect communication through the other serial ports.*

GPI

The **GPI** button enables and disables GPI outputs and control of the switcher from GPI inputs. When **GPI** is on, control inputs from GPI relay contacts are read by the switcher, and GPI outputs from the switcher are also active for external use. When the button is off, all GPI inputs and outputs are disabled.

PERPH

The **PERPH** button functions in a manner similar to that of the **EDIT** button, except that it controls peripheral access to the switcher via any peripheral-configured serial port and it does not acknowledge protocol messages while it is turned off.

DPM

The **DPM** (Digital Picture Manipulator) button turns communication with a digital effects device on or off. The device being controlled is defined through the Configuration menu. The default state (as in when the switcher is reset) is *DPM Enable* (ON).

Set the DPM to OFF when doing live broadcast, and you don't want the switcher responding to DPM commands. The DPM button on the External Interface Subpanel may be used to enable/disable communications to and from DPMs such as the Grass Valley Krystal or Kaleidoscope machines.

Floppy Disk Drive

The floppy disk drive (Figure 2-19) is located in the left end of the Upper Control Panel.
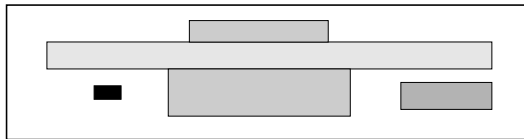
Figure 2-19. Floppy Drive

Operations available by way of the disk drive are

- Formatting disks

- Saving and loading system configurations

- Saving and loading E-MEM register data

Refer to the Disk Menu description in the Menu section of this manual for disk operating information.

Crosspoint Name Displays (3000-3 only)

The ability of the Model 3000-3 to display crosspoint names on the Control Panel are activated in this release. The displayed crosspoint names are defined using the Configuration/Inputs/ Map Inputs/Name Crosspoint Button Menu. While you may define up to nine characters for a button name, the Control Panel display only allows up to four characters; the first four characters as defined in the Name Crosspoint Button Menu. (Refer to your Operator's Guide for descriptions of this menu.)

NOTE: *This function requires the Input Readout Display Option (Part No. 088919-00).*

The Upper Control Panel LEDs normally display the names of *unshifted* crosspoints.

Preview/Mask/Aux Bus

The row of buttons labeled PVW AUX (Figure 2-20) that runs along the bottom of the upper panel is used to select sources for the preview, mask, and aux bus facilities.
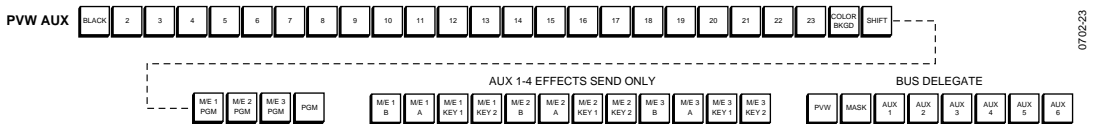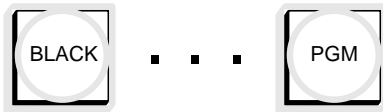

Figure 2-20. PVW AUX Source Select and Delegate Buttons (3000-3 shown)

The PVW AUX crosspoints consist of four groups of buttons, as follows:

- Primary Source Select (**BLACK ... SHIFT**)

- Secondary (Re-entry) Source Select (**M/E 1 PGM ... PGM**)

- Aux 1-4 Effects Send Only Select (**M/E 1B ... M/E 3 KEY 2**)

- Preview Only Select (**M/E 1 PVW, M/E 2 PVW, DSK PVW**) (3000-3 only)

- Bus Delegate Select (**PVW ... AUX 6**)

Source Selection

The first *two* groups of buttons select primary and secondary (re-entry) video/key sources for the PVW, MASK, and AUX 1-6 output buses.

The re-entry sources are as follows:

■ M/E 1, M/E 2, and M/E 3 program outputs

■ Switcher program (PGM) output

The selected source button is either bright or dim, depending upon its on-air status. All other buttons in the row are unlit.

Aux 1-4 Effects Send Only Buttons

AUX 1-4 EFF ...

The Aux 1-4 Effects Send Only buttons select both video and key outputs. Key outputs must be associated with selected video sources.

NOTE: *The AUX 1-4 EFFECTS SEND ONLY buttons are functional only when the Effects Send option is installed. (For Effects Send operation, the system automatically configures the aux bus pair (A/B) as a video/key pair. It is not necessary to do this in the Aux Bus Format menu.)*

Preview Only Select Buttons (3000-2 only)
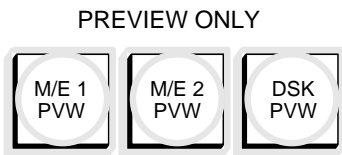
PREVIEW ONLY

The Preview Only buttons select the desired preview output to be viewed on the switched preview monitor. When one of the Preview Only buttons is pressed, the PVW bus delegate button is automatically selected if it isn't already on.

Choices available on the switched preview output are M/E 1 Preview output, M/E 2 Preview output, and DSK (switcher) Preview output.

Bus Delegate Buttons
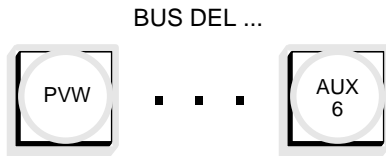
BUS DEL ...

PVW • • • AUX 6

PVW AUX selector buttons can be delegated eight ways using the Bus Delegate buttons. The following delegation choices are available (one Bus Delegate button is always lit):

■ The preview bus (press **PVW**)

■ The mask bus (press **MASK**)

■ Any of the panel-selectable aux buses (press one of the **AUX 1 ... AUX 6** buttons)

Preview Bus Selection

PVW

The **PVW** button enables the selection of the source to be viewed on the switched preview monitor. The selection can be any primary or secondary input, or any of the PVW ONLY crosspoint sources (**M/E 1 PVW**, **M/E 2 PVW**, or **DSK PVW**) on the 3000-2 or any of the crosspoint sources selected on the Preview subpanel (**PVW PRI, M/E 1**, **M/E 2**, **M/E 3**, or **DSK**) on the 3000-3.

Mask Bus Selection

MASK

Pressing the **MASK** button in the Bus Delegate group delegates the source select buttons to select a source for the mask generators. The **MASK** button high tallies when the mask bus is contributing to the switcher Program output.

Aux Bus Selection

AUX 1 • • • AUX 6
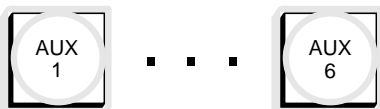
Aux buses 1 through 6 can be used as simple video routing aux buses. In addition, aux buses 1 through 4 can be used for sending video and key to an external digital device (DPM) or to the internal frame store (Aux Bus 4 only).

Each bus consists of an "A" bus and a "B" bus and is under E-MEM control. The "A" buses are for video only; the "B" buses may be configured for either video or key.

Output of Aux Bus 4 to the internal frame store option is available even if the Aux Bus Output option is not installed.

To use an aux bus as a simple routing bus: for an "A" bus, press the appropriate Bus Delegate button to select the desired aux bus, then select any primary or re-entry source on the PVW AUX row. To select a "B" bus, hold down the Bus Delegate button while selecting the primary or re-entry source.

To use an aux bus for "effects looping" operation, select the layer of the desired M/E on the Aux 1-4 Effects Send Only group of buttons. This causes the selected M/E output to be sent out the aux bus output. Concurrently, a primary switcher input (that has previously been chosen to receive the return video from the DPM or other external device) is automatically routed to the chosen mixer layer for insertion of the processed video. The primary input to be used for the return path is set up in the Configuration menu.

Aux buses 5A through 7B cannot use the effects send function. Buses 5A through 6B are accessible from the control panel; buses 7A and 7B are available only through the use of an external control panel.

Effects Send Operation

The Effects Send feature sends the video and key outputs of an M/E Keyer via aux buses to an external Digital Picture Manipulator (DPM). The return video/keys are connected to any of the external primary video/key inputs and may be mapped either to effects loop crosspoints or to primary crosspoints on the control panel, or to both.

Before the Effects Send feature can be used, the appropriate physical cable connections must be made between the Model 3000

and the DPM, as described in the "Cable Connections" portion of the Installation and Service manual.

NOTE: *The Effects Send feature requires that the Effects Send Crosspoint module be installed in Cell 11 of Bay B in the switcher frame, and that Aux Output modules be installed in the appropriate output cells on the back of the switcher frame.*

In addition, the following functions must be assigned, as described in the "Startup Section" portion of the User Guide:

- The DPM type, aux bus control, port assignment, and channel routing must be set up in the DPM Setup menu (config/extern_if/dpm_if_setup).

- The appropriate aux buses must be assigned to the DPM in the DPM Map Aux Buses menu (config/extern_if/dpm_setup/dpm_map_aux_buses).

- For effects looping, the aux bus return path must be mapped in the DPM Map Inputs menu (config/extern_if/dpm_if_setup/dpm_map_inputs).

- If the output of the DPM is to be used as an input to the switcher in non-looping mode, that input must be mapped as for other primary inputs in the Map Inputs menu (config/inputs/map_inputs).

The Effects Send feature may be used either in Loop Mode or in No Loop Mode, as described below. This selection is made in the Aux Menu.

Effects Send – Looping Mode

Looping mode takes the output of an M/E Keyer, sends it to an external DPM, then returns the output of the DPM to the Mix/Wipe circuit of the same M/E in the switcher. This provides the effect of inserting a DPM right into the M/E, between the Keyer and the Mix/Wipe system. To select Effects Send looping mode, first press the **AUX BUS** button on the main menu panel, then press the **LOG AUX SELECT** soft button to select the Aux Bus to be looped. With the **EFF LOOP MODE** button, select **EXT LOOP.**
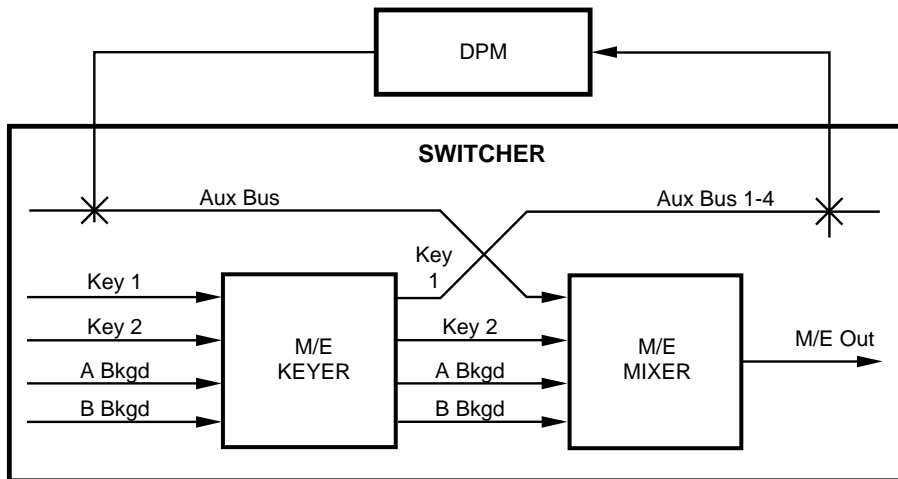

Figure 2-21. Effects Send Looping Mode

5. With one of the **BUS DELEGATE** buttons, select the (physical) **AUX BUS (1-4)** that you want to use. With the switcher set up as described previously for looping, the DPM output will automatically be routed to the Mix/Wipe system of the M/E whose Keyer output you sent to the DPM.

6. Select the Keyer output to be sent to the DPM by pressing one of the **AUX 1-4 EFFECTS SEND ONLY** buttons on the PVW/AUX row of buttons (**M/E 1B** through **M/E 3 KEY 2**).

NOTE: *The **B** and **A** bus selections apply only when in layered mode.*

Effects Send – Frame Store Looping Mode

NOTE: *The Frame Store option must be installed in order for the following to apply.*

The Frame Store option may be used as the device that manipulates the Keyer output. In the Aux Menu, when **AUX 4** is selected with the **LOG AUX SELECT** button, a third choice, **FRAME STORE**, is added to the **EFF LOOP MODE** selections. Selecting **FRAME STORE** will send the output of the selected Keyer to the Frame Store option module and will connect the output of the Frame Store to the Mix/Wipe system of the same M/E.
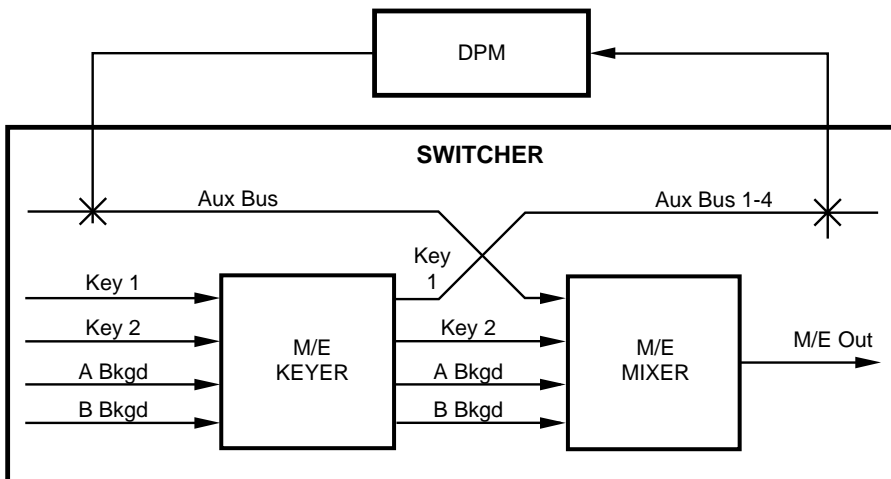

Figure 2-22. Effects Send Frame Store Looping Mode

In Frame Store loop mode, operation of the Effects Send loop is the same as described above, except that manipulation of the Keyer output is done on the Frame Store panel, rather than by the DPM.

Effects Send – Non-Looping Mode

Non-Looping mode takes the output of an M∕E Keyer, sends it to an external DPM. The output of the DPM may then be used as an input to the switcher which may be selected on any bus on the control panel. This allows the output of one Keyer to be manipulated by the DPM, then used as a video or key input by the other M∕E or the Program∕Preset system.
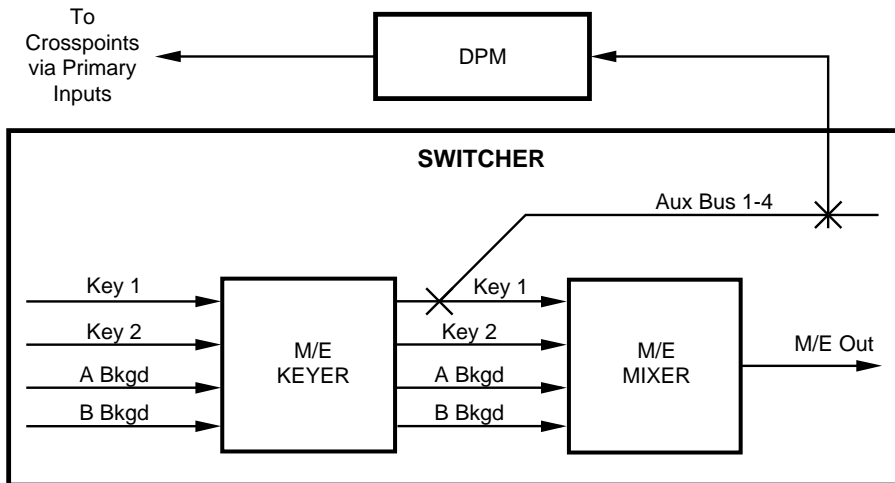

Figure 2-23. Effects Send Non-Looping Mode

1. To select Effects Send non-looping mode, first press the **AUX BUS** button on the main menu panel, then press the **LOG AUX SELECT** soft button to select the Aux Bus to be looped. With the **EFF LOOP MODE** button select **NO LOOP**.

2. With one of the **BUS DELEGATE** buttons, select the (physical) **AUX BUS (1-4)** that you want to use. With the switcher set up as described previously for non-looping, the DPM output will be routed to the previously-mapped crosspoint column on the Source Select panel.

3. Select the Keyer output to be sent to the DPM by pressing one of the **AUX 1-4 EFFECTS SEND ONLY** buttons on the PVW/AUX row of buttons (**M/E 1B** through **M/E 3 KEY 2**).

NOTE: *The **B** and **A** bus selections apply only when in layered mode.*

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4. On the Source Select panel, select the DPM output on the aux return that has been mapped to one of the crosspoints, as described earlier. This may then be selected as a source on any output bus on the Source Select panel.

Remote Aux Bus Panels

The Remote Aux Control Panels allow you to control the switcher aux buses from a remote location. There are three models of the Remote Aux Panels, each identified by the number of rack units (RUs) it occupies in the equipment rack.

■   One RU panel (Option Part Number 088901-00)

■   Two RU panel (Option Part Number 088902-00)

■   Three RU panel (Option Part Number 088903-00)

The one RU and two RU panels (Figure 2-24) are functionally identical. The one RU panel is designed for areas with very restricted space, and has small crosspoint buttons containing LED tally lamps. The two RU panel has large crosspoint buttons with internal tally lamps. Each of these panels must be set up to control a specific aux bus and must have the setup changed to control another bus.
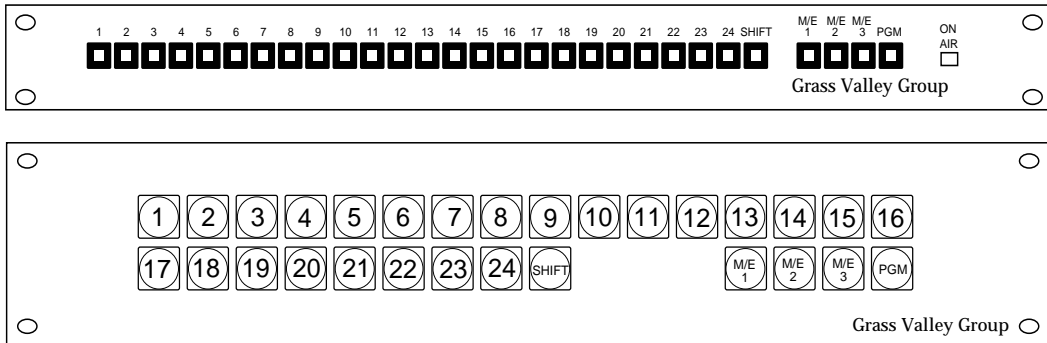

Figure 2-24. One RU and Two RU Remote Aux Control Panels

The three RU panel (Figure 2-25) has large buttons and is designed for locations where it is desirable to operate more than one bus. This panel will normally control all aux buses but can be set up to lock out specific buses.
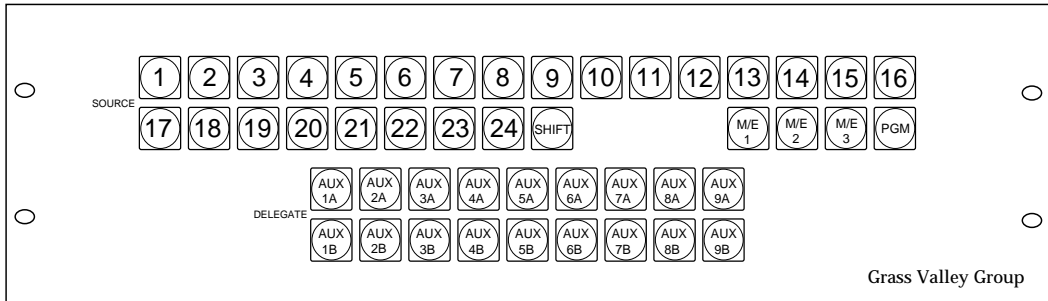
Figure 2-25. Three RU Remote Aux Control Panel

As many as 32 Remote Aux Panels can be attached to one switcher.

Source Selection
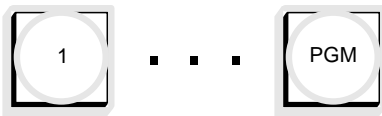
The Remote Aux Panels are designed to control 48 primary inputs (24 unshifted and 24 shifted) and four re-entry inputs.

Each crosspoint lamp on the two or three RU panel will high tally when that input is on air. There is an **ON AIR** lamp on the one RU panel which will illuminate to indicate that the selected input is on air. The on-air tally can be permanently enabled on all panels.

Rear Panel Switches

The rear panel includes a number of switches that control operating modes, such as address, bus enable, delegate enable, and test mode. These switches are set up during installation, as described in the Installation section of the Installation & Service manual.

Remote Aux Operation

Operation of the Remote Aux Panel is identical to operation of the local aux panel installed in the switcher control panel.

If the switcher setup identifies a bus pair (e.g. 2A and 2B) as video and key, selecting a source on bus 2A will also change 2B. To split the key selection will require use of the three RU panel or two of the one or two RU panels (one set up for each bus).

More than one Remote Aux Control Panel can attempt to control a single aux bus. When two or more panels controlling the same bus have source buttons pressed, the panel with the highest address will control the source.

Joystick Override

Each panel has inputs for up to 8 external user-supplied switch closures to enable the override. The aux bus switches to a user-defined crosspoint selection when the switch is closed. When the switch is released, the aux bus returns to its previous selection.

Chop

Chop mode provides continuous automatic switching between two sources at frame rate. This function allows you to compare two signals for system calibration.

3 *Menu Descriptions*

Introduction

Many Model 3000 features are accessed via the Menu Display on the upper control panel. This section illustrates the top-level menus and their submenus, and describes the functions of the "soft buttons" and "soft knobs" accessed by each. The top-level menus are presented in the order that the top menu buttons occur on the panel, from upper left to lower right.

NOTE: The menus shown in this section are for the 3000-3. Menus for the 3000-2 are the same except that the M/E 3 selections are not present.
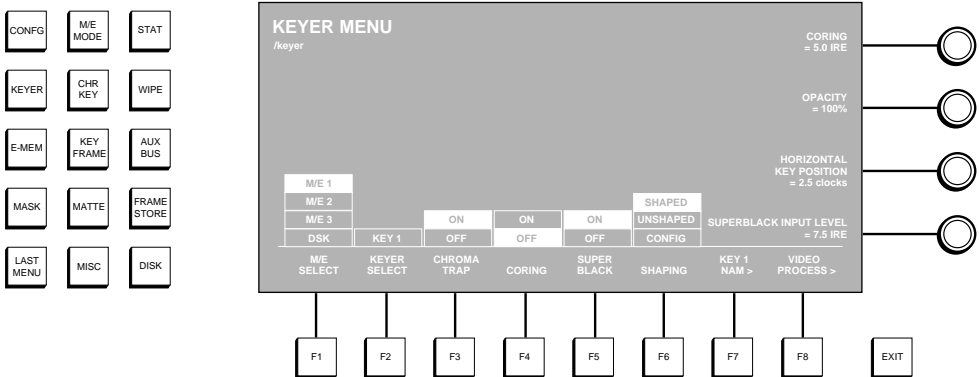

Figure 3-1. Top-Level Menu Buttons and Menu Display

Menu Structure

The top-level menus may be displayed by pressing the buttons at the left of the Menu Display. Submenus are then brought up by pressing the soft buttons at the bottom of the display. Each menu function that will call up a submenu is indicated by a ">" symbol at the end of the function name in the display.

The menus presented here are arranged in hierarchical order; that is, after each top-level menu, the submenus under that menu are described before going on to the next top-level menu. (All menus and submenus are listed in the "local" Table of Contents at the beginning of this section.) The hierarchical menu structures may also be seen in the Menu Trees section of this manual.

Menu Delegation

Some menus or submenus may be brought up by automatic menu delegation which is activated by *double-pressing* certain buttons on the control panel. (The second press must occur within a predetermined amount of time.) Table 3-1 lists the buttons that support this function.


NOTE: *An opened menu is delegated, where appropriate, to the button that opened the menu. For example, double-pressing the* **KEY 1** *delegation button on the M/E 1 Keyer panel causes the keyer menu to open and the menu controls to be delegated to Keyer 1 of M/E 1.*

Table 3-1. Menu Delegation

Subpanel	Button Double-Pressed	Delegated Menu	Comments
Transition	BKGD B	M/E Mode menu	
Keyer (M/E)	**KEY 1** and **KEY 2**	Keyer menu	
Keyer (M/E) (Layered Mode)	**BKGD B**, **BKGD A**, **KEY 1**, and **KEY 2**	Keyer menu	
Keyer (M/E)	**PRI PST PTTN** or **SEC PST PTTN**	Wipe Modifier menu	Used to set **PST PTN DIRECTION**
	CHR KEY	Chroma Key menu	
Downstream Keyer	**DSK 1** and **DSK 2**	Keyer menu	
Chroma Keyer	**M/E 1 KEY 1** through **M/E 2 KEY 2** on 3000-2 or through **M/E 3 KEY 2** on 3000-3	Chroma Key menu	
DSK Matte	USER DEF WASH	Matte menu	Used to set **USER DEF WASH ANGLE**
Wipe	Wipe Pattern **MENU**	Wipe Pattern menu	
	M/E 1 PRI through **M/E 2 SEC** on 3000-2 or through **M/E 3 SEC** on 3000-3	Wipe Modifier menu	
	Wipe Pattern **TEXTURE**	Wipe Texture menu	

Configuration Menu

The Configuration Menu is used for system setup. Functions are covered in detail in the Startup section of User Guide.

CONFIGURATION MENU
  config

USER PREFS >	SYSTEM PARAMS >	INPUTS >	OUTPUTS >	EXTERN I/F >	AUX BUS FORMAT >
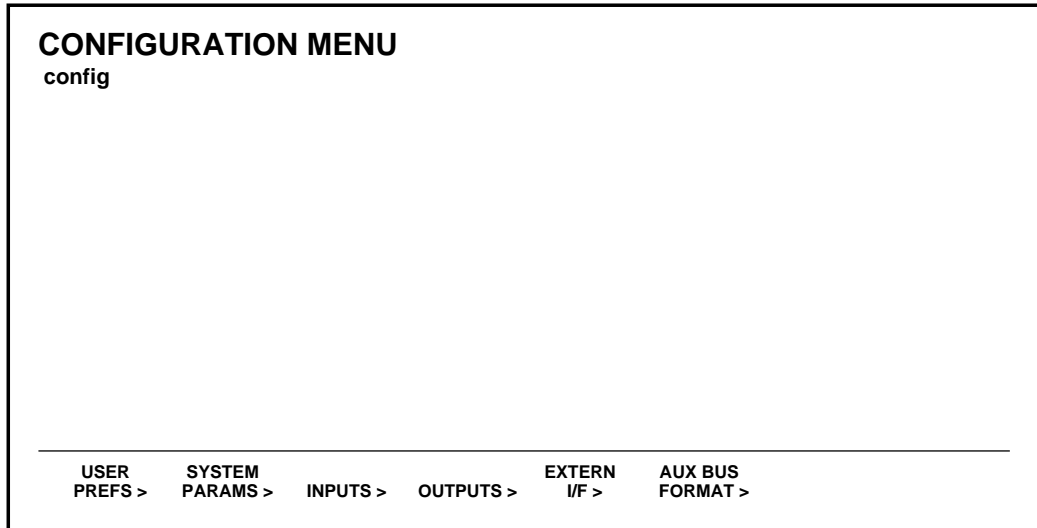
Each of the soft buttons defined in the Configuration Menu brings up a submenu, as follows:

USER PREFS> — Displays the User Preferences submenu. From time to time you may wish to change some of the parameters in this submenu, such as keyer preferences and preview preferences.

SYSTEM PARAMS> — Displays the System Parameters submenu.

INPUTS> — Displays the Inputs submenu. Assignment (mapping) of the input sources to the crosspoint buttons on the Source Select panel is done through this submenu.
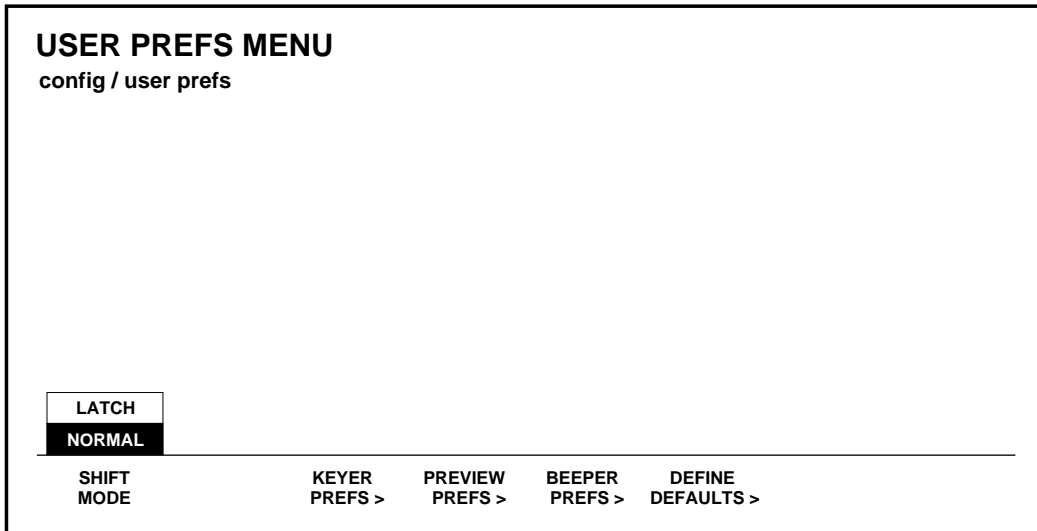
OUTPUTS> — Displays the Outputs submenu.

EXTERN I/F> — Displays the External Interfaces submenu.

AUX BUS FORMAT> — Displays the Aux Bus Format submenu.

User Preferences Menu

The User Preferences Menu gives you control over some of the user interface functions of the system.

USER PREFS MENU
config / user prefs

LATCH
NORMAL

| SHIFT
MODE | | KEYER
PREFS > | PREVIEW
PREFS > | BEEPER
PREFS > | DEFINE
DEFAULTS > |

The User Preferences Menu selections are as follows:

SHIFT MODE — Sets crosspoint Shift button to Normal or Latch mode. Normal requires holding down Shift each time you select a shifted crosspoint. Latch mode locks Shift on after first use.

KEYER PREFS> — Displays the Keyer Preferences Menu.

**PREVIEW PREFS>** — Displays the Preview Prefs Menu.

BEEPER PREFS — Displays the Beeper Prefs Menu.

DEFINE DEFAULTS> — Displays the Define Defaults Menu, which allows you to change the default values used when the switcher is turned on.

E-MEM PREFS — Displays the E-MEM Prefs Menu.

Keyer Preferences Menu

The Keyer Preferences Menu allows you to select keyer operating modes.

KEYER PREFS MENU
config / user prefs / keyer prefs

ON	ON
OFF	OFF
DSK DROP	KEY MEMORY
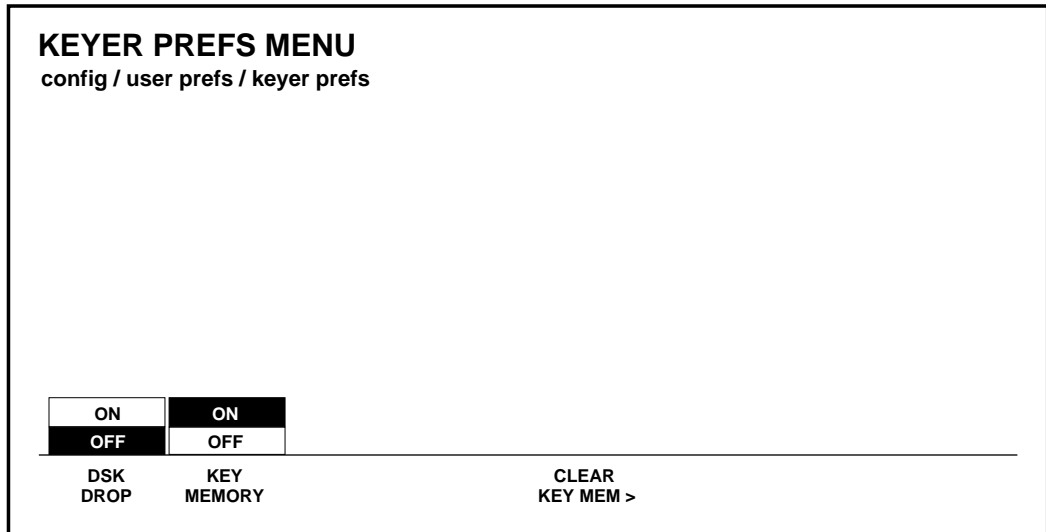
CLEAR
KEY MEM >

The Keyer Preferences Menu selections are the following:

DSK DROP — Enables/disables DSK drop mode.

KEY MEMORY — Enables/disables key memory mode, which remembers settings of the keyer analog controls from the last use.

CLEAR KEY MEM> — Displays the Clear Key Memory Menu, which allows you to clear the key memory settings for various areas of the switcher.

Clear Key Memory Menu

The Clear Key Memory Menu allows you to clear key memory settings for selected areas of the switcher.

CLEAR KEY MEMORY MENU
config / user prefs / keyer prefs / clear key mem

CURRENT
XPT

| 7 |

Press a button below to clear key memory for –

CLEAR XPT: the current xpt on the selected bus
CLEAR BUS: all xpts on the selected bus
CLEAR SECTION: all xpts on all buses in the selected section
CLEAR SWITCHER: all xpts in the switcher

M/E 1	
M/E 2	
M/E 3	A
DSK	B
AUX	KEY 1
MASK	KEY 2

| SECTION SELECT | BUS SELECT | | CLEAR XPT | CLEAR BUS | CLEAR SECTION | CLEAR SWITCHER |

The Clear Key Memory Menu selections are as follows:

SECTION SELECT and **BUS SELECT** — Select the area of the switcher whose key memory you wish to clear.

> After selecting the section and bus, press the specific crosspoint desired on the selected bus. (The number of that crosspoint will appear in the **CURRENT XPT** box in the menu.)

> When **DSK** is the section selection, bus selections are **KEY 1** and **KEY 2**. When **AUX** is selected, bus choices are **1** through **7**. And when **MASK** is selected, the **BUS SELECT** and **CLEAR SECTION** choices disappear.

CLEAR XPT, **CLEAR BUS**, **CLEAR SECTION**, and **CLEAR SWITCHER** — Perform the Clear operation for the selected memory area.

Preview Preferences Menu

The Preview Preferences Menu allows you to set the preview options for selected switcher subsystems. Your choice of Preview Modes depends on how many monitors you have per M/E and how you wish to use them.

```
PREVIEW PREFS MENU                              PUSH TO PREVIEW TIMEOUT
config / user prefs / preview prefs                          = 3 secs


        ┌─────────┬───────────┬────────────┐
        │  M/E 1  │    PGM    │ ALL KEYERS │
        │  M/E 2  │ LOOKAHEAD │    OFF     │
        │  M/E 3  │    PGM    │    OFF     │
        │ PGM PST │    PGM    │    OFF     │
        └─────────┴───────────┴────────────┘


                  ┌───────────┬────────────┐
                  │   AUTO    │ ALL KEYERS │              ┌──────────┐
                  │ LOOKAHEAD │ DELEG KEYER│              │    ON    │
        ┌─────────┤    PGM    │    OFF     │              │   OFF    │
        │  M/E 2  │           │            │              └──────────┘
        └─────────┴───────────┴────────────┘
          PVW            DIM                              PUSH TO
         SELECT          PVW                               PVW
```

The Preview Preferences Menu selections are as follows:

PVW SELECT — Selects the switcher subsystem whose preview options you wish to set.

NOTE: *The optional M/E Preview mezzanine board must be installed in each M/E in order to select* **AUTO** *and* **LOOKAHEAD** *Preview Modes. These selections are not displayed in the menu if the board is not installed.*

PVW MODE — Selects the preview mode desired for the selected switcher subsystem:

AUTO — Causes the video to alternate between the M/E PGM and PVW (next transition) outputs on a single M/E monitor as the M/E output changes from on-air to not on-air.

LOOKAHEAD — Causes the next transition of the selected M/E (what is going on-air next) to be displayed on the M/E monitor.

PGM — Causes the PGM output of the M/E or the PGM PST to be displayed on the Preview monitor.

KEY PVW (displayed only if PGM PST is selected) — Causes the DSK 1 and DSK 2 keys to be displayed over the PGM PST transition on the Preview Monitor.

DIM PVW — Turns the dim preview function on or off.

ALL KEYERS — Causes the preview of all keyers using a mask in that M/E or DSK to dim.

DELEG KEYER — Causes only the preview of the currently delegated keyer using a mask in that M/E or DSK to dim.

OFF — Turns off the preview dim function so that the preview never dims in the selected M/E or DSK regardless of masking.

PUSH TO PVW — Enables/disables the push-to-preview mode for the entire switcher. When **ON**, the push-to-preview feature allows you to make key setting changes on the selected keyer without affecting the Program output of the M/E.

To display the M/E look-ahead preview, the key delegate button (for example **KEY 1** or **KEY 2** on the Keyer panel) must be held down for 1/2 second or more.

PUSH TO PREVIEW TIMEOUT — Sets how long the preview will remain on after the key delegate button has been released and the clip and gain controls are not being operated.

Beeper Prefs Menu

The Beeper Preferences Menu allows you to customize beeper alerts.

BEEPER PREFS MENU
config / user prefs / beeper prefs

ON	ON	ON	ON	ON
OFF	OFF	OFF	OFF	**OFF**
BEEPER ON/OFF	WARNING	END OF KNOB	KNOB CENTER	INACTIVE KNOB

The Beeper Prefs Menu selections are as follows:

BEEPER ON/OFF —Enables or disables the beeper alert system.

WARNING—Use to enable or disable beeper warnings. (For example: On the Keyer Copy Menu, if you try to copy M/E 1 Key 1 to M/E 1 Key 1 (copy a key onto itself) you will get a beep with Beeper Prefs selection: WARNING ON.)
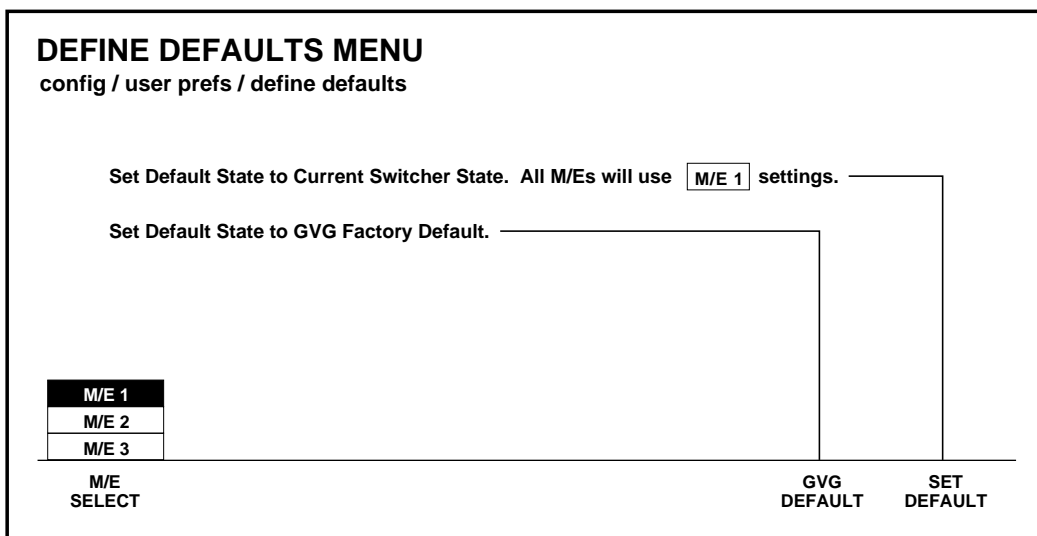
END OF KNOB —Enable or disable the beeper alert that sounds when the knob is turned to either end of its' range.

KNOB CENTER —Enable or disable the beeper alert that sounds when the knob is turned to the center of its' range.

INACTIVE KNOB —Enable or disable the beeper alert for knobs "turned off" during the current switcher state.

Define Defaults Menu

The Define Defaults Menu allows you to change the default values that are stored in memory and used when the switcher is turned on.
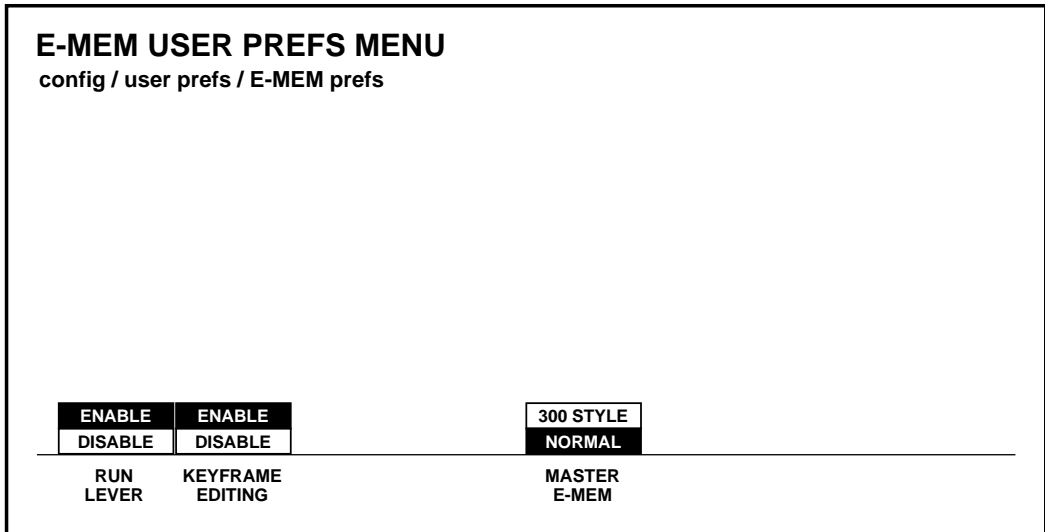
```
DEFINE DEFAULTS MENU
config / user prefs / define defaults


        Set Default State to Current Switcher State. All M/Es will use  | M/E 1 |  settings.

        Set Default State to GVG Factory Default.




                                                          M/E 1
                                                          M/E 2
                                                          M/E 3
           M/E                                               GVG          SET
         SELECT                                           DEFAULT       DEFAULT
```

The Define Defaults Menu selections are as follows:

M/E SELECT — Selects the M/E whose settings are to be used during power-up. (Only one set of values is stored for the M/Es, therefore both M/Es use the same values at boot-up.) The switcher panel (including the selected M/E) is used to set up the switcher default values.

SET DEFAULT — Enters the new default values.

GVG DEFAULT — Restores the factory-set default values to the switcher.

E-MEM Preferences Menu (3000-3 only)

The E-MEM Preferences Menu allows you to set up preferences for E-MEM effects editing functions and Master E-MEM.

E-MEM USER PREFS MENU
config / user prefs / E-MEM prefs

ENABLE	ENABLE		300 STYLE
DISABLE	DISABLE		NORMAL
RUN LEVER	**KEYFRAME EDITING**		**MASTER E-MEM**

The E-MEM User Preferences Menu selections are as follows:

RUN LEVER — Enables or disables running of keyframe effects using the Run Control lever arm.

KEYFRAME EDITING — Enables or disables editing of keyframe effects.

MASTER E-MEM — Enables normal Master E-MEM operation or 300-style E-MEM operation.

Normal Mode

In Normal mode on a 2 M/E Switcher, when you do a Learn or Recall, individual M/Es are simply levels in the Master E-MEM register.

In Normal mode on a 3 M/E Switcher, when you do a Learn or Recall, the Master E-MEM forces all individual enabled M/Es to align with the same register that the Master E-MEM is pointing to and causes the individual M/Es to learn the current Switcher setup into those aligned registers.

Learn A Register

We will look at how the Learn operation works with Auto Run, Auto Recall, and Effects Dissolve in the Normal mode.

Auto Recall

■ Auto Recall ON — Switcher learns the current Switcher enables into the Master E-MEM register

■ Auto Recall OFF — Switcher does not learn Switcher enables into the Master E-MEM register

Auto Run

■ Auto Run ON — Operation does two things:

• Enables the Auto Run function

• Turns on Independent Timeline runs

■ Auto Run OFF — Operation does two things:

• Disables the Auto Run function

• Turns on Master Timeline runs

NOTE: *In a later Switcher software release, Independent and Master Timeline runs will be controlled by a menu selection.*

Effects Dissolve

■   Effects Dissolve ON — Switcher learns that Effects Dissolve is on into the Master E-MEM register

■   Effects Dissolve OFF — Dissolve is not learned into Master E-MEM register

Recall A Register

We will look at how the Recall operation works with Auto Run, Auto Recall, and Effects Dissolve in the Normal mode.

Auto Recall

■   Auto Recall ON — Switcher recalls learned enables before recalling the effect

■   Auto Recall OFF — Switcher does not recall the learned enables. The Switcher recalls only what is currently enabled on the Control Panel

Auto Run

■   Auto Run ON — After the effect is recalled it runs (if the effect has multiple keyframes stored)

■   Auto Run OFF — After the effect is recalled it waits at the first keyframe

Effects Dissolve

■   Effects Dissolve ON (or ON when Learned) — Switcher applies a dissolve from the Switcher's current state (or register) to the register being recalled

■   Effects Dissolve OFF (and OFF when Learned) — Switcher does nothing

300 Style Mode (3-M/E Switchers Only)

In 300 Style mode, when you do a Learn or Recall, the Master E-MEM allows individual M/Es to "skew registers" (that is, allows M/Es to point to different registers) than the Master E-MEM is pointing and allows the Master E-MEM to learn the individual M/E's skewed register numbers. This operation does not change the content of those skewed M/E registers, because the operation does not write the current M/E settings into those registers. You must independently learn the M/E settings into the individual M/E E-MEMs.

Registers that are Learned using the Model 300 Style mode have an "M" in the Master E-MEM display as a mode identifier.

The Learn and Recall operation, described in the previous Normal mode text, is identical in the 300 Style mode. Therefore, that text is not repeated here.

Operational Defaults in Either Mode

■   If *Auto Run* is ON when the register is Recalled, the keyframe effect runs.

■   If *Auto Run* is OFF when the register is Recalled, the keyframe effect does not run when Recalled.

■   If *Auto Recall* is ON when the register is Learned and ON when the register is Recalled, the Switcher enables are learned with the effect and re-established before the effect is recalled.

■   If *Auto Recall* is ON when the register is Learned and OFF when the register is Recalled, the Switcher enables do not change from the current settings.

■   If *Auto Recall* is OFF when the register is Learned and ON when the register is Recalled, all Switcher enables go off.

■   If *Effects Dissolve* is ON when the register is Learned, the Switcher runs the dissolve when the register is recalled whether the Effects Dissolve button is currently ON or OFF.

System Parameters Menu

The System Parameters Menu allows you to set the video standard (internal black level), to select the matte generator chroma limiting algorithm, and to set the system clock.

```
SYSTEM PARAMETERS MENU          START HORIZONTAL BLANKING
config / system params                      =  0.0 clocks


                                  END HORIZONTAL BLANKING
                                             =  0.0 clocks


                                       SUPERBLACK OUTPUT
                                             =  -10.0 IRE

                    XMITABLE
           FIELD 1  VALID RGB
  7.5 IRE  FIELD 2    BOTH          4 X 3
   0 IRE    NONE      NONE         16 X 9
  INTERNAL   FIELD   MATTE    H-BLANKING  ASPECT              SET
 BLACK LVL    DOM  GEN LIM    DEFAULT     RATIO            CLOCK >
```

The System Parameters Menu selections are as follows:

INTERNAL BLACK LVL — Selects either **7.5 IRE** or **0 IRE,** which sets the video standard (internal black level) for operation on the NTSC standard used in the U.S.A. (Black = 7.5 IRE) or the NTSC standard used in Japan (Black = 0 IRE).

FIELD DOM — Allows you to specify on which field "set" changes made during the vertical interval will take effect.

NONE — Selection changes become effective at the beginning of the next field, immediately after the functions have been changed).

FIELD 1 or **FIELD 2** — Changes become effective at the beginning of the selected field. If a change takes place prior to the *other* field, it will be delayed by one field so that it also becomes effective at the beginning of the selected field. This way, all changes are synchronized to take place at the beginning of the same field.

MATTE GEN LIM — Selects the desired matte generator chroma limiting algorithm. The selections are as follows:

XMITABL — Prevents the total signal (luminance and chrominance) from exceeding the NTSC transmission standard.

VALID RGB — Limits colors to those which generate red, green, and blue values within the 0 to 100% range.

BOTH — Selects a valid RGB color limiter that also prevents the encoded signal envelope from exceeding NTSC transmission level. (This is the system default mode.)

NONE — Turns off all algorithm methods for matte generator limiting.

START HORIZONTAL BLANKING — Adjusts the start of H blanking over a range of -16.0 clocks to +16.0 clocks. Default is 0.0 clocks.

END HORIZONTAL BLANKING — Adjusts the end of H blanking over a range of -16.0 clocks to +16.0 clocks. Default value is 0.0 clocks.

SUPERBLACK OUTPUT — Adjusts the superblack output level over a range of -20.0 IRE to +7.5 IRE for U.S.A. NTSC, or -20.0 IRE to 0.0 IRE for the Japanese NTSC.

H-BLANKING DEFAULT — Resets the horizontal blanking start and end values to GVG default settings (0.0 clocks).

ASPECT RATIO — Selects either 4x3 or 16x9 Aspect ratio for those installations equiped for this format.

SET CLOCK> — Displays the Set Clock Menu, which allows you to set the date and time for the system.

Set Clock Menu

The Set Clock Menu allows you to set the date and time for the system. This is used for dating files copied to disk.

SET CLOCK MENU
config / system param / set clock

YEAR
= 1994

CLOCK

MONTH
= July

July 4 1994
5:07:00 PM

Press "CONFIRM" button
to update the clock
setting

DAY
= 4

DATE
TIME

SELECT   CONFIRM
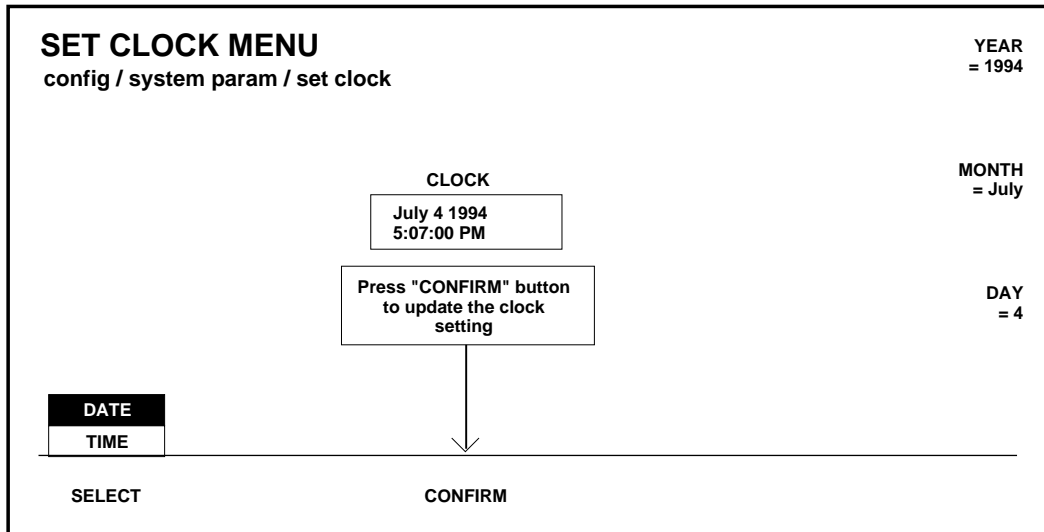
The Set Clock Menu selections are as follows:

SELECT — Enables the **DATE** or **TIME** functions for setting the system clock.

   DATE — Enables the **YEAR**, **MONTH**, and **DAY** soft knobs for setting the date.

   TIME — Enables the **HOUR, MINUTE,** and **SECOND** soft knobs for setting the time.

CONFIRM — Enters the new date or time.

Inputs Menu

The Inputs Menu allows mapping of signals to crosspoint inputs and also provides selection of input signal processing and format parameters.

```
INPUTS MENU                                    100% COLOR BARS      TOP
config / inputs                                 75% COLOR BARS   TEST SIGNAL
                                                  MULTIBURST
                                                  MULTIPULSE
                                                  PULSE & BAR
                                                 CHR KEY TEST
                                                    H RAMP
                                                  H RAMP-LSB

                                               100% COLOR BARS
                                                75% COLOR BARS     BOTTOM
                                                  MULTIBURST     TEST SIGNAL
                                                  MULTIPULSE
                                                  PULSE & BAR
                                                 CHR KEY TEST
                                                    H RAMP
                                                  H RAMP-LSB

   DIGITAL      EXT KEY      SETUP        MAP        CHR KEY              GPI
    RES >       SYNC >      ON KEY >    INPUTS >     INPUTS >           INPUTS >
```
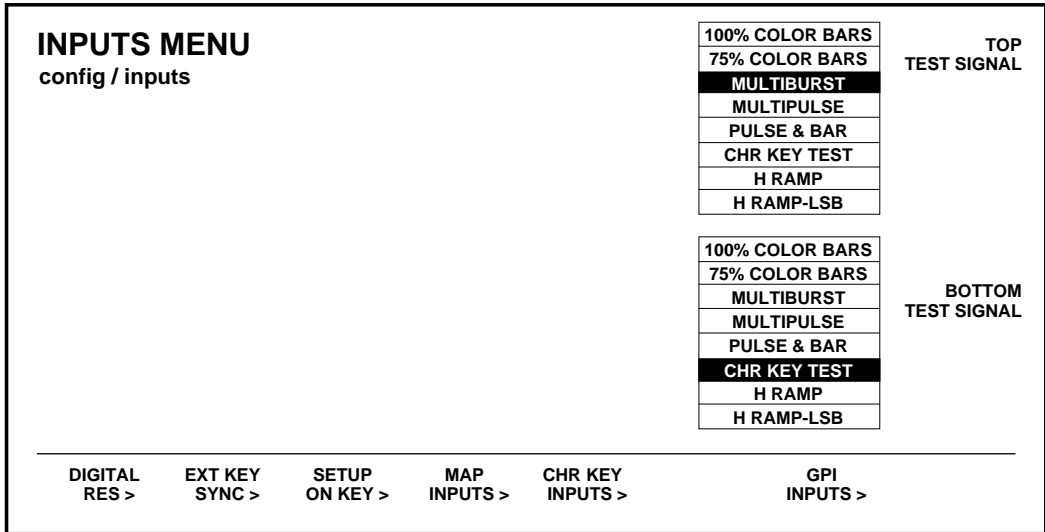
Inputs Menu selections are the following:

DIGITAL RES> — Displays the Input Digital Resolution Menu, which allows setting the system for 8- or 10-bit inputs.

EXT KEY SYNC> — Displays the External Key Sync Menu, which allows designating analog key inputs as having sync or no sync.

SETUP ON KEY> — Displays the Setup on Key Menu, which allows designating analog key inputs as having setup or no setup.

MAP INPUTS> — Displays the Map Inputs Menu, which allows assignment of video and key inputs and chroma key type to crosspoints. Includes shaped/unshaped selection for video and key inputs.

CHR KEY INPUTS> — Displays the Chroma Key Inputs Menu, which allows format selection and timing adjustments to chroma key inputs.

GPI INPUTS> — Displays the GPI Inputs Menu, which allows you to define the functions to be initiated via the eight GPI inputs.

Input Digital Resolution Menu

The Input Digital Resolution Menu allows you to set each digital input for 8- or 10-bit resolution sources.

INPUT DIGITAL RESOLUTION MENU
config / inputs / digital res

C9 33-36	SERIAL	10 BITS	8 BITS	10 BITS	10 BITS
C10 37-40	ANALOG	-	-	-	-
C11 41-44	ANALOG	-	-	-	-
C12 45-48	SERIAL	10 BITS	8 BITS	10 BITS	8 BITS
C13 49-52	PARALLEL	8 BITS	10 BITS	10 BITS	8 BITS
C14 53-56	**SERIAL**	**10 BITS**	**8 BITS**	**8 BITS**	**10 BITS**
C15 57-60	NO BOARD	-	-	-	-
C16 61-64	SERIAL	10 BITS	10 BITS	10 BITS	8 BITS

1 TO 8		8 BITS	**8 BITS**	**8 BITS**	8 BITS
9 TO 16	C 14	**10 BITS**	**10 BITS**	**10 BITS**	**10 BITS**
GROUP SELECT	CARD SELECT	INPUT 53	INPUT 54	INPUT 55	INPUT 56

Input Digital Resolution Menu selections are as follows:

GROUP SELECT — Selects which group of cards to display; the first eight input cards or the last eight.

CARD SELECT — Selects one of the digital input cards (4 inputs each).

INPUT ... buttons — Set inputs for 8- or 10-bit sources.

External Key Sync Menu

The External Key Sync Menu allows you to designate each external analog key input as having sync or no sync.

The External Key Sync Menu selections are the following:

GROUP SELECT — Selects which group of cards to display; the first eight input cards or the last eight.

CARD SELECT — Selects one of the analog input cards.

INPUT ... buttons — Set inputs to either **AUTOMATIC** or **MANUAL**, depending on whether sync is present on the input.

MANUAL TIME FOR INPUT ... knobs — May be used to adjust the timing of the selected input if the input module fails to detect sync.

Setup on Key Menu

The Setup on Key Menu allows you to designate each external analog key input as having setup or no setup.

SETUP ON KEY MENU
config / inputs / setup on key

1 TO 8		NO SETUP	NO SETUP	NO SETUP	NO SETUP
9 TO 16	Card 14	KEY SETUP	KEY SETUP	KEY SETUP	KEY SETUP
GROUP SELECT	CARD SELECT	INPUT 53	INPUT 54	INPUT 55	INPUT 56

The Setup on Key Menu selections are the following:

GROUP SELECT — Selects which group of cards to display; the first eight input cards or the last eight.

CARD SELECT — Selects one of the analog input cards.

INPUT ... buttons — Set inputs to either **KEY SETUP** or **NO SETUP**, depending on whether setup is desired on the input key.

Map Inputs Menu

The Map Inputs Menu allows assignment of video, key, and chroma key inputs to crosspoints. Includes shaped/unshaped selection for video and key inputs.

MAP INPUTS MENU
config / inputs / map inputs

VIDEO INPUT
= DPM 1 LOG CHAN 1
(KSCOPE)

KEY INPUT
= DPM 1 LOG CHAN 1
(KSCOPE)

XPT BUTTON NUMBER	XPT BUTTON NAME
12	

CHROMA KEY INPUT
= NONE
(ENCODED)

UNSHAPED VIDEO

SHAPED VIDEO

Use the Preset Bus to select button number.

LOG CHANNEL

PHYS INPUTS

VIDEO/ KEY FMT

LOG/PHYS ASSIGNMENT   NAME XPT BUTTON >

Select the crosspoint button column to be assigned by pressing the PST button in that column.

The Map Inputs Menu selections are as follows:

VIDEO/KEY FMT — Selects Shaped or Unshaped format for the selected video or key signal.

LOG/PHYS ASSIGNMENT — Allows a poolable DPM (such as Kaleidoscope) to control its logical channels (video and key) connected to the Model 3000.

> **LOG CHANNEL** — Selects the mode used to assign logical channels from a poolable DPM to crosspoints.

> **PHYS INPUTS** — Selects the mode used when assigning any inputs that are not controlled by a poolable DPM.

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NOTE: *Refer to "Configuring a DPM" in the Startup section of the User Guide for more information on the Log/Phys Assignment.*

VIDEO INPUT — Selects a video signal for assignment to the currently selected crosspoint button.

KEY INPUT — Selects a key signal for assignment to the currently selected crosspoint button.

CHROMA KEY INPUT — Selects a chroma key input for assignment to the currently selected crosspoint button.

NAME XPT BUTTON> — Displays the Name Crosspoint Button Menu.

Name Crosspoint Button Menu

The Name Xpt Button Menu allows you to assign a name to each of the input sources.

NAME XPT BUTTON MENU
config / inputs / map inputs / name xpt button

| sp | ' | (|) | - | / | * | : | . |

String Register:

| Cam |

Save String   **Get String**

| a | b | c | d | e | f | g | h | i | j | k | l | m | n | o | p | q | r | s | t | u | v | w | x | y | z |

| A | B | C | D | E | F | **G** | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |

Button Name:

| Cam 2 _ |

XPT BUTTON NUMBER

| 30 (SHIFT-14) |

Character = | G | **Use the Preset Bus to select button number.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

| CURSOR BACK | ACCEPT CHAR | CURSOR FORWARD | DELETE CHAR | SAVE STRING | GET STRING | ACCEPT NAME |

Name Xpt Button Menu selections are as follows:

The soft knobs located to the right of the Menu Display select the characters of the source name.

The soft buttons provide cursor and editing control.

ACCEPT CHAR — Enters each selected character. The new character will be displayed in the Map Inputs Menu.

ACCEPT NAME — Stores the source name.

Chroma Key Inputs Menu

The Chroma Key Inputs Menu allows you to select the input format and adjust the timing of each chroma key input.

CHROMA KEY INPUTS MENU
config / inputs / chr key inputs

COARSE

TIMING = 0.000 clocks

FINE

| RGB |
| BETA |
| YUV |

| INPUT 1 | INPUT 2 | INPUT 3 | INPUT 4 | INPUT 5 | INPUT 6 | INPUT FORMAT |
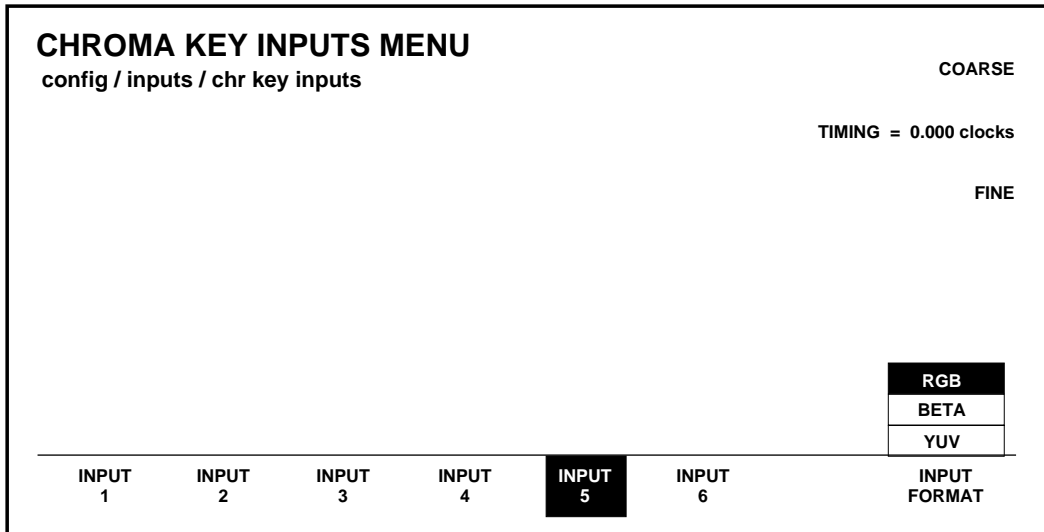
The Chroma Key Inputs Menu selections are as follows:

INPUT ... buttons — Select the chroma keyer to be affected by the format and timing selections described below.

INPUT FORMAT — Sets the currently selected chroma keyer to RGB, YUV, or Beta input format.

COARSE — Adjusts coarse timing for the currently selected chroma keyer.

FINE — Adjusts fine timing for the currently selected chroma keyer.

GPI Inputs Menu

The GPI Inputs Menu allows you to assign specific functions to trigger the GPIs. Eight GPI inputs are provided. All of these accept pulse-type inputs except Aux Tally Back, which is level-sensitive.

GPI INPUTS MENU
config / inputs / gpi inputs

FUNCTION SELECT
(MISC)

| AUX TALLY | LOG CHAN TALLY | DISABLE GPI |

AUX BUS
= 1

GPI 1	AUX TALLY - BUS 1
GPI 2	M/E 1 AUTO TRAN
GPI 3	M/E 1 CUT
GPI 4	RUN EFFECT
GPI 5	MASTER RECALL EFF - 26
GPI 6	GPI DISABLED
GPI 7	FRAME STORE VIDEO GRAB
GPI 8	SEQUENCE MODE

When the desired function is selected, press PROGRAM GPI button to set the selected GPI input to the selected function

GPI 1

Choose from these 6 buttons to select various categories of GPI functions. Then use the FUNCTION SELECT knob to select a function

AUX TALLY BUS 1?

| GPI SELECT | MISC | KF EFFECT | AUTO TRANS | CUT | E-MEM | FRAME STORE | PROGRAM GPI |

Functions available for assignment to the GPIs are

■ Miscellaneous (Aux Tally)
■ Keyframe Effects
■ Auto Transitions
■ Cuts
■ E-MEM registers
■ Frame Stores

The **FUNCTION SELECT** knob is always delegated to one of these functions, as indicated in parentheses in the **FUNCTION SELECT** knob label.

GPI SELECT — Selects the GPI input whose function is to be assigned.

FUNCTION SELECT soft knob — Selects the appropriate function based on what GPI assignment is chosen.

MISC — Enables selection of the Aux Tally Back function, or allows the selected GPI input to be disabled.

> **AUX TALLY** — Allows an external device to control the aux bus tally level (high or low). The **AUX BUS** soft knob selects the appropriate aux bus.

> **LOG CHANNEL TALLY** — Allows the Tally to track the DPM's logical channel .

> **DISABLE GPI** — Causes any signal applied to the selected GPI input to be ignored.

KF EFFECT — Enables selection of the Keyframe GPI function. The following functions may be triggered with GPI pulses:

> **RUN, REWIND, AUTO RUN,** and **REVERSE**

AUTO TRANS — Enables selection of the Auto Transition GPI function. The following transitions may be triggered with GPI pulses:

> **M/E 1, M/E 2, M/E 3 (3000-3)**, **PGM PST**, **DSK 1** and **DSK 2 TITLE MIX**, and **PGM PST PST BLK**

CUT — Enables selection of the Cut GPI function. The following cuts may be triggered by the GPI:

> **M/E 1**, **M/E 2**, **M/E 3 (3000-3)**, **DSK 1**, **DSK 2**, and **PGM PST**

E-MEM — Enables selection of the E-MEM GPI function. The following E-MEM functions may be triggered by the GPI:

> **RECALL ME 1, RECALL ME 2, RECALL ME 3 (3000-3)**, **RECALL MSTR, AUTO RECALL, EFF DISSOLV,** and **SEQUENCE**. The **REGISTER** soft knob selects the register for E-MEM recalls.

FRAME STORE — Enables selection of the Frame Store GPI function. Triggerable functions are as follows:

> **VIDEO GRAB, KEY GRAB**, and **MASK GRAB**

PROGRAM GPI — For each GPI, after the desired function has been selected, pressing **PROGRAM GPI** enters the selection, which is then indicated in the table in the menu display.

Outputs Menu

The Outputs Menu allows you to set certain parameters on the output signals.

OUTPUTS MENU
config / outputs

	SUPER BLACK	SETUP ON KEY	VIDEO/KEY FMT	LIMITER
PGM	OFF	OFF	SHAPED	ON
M/E 1 PGM	ON	ON	-	-
M/E 2 PGM	ON	OFF	-	-
M/E 3 PGM	OFF	OFF	-	-
AUX BUS 1	OFF	OFF	SHAPED	-
AUX BUS 2	OFF	OFF	SHAPED	-
AUX BUS 3	OFF	OFF	SHAPED	-
AUX BUS 4	OFF	OFF	UNSHAPED	-
AUX BUS 5	OFF	OFF	-	-
AUX BUS 6	OFF	OFF	-	-
AUX BUS 7	OFF	OFF	-	-
FRAMESTORE	OFF	OFF	-	-

	SUPER BLACK	SETUP ON KEY	VIDEO/KEY FMT	LIMITER
	ON	ON	SHAPED	ON
PGM	OFF	OFF	UNSHAPED	OFF

OUTPUT SELECT	SUPER BLACK	SETUP ON KEY	VIDEO/KEY FMT	LIMITER	OUTPUT TIMING >	DIGITAL RES >

LUM CLIP = 105 IRE

CHROMA CLIP = 105 %

COMPOSITE CLIP = 138 IRE

BLACK CLIP = -20 IRE

Outputs Menu selections are as follows:

OUTPUT SELECT — Selects the output whose parameters are to be changed.

SUPERBLACK — Turns the output superblack level **ON** or **OFF**. The superblack level is set in the System Parameters Menu.

SETUP ON KEY — Selects or deselects setup on the key output.

VIDEO/KEY FMT — Sets the output processing to provide the type of signal desired as an input to the external device that is to use the signal: **UNSHAPED** if the video is already shaped but the device needs a full screen-sized picture, or **SHAPED** if the device can accept video that has already been processed by a key signal. Note that this selection applies only to the Program output and Aux 1-4 signals, and it applies to Aux 1-4 only if the Effects Send option is present. Without the Effects Send option, the Aux 1-4 outputs pass whatever signal is present, either shaped or unshaped.

When the Effects Send option is not present, the *SHAPED/UNSHAPED* selections for the Aux Buses are not in the menu.

LIMITER — Turns the limiter on or off. The **ON** position allows adjustment of the Program Output characteristics, as follows. Note that this selection applies only to the Program output signal.

> **LUM CLIP** — Adjusts the luminance clipping level of the output signal. This clips out luminance levels above the selected threshold. The range of the soft knob is from 75 IRE to 138 IRE. The default setting is 105 IRE.

> **CHROMA CLIP** — Adjusts the chrominance clipping level of the output signal. This clips out chrominance levels above the selected threshold. The range of the soft knob is from 80% to 120%. The default setting is 105%.

> **COMPOSITE CLIP** — Adjusts the composite clipping level of the output signal. This clips out chrominance and luminance levels above the selected threshold. The range of the soft knob is from 75 IRE to 138 IRE. The default setting is 138 IRE.

> **BLACK CLIP** — Adjusts the black clipping level of the output signal. This clips out luminance levels below the selected threshold. The range of the soft knob is from -20 IRE to 10 IRE. The default setting is -20 IRE.

> **OUTPUT TIMING** — Allows adjustment of reference timing and electrical path length of the switcher, thereby affecting output signal timing.

DIGITAL RES> — Displays the Output Digital Resolution Menu.

Output Digital Resolution Menu

The Output Digital Resolution Menu allows you to set each digital output to 8- or 10-bit resolution.

OUTPUT DIGITAL RESOLUTION MENU
config / outputs / digital res

A 11	SERIAL	10 BITS	8 BITS	10 BITS	10 BITS
A 12	ANALOG	-	-	-	-
A 13	PARALLEL	8 BITS	8 BITS	8 BITS	8 BITS
A 14	SERIAL	10 BITS	10 BITS	8 BITS	8 BITS
A 15	NO BOARD	-	-	-	-
A 16	PARALLEL	10 BITS	8 BITS	8 BITS	8 BITS
A 17	ANALOG	-	-	-	-

4 TO 10			8 BITS	8 BITS	8 BITS	8 BITS
11 TO 17	A 16		10 BITS	10 BITS	10 BITS	10 BITS
GROUP SELECT	CARD SELECT		MASK	SWITCHED PVW	DSK PGM VIDEO	DSK PGM KEY

Outputs Digital Resolution Menu selections are as follows:

GROUP SELECT and **CARD SELECT** — Select the output whose resolution is to be changed.

Note that as the output boards are selected with the **CARD SELECT** button, the names of the outputs change above the soft buttons.

Output buttons — Set the resolution to either **8-BIT** or **10-BIT** for each selected digital output.

NOTE: *Dithering of the 8-bit outputs is selectable in the Misc/Signal Process Menu.*

External Interface Menu

Parameters for external interfaces, such as an editor or a DPM (Digital Picture Manipulator), may be set up through the External Interface Menu.

EXTERNAL INTERFACE MENU
config / extern if

EDITOR	DPM	PERIPHERAL	GPI
I/F >	I/F >	I/F >	I/F >
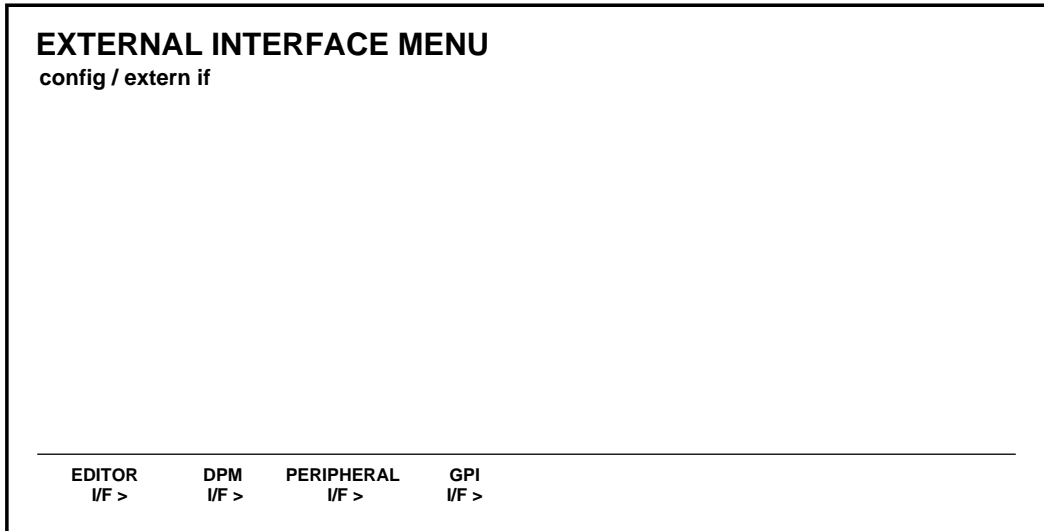
EDITOR I/F> — Displays the Editor Interface Menu.

DPM I/F> — Displays the DPM Interface Menu.

PERIPHERAL I/F> — Displays the Peripheral Interface Menu.

GPI I/F> — Displays the GPI Outputs Menu.

Editor Interface Menu

The Editor Interface Menu allows you to set the baud rate and parity for communication with an editor.

EDITOR INTERFACE MENU
config / extern if / editor if

2400
4800
9600	ODD
19200	EVEN
38400	NONE

    BAUD   PARITY

BAUD — Selects baud rates from 2400 to 38,400 for the Editor port.

PARITY — Selects **ODD**, **EVEN**, or no specified parity (**NONE**).

DPM Setup Menu

The DPM Setup Menu and submenus allow you to define device types, assign ports, etc., for Digital Picture Manipulators used with the Model 3000 Switcher.

DPM SETUP MENU
config / extern if / dpm setup

EFF SEND DELAY
= 5 fields

			EFF SEND DELAY	CONTROL DELAY
DPM 1	KRYSTAL	BOTH	5	6
DPM 2	OTHER FIXED	-	0	0
DPM 3	NONE	-	0	0
DPM 4	NONE	-	0	0

CONTROL DELAY
= 06 fields

	KSCOPE	SWR IN
	KRYSTAL	SWR OUT
	OTHER	BOTH
DPM 1	NONE	OFF

DEVICE SELECT	DPM TYPE	CHANNEL ROUTING		K'SCOPE SOURCES	DPM MAP AUX BUSES >	DPM MAP INPUTS >

DEVICE SELECT — Selects the DPM Device whose characteristics are to be assigned.

DPM TYPE — Defines the DPM type for each device when Krystal or K'scope is selected.

NOTE: *A delay has been introduced when changing DPM TYPE. This delay allows a new DPM TYPE to be chosen without cycling through intermediate DPM Types. Once the desired selection has been made, the new DPM TYPE will be set 2 seconds later.*

CHANNEL ROUTING — Enables input routing, output routing, or both, or disables routing.

VIDEO DELAY — Defines the number of fields of delay in the video path of the DPM.

CONTROL DELAY — Defines the number of fields of delay in the CPL (Control-Point Language) processing of the DPM.

K'SCOPE SOURCES> — Displays the DPM KScope Sources Menu.

DPM MAP AUX BUSES> — Displays the DPM Map Aux Buses Menu.

DPM MAP INPUTS> — Displays the DPM Map Inputs Menu.

NOTE: *For information regarding DPM assignments available under this menu, refer to the DPM Setup description in the Startup section of the Model 3000 User Guide.*

DPM KScope Sources Menu. This menu allows you to map Kaleidoscope video source crosspoints to your switcher video source crosspoints. You may set this map to a GVG default depending on your Control Panel type. Or you may map each Kaleidoscope source button individually to the switcher crosspoint button of your choice.

DPM KSCOPE SOURCES MENU

config / extern if / dpm setup / dpm k'scope sources

Dial in switcher xpt button for K'scope source button

K'SCOPE BTN	SWR BTN	K'SCOPE BTN	SWR BTN	K'SCOPE BTN	SWR BTN
0	1	11	12	22	S/7
1	2	12	13	23	S/8
2	3	13	14	24	S/9
3	4	14	15	25	S/10
4	5	15	16	26	S/11
5	6	16	S/1	27	S/12
6	7	17	S/2	28	M/E 1
7	8	18	S/3	29	M/E 2
8	9	19	S/4	30	M/E 3
9	10	20	S/5	31	PGM
10	11	21	S/6		

K'SCOPE BUTTON = 0

SWITCHER BUTTON = 1

SET DEFAULTS

DPM Map Aux Buses Menu. This menu allows you to assign aux buses for use with DPM devices.

DEVICE SELECT — Selects the Device to which aux buses are to be assigned.

NUMBER OF CHANNELS — Sets the number of DPM channels to be assigned to the selected Device.

FIRST CHANNEL — Sets the channel of the first aux bus (in a consecutive sequence) for the selected Device.

DPM MAP AUX BUSES MENU

config / extern if / dpm setup / dpm map aux buses

NUMBER OF CHANNELS
= 4

Connection of physical AUX buses
to physical channels

FIRST CHANNEL
= CHAN E

MISC	AUX 5	AUX 6	AUX 7	-	-	-	-	-
PHYS CHAN	CHAN A	CHAN B	CHAN C	CHAN D	CHAN E	CHAN F	CHAN G	CHAN H
DPM 1	-	-	-	-	AUX 1	AUX 2	AUX3	AUX 4
DPM 2	-	-	-	-	-	-	-	-
DPM 3	-	-	-	-	-	-	-	-
DPM 4	-	-	-	-	-	-	-	-

DPM 1

DEVICE
SELECT

NOTE: *If a Kaleidoscope or other poolable DPM is used, its **CHANNEL 1** must be **AUX 1**. Only one poolable DPM may be used at one time. Any aux buses not assigned to a poolable DPM may be assigned to an **OTHER FIXED** DPM. Refer to the DPM Setup description in the Startup section of the User Guide for further information.*

DPM Map Inputs Menu. This menu allows you to set up the DPM video and key return input numbers.

DPM MAP INPUTS MENU

config / extern if / dpm setup / dpm map inputs

VIDEO INPUT
= 19

KEY INPUT
= 42

	PHYSICAL	LOGICAL	VIDEO INPUT	KEY INPUT
	CHAN 1-PRI	CHAN 1	–	–
	CHAN 2	CHAN 2	19	42
	CHAN 3	CHAN 3	29	63
	CHAN 4	CHAN 4	–	–
DEVICE 2	CHAN 5	CHAN 5	–	–
	CHAN 6	CHAN 6	–	–
	CHAN 7	CHAN 7	–	–
	CHAN 8	CHAN 8	–	–
	SECONDARY	–	–	–

DEVICE 1	
DEVICE 2	
DEVICE 3	
DEVICE 4	CHAN 2

DPM SELECT	CHANNEL SELECT

DPM SELECT — Selects the DPM device to which the DPM video and key inputs are to be assigned.

CHANNEL SELECT — Selects the DPM channel to which video and key input numbers are to be assigned for the selected Device.

VIDEO INPUT — Selects the DPM physical input number to correspond with the physical video channel that was connected to that input during installation.

KEY INPUT — Selects the DPM physical input number to correspond with the physical key channel that was connected to that input during installation.

Peripheral Interface Menu

The Peripheral Interface Menu allows you to set up the
parameters for the Peripheral Bus II port (A3).

PERIPHERAL INTERFACE MENU
config / extern if / peripheral if

> **NOTE:**
> **The Peripheral Bus port is labelled**
> **"Port A3" on the rear of the frame**
> **electronics.**

2400			
4800			
9600	**ODD**		
19200	**EVEN**		
38400	**NONE**		

| **BAUD** | **PARITY** | | **PERIPHERAL**
TRIGGERS > |

BAUD and **PARITY** — Select the baud rate and parity parameters
for the Peripheral Bus II port interface. These should be set to be
the same for the Model 3000 and the peripheral device.

PERIPHERAL TRIGGERS> — Displays the Peripheral Triggers
Menu, which allows you to define the triggers to be sent to devices
on the peripheral bus.

Peripheral Triggers Menu

This menu allows you to configure peripheral triggers that the switcher may use to trigger the designated device/function. These triggers can then be learned into E-MEM effects (on the **MISC** or **DPM 1**–**DPM 4** level). Refer to the Keyframe/Attach Peripheral Trigger Menu description for attaching peripheral triggers to E-MEM registers.

```
┌─────────────────────────────────────────────────────────────────────────┐
│  PERIPHERAL TRIGGERS MENU                              DEVICE NUMBER      │
│  config / extern if / peripheral if / peripheral triggers      = 1       │
│                                                                           │
│                 DEVICE NO.   FUNCTN NO.    LEVEL                          │
│         A           -            -           -                            │
│         B           1            4         DPM 1         FUNCTION NUMBER  │
│         C           -            -           -                  = 4       │
│         D           -            -           -                            │
│         E           -            -           -                            │
│         F           -            -           -               LEVEL        │
│         G           -            -           -              = DPM 1       │
│         H           -            -           -                            │
│                                                                           │
│         B                                                                 │
│     TRIGGER                               FIRE                            │
│      SELECT                                B                              │
└─────────────────────────────────────────────────────────────────────────┘
```

TRIGGER SELECT — Selects the trigger to be assigned (A - H).

DEVICE NUMBER — Selects the peripheral device to which a trigger will be sent.

FUNCTION NUMBER — Sets the function of the selected device that will be triggered by a trigger message on the Peripheral II bus.

LEVEL — Sets the E-MEM level where the trigger will be learned.

FIRE ... — Manually fires the trigger, for testing purposes.

GPI Outputs Menu

The GPI Outputs Menu allows you to select a GPI for triggering by the PGM Cut button, set E-MEM levels for each assigned GPI, and to set the duration of the GPI trigger.

```
GPI OUTPUTS MENU                                            LENGTH
config / external if / gpi outputs                         = 1 field

                               LEVEL     LENGTH
                        1      MISC      1
                        2      MISC      1
                        3      MISC      1
                        4      MISC      1
                        5      MISC      1
        OFF             6      MISC      1
        GPI 1           7      MISC      1
        GPI 2           8      MISC      1
        GPI 3
        GPI 4                  MISC
        GPI 5                  DPM 1
        GPI 6                  DPM 2
        GPI 7                  DPM 3
        GPI 8           7      DPM 4

    PGM CUT           SELECT   E-MEM
    TRIGGER           GPI      LEVEL
```

The following selections are available in the GPI Outputs Menu:

PGM CUT TRIGGER — Assigns one of eight GPI outputs to trigger whenever the PGM bus Cut button is pressed.

SELECT GPI — Selects a GPI trigger for assignment to an E-MEM level.

E-MEM LEVEL — Assigns the selected GPI trigger to an E-MEM level.

LENGTH — Sets the duration of the GPI trigger in fields.

Aux Bus Format Menu

This menu is used to set up the format for each of the 7 aux buses. Each bus consists of an "A" bus and a "B" bus. The "A" buses are for video only. The "B" buses may be either video or key.

AUX BUS FORMAT MENU
config / aux bus format

VIDEO	VIDEO	VIDEO	VIDEO	VIDEO	VIDEO	VIDEO
KEY	KEY	KEY	KEY	KEY	KEY	KEY
AUX BUS 1B	AUX BUS 2B	AUX BUS 3B	AUX BUS 4B	AUX BUS 5B	AUX BUS 6B	AUX BUS 7B

AUX BUS 1B through **AUX BUS 7B** — Selects either **VIDEO** or **KEY** for each "B" aux bus.

Make sure that any aux buses assigned to Kaleidoscope are configured for **KEY** operation of their "B" aux buses.

NOTE: *Shaping of the outputs for Aux Buses 1-4 may be done in the Config/Outputs Menu.*

M/E Mode Menu

The M/E Mode Menu allows selection of Standard or Layered mode, and turns Full Additive Mix mode on or off on an M/E-by-M/E basis.

```
M/E MODE MENU                                    KEY 1 OPACITY
 me mode                                           = 100.00%


                                                 KEY 2 OPACITY
     M/E 1    STANDARD    OFF                       = 100.00%
     M/E 2    LAYERED     ON
     M/E 3    STANDARD    OFF

                                                 KEY A OPACITY
                                                   = 100.00%


     M/E 1
                                                 KEY B OPACITY
     M/E 2    LAYERED     ON                        = 100.00%
     M/E 3    STANDARD    OFF

      M/E        M/E       FULL          M/E
    SELECT      MODE     ADD MIX       COPY >
```

The following menu selections are accessible through the M/E Mode Menu:

M/E SELECT — Selects the Mix/Effects system to which subsequent menu selections apply.

M/E MODE — Sets the selected Mix/Effects to either Layered mode or Standard mode. In Layered mode, the A and B buses function as keyers rather than background buses. In Standard mode, the A and B buses function as background buses.

FULL ADD MIX — Enables or disables the FAM mode when in Layered mode. When FAM is on, the opacity of each layer is adjustable with a soft knob.

M/E COPY> — Displays the M/E Copy Menu.

M/E Copy Menu

The M/E Copy Menu allows you to copy or swap all M/E settings between M/Es.

M/E COPY MENU
me mode / me copy

COPY	M/E 1	TO	M/E 2
SWAP	M/E 1	WITH	M/E 2

M/E 1	M/E 1
M/E 2	M/E 2
M/E 3	M/E 3

FROM M/E   TO M/E   DO M/E SWAP   DO M/E COPY
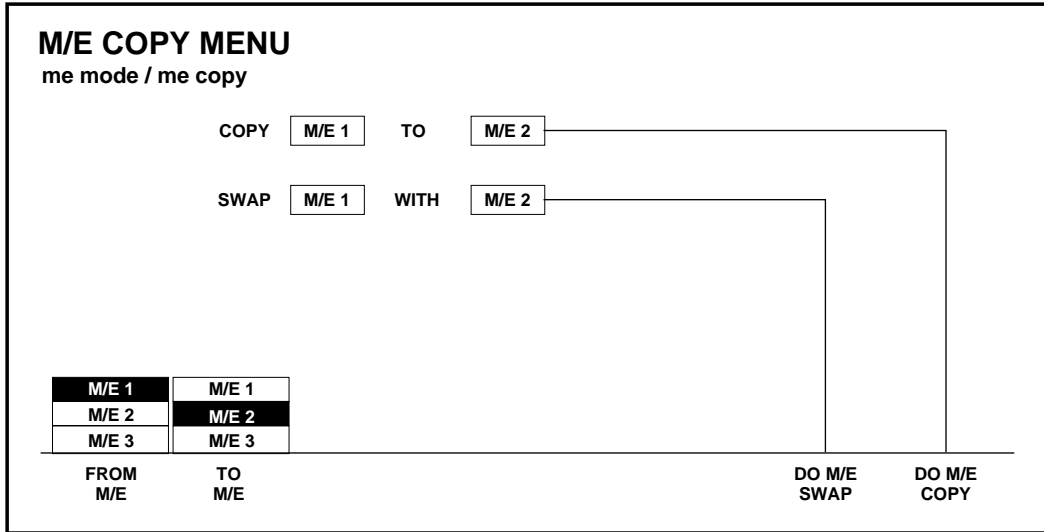
The M/E Copy Menu selections are:

FROM M/E — Selects the M/E system to copy or swap from.

TO M/E — Selects the M/E system to copy or swap to.

DO M/E SWAP — Initiates the M/E swap currently selected.

DO M/E COPY — Initiates the M/E copy currently selected.

*NOTE: An **UNDO** function appears in the menu after a Copy or Swap operation has been initiated. The Undo must be performed before exiting the menu in order for it to take effect.*

Status Menu

The Status Menu gives information about the state of the switcher software and hardware.

STATUS MENU
 status

SYSTEM	INSTALL	
LOG >	INFO >	DIAGS >
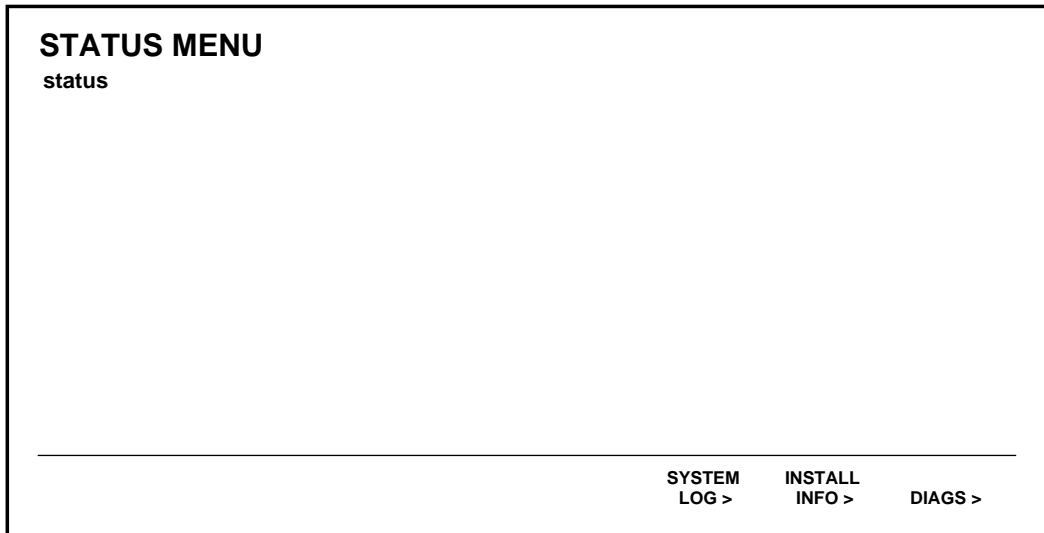
The Status Menu selections are as follows:

SYSTEM LOG> — Displays the System Log Menu which shows any current switcher error messages.

INSTALL INFO> — Displays the first Installation Info Status Menu, which displays the version of the software installed and provides information about the circuit boards installed in the processor frame.

DIAGS> — Displays the Diagnostics Menu.

System Log Menu

The System Log Menu displays switcher error-condition messages and other information, such as each system reset. These are useful to GVG Customer Service for troubleshooting purposes. Messages are routinely generated and do not necessarily indicate a problem with the switcher.

SYSTEM LOG MENU

..... MESSAGE LOG CLEARED BY USER AT 15:24 ON JAN 5, 1995

SCROLL

PAGE UP	PAGE DOWN	FIRST PAGE	LAST PAGE	LAST RESET		CLEAR LOG
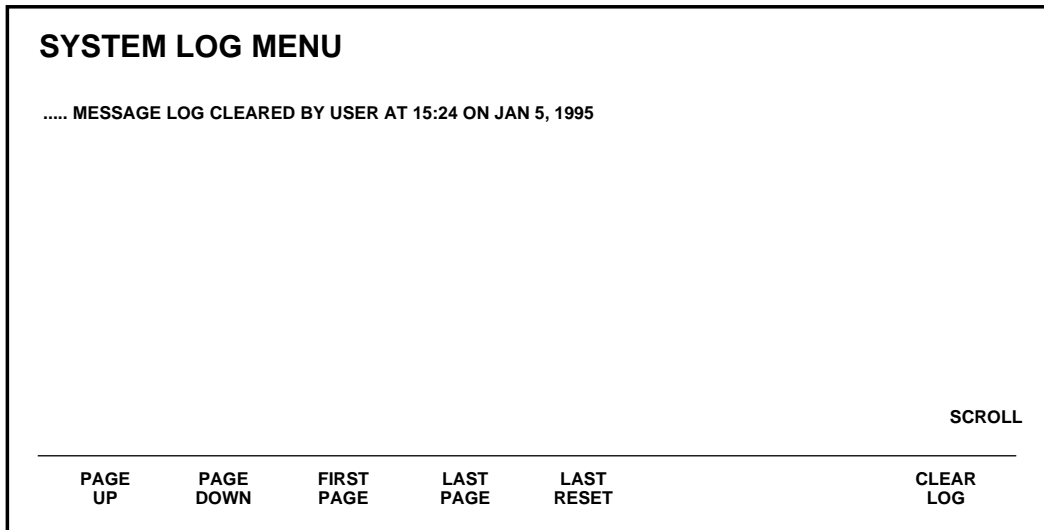
The System Log Menu selections are:

PAGE UP/DOWN, FIRST/LAST PAGE, SCROLL — Scroll the Error Log pages to view the log messages. **PAGE UP** takes you to the previous page, **PAGE DOWN** to the following page, **FIRST PAGE** to the first page of the log, and **LAST PAGE** to the last page. The **SCROLL** knob allows scrolling up or down one line at a time.

CLEAR LOG — Erases all displayed error messages.

LAST RESET — Brings the first message after the last system power up or reset to the top of the display.

Installation Information Menus

The three pages of the Installation Info Menu, available under the Status Menu, provide information about the presence, version, and types of boards that are installed.

INSTALLATION INFO MENU
status / install info

MODEL 3000-3 SOFTWARE VERSION: 5.0

SLOT	BOARD	VERSION	SLOT	BOARD	VERSION	SLOT	BOARD	VERSION
1	M1 CK	068907-01A	6	M3 KEYER	068904-01D	13	M2 MIX/WIPE	068903-08I
-	DECODER	068943-228	-	K1 BDL	068915-00A	-	PVW DIM	068942-00A
2	M2 CK	068907-01A	-	K2 BDL	068915-00A	14	M1 MIX/WIPE	068903-08I
-	DECODER	068943-228	7	SYNC	068901-00K	-	PVW DIM	068942-00A
3	M3 CK	068907-01A	-	SAFE TITLE	068917-00B	15	SEC WIPE	068912-00C
-	DECODER	068943-228	8	XPT HI	068900-00A	16	PGM/PST/DSK	068905-00F
4	M1 KEYER	068904-01D	9	XPT LO	068900-00A	-	K1 BDL	068915-00A
-	K1 BDL	068915-00A	10	FRAME STORE	068911-00D	-	K2 BDL	068915-00A
-	K2 BDL	068915-00A	-	DECODER		17	CTRL PROC	
5	M2 KEYER	068904-01D	11	EFX SEND				
-	K1 BDL	068915-00A	12	M3 MIX/WIPE	068903-08I			
-	K2 BDL	068915-00A	-	PVW DIM	068942-00A			

MAIN BOARDS   UPPER BOARDS   LOWER BOARDS

The **MAIN BOARDS** selection shows the functions of all the slots in the center card cage (Bay B). Each slot that has a module installed indicates the presence of the module by listing its assembly/version number. Entries that have a "-" in the left column are mezzanine boards that might be installed on the modules listed immediately above them in the table.

Note that the version of the installed software is displayed in the upper right-hand corner of the display.

INSTALLATION INFO MENU
status / install info

MODEL 3000-3 SOFTWARE VERSION: 5.0

SLOT	BOARD	VERSION	SLOT	BOARD	VERSION
1	RGB CK IN	068922-00C	13		
2	RGB CK IN	068922-00C	14		
3	RGB CK IN	068922-00C	15		
4	DIG OUT-SER	068931-00F	16	DIG OUT-PAR	068930-00C
5			17	ANLG OUT	068929-00F
6					
7					
8					
9	ANLG OUT	068929-00F			
10					
11					
12	DIG OUT-PAR	068930-00C			

MAIN BOARDS	UPPER BOARDS	LOWER BOARDS

The **UPPER BOARDS** selection shows what slots in the upper card cage (Bay A) have modules installed, and the format and assembly/version number for each installed module.

INSTALLATION INFO MENU
status / install info

MODEL 3000-3 SOFTWARE VERSION: 5.0

SLOT	BOARD	VERSION	SLOT	BOARD	VERSION
1	DIG IN-PAR	068923-00B	13		
2	DIG IN-PAR	068923-00B	14	ANLG IN-AUTO	068921-00G
3			15	ANLG IN-AUTO	068921-00G
4	DIG IN-SER	068924-00C	16	ANLG IN-AUTO	068921-00G
5			17		
6					
7					
8					
9					
10					
11					
12					

MAIN BOARDS	UPPER BOARDS	**LOWER BOARDS**

The **LOWER BOARDS** selection shows what slots in the lower card cage (Bay C) have modules installed, and the format and assembly/version number for each installed module.

Diagnostics Menu

The Diagnostics Menu allows access to the Blanking Menu.

DIAGNOSTICS MENU
status / diags
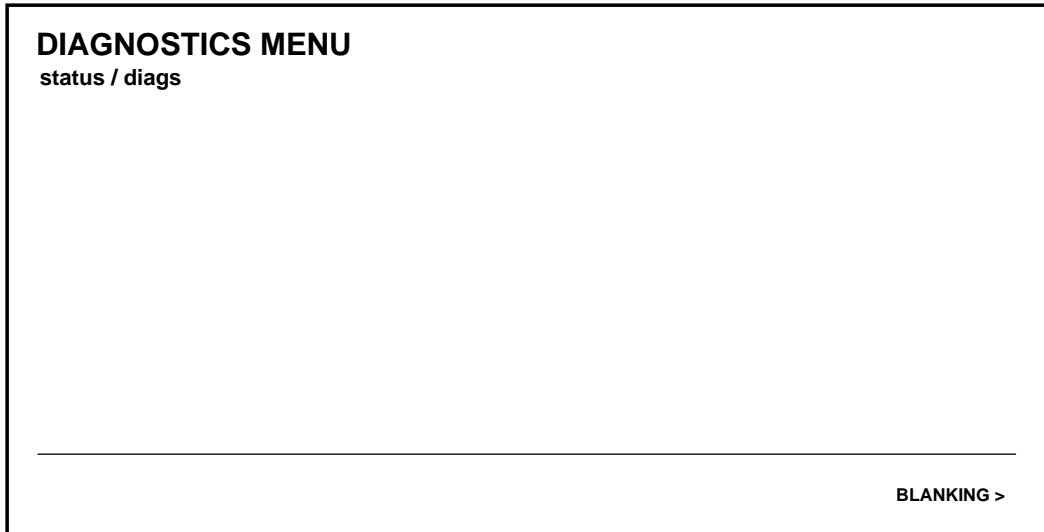
BLANKING >

BLANKING> — Displays the Blanking Menu.

Blanking Menu

The Blanking Menu allows you to turn off the internal blanking processor on the Mask, Switched Preview, DSK Program Video, and DSK Program Key outputs.

BLANKING MENU
status / diags / blanking

CHOP
ON
OFF

BLANKING
PROCESSOR
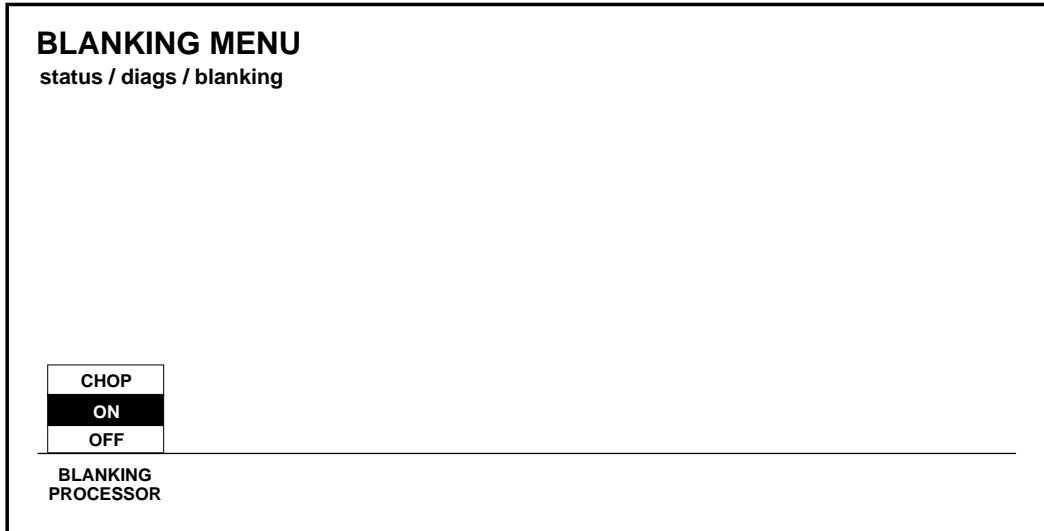
The **BLANKING PROCESSOR** selections are as follows:

ON — Normal operating mode of the Model 3000. The switcher inserts sync and blanking on the output signal.

OFF — Turns off the internal blanking processor and passes through the blanking and sync present on the source signal.

CHOP — Chops between blanking from the internal blanking processor and blanking on the source signal to allow external SC/H phase adjustment of the input source.

NOTE: *When you exit from this menu, the function defaults to* **ON**.

Keyer Menu

The Keyer Menu provides key parameter adjustments not available on the control panel and shows the status of these parameters on each key bus of the selected M/E or DSK. (Only Key 1 and Key 2 are shown when in Standard mode.)

```
KEYER MENU                                        OPACITY
keyer                                             = 100.00%


                    KEY 1      OFF                HORIZ KEY POSITION
          M/E 1     KEY 2      AUTO               = 0.00 clocks
                    KEY A      AUTO
                    KEY B      AUTO



          M/E 1
          M/E 2                ON
          M/E 3                OFF
          DSK      KEY 1       AUTO
          M/E      KEYER               CHROMA   KEYER               VIDEO      KEY 1
          SELECT   SELECT   SHAPING    TRAP >   COPY >   CALIBRATE  PROCESS >  NAM >
```

The following selections are accessible through the Keyer Menu:

M/E SELECT — Selects the effects system to which subsequent menu selections apply.

KEYER SELECT — Selects the keyer to which the subsequent menu selections apply.

SHAPING — Forces shaped (**ON**) or unshaped (**OFF**) video for the selected key bus, regardless of the current Configuration Menu setting, or allows the current Configuration setting to apply (**AUTO**).

CHROMA TRAP> — Displays the Keyer Chroma Trap Menu.

KEYER COPY> — Displays the Keyer Copy Menu which allows copying keyer parameters from one keyer to another.

CALIBRATE — For the delegated crosspoint bus, resets all functions that turn on the Source Select **UNCAL** lamp to their default values (includes **CORING** and **OPACITY**).

VIDEO PROCESS> — Displays the Video Process Menu, which allows adjustment of the luminance gain, chroma gain, and DC offset for the individual key bus selected.

KEY 1 NAM> — Displays the Key 1 NAM Menu, which allows non-additive mixing (NAMing) of Key 2 into Key 1 on an M/E-by-M/E basis.

OPACITY — Adjusts the opacity of the selected key. This function is available even when doing a full-additive mix.

HORIZ KEY POSITION — Adjusts the horizontal position of the selected key. This function is not available when DSK is selected.

Chroma Trap Menu

The keyer Chroma Trap Menu allows you to turn on a chroma trap for selected keyers and to select the filtering mode.

CHROMA TRAP MENU
keyer / chroma trap

M/E 2	KEY 1	ON	BS-HARD
	KEY 2	ON	BS-HARD
	KEY A	OFF	BS-HARD
	KEY B	OFF	BS-HARD

M/E 1			LP-SOFT
M/E 2		ON	LP-HARD
M/E 3		OFF	BS-SOFT
DSK	KEY 1	AUTO	BS-HARD
M/E SELECT	**KEYER SELECT**	**CHROMA TRAP**	**FILTER TYPE**

M/E SELECT and **KEYER SELECT** — Selects the effects system and keyer to which subsequent menu selections apply.

CHROMA TRAP — Enables or disables the chroma trap for the selected keyer. The filtering removes unwanted chroma from video used for keying.

If you have a 068904-01 Keyer module four levels of chroma filtering are available, as follows:

BS - HARD, **BS - SOFT**, **LP - HARD**, and **LP - SOFT**.
(**BS** = Band Stop; **LP** = Low Pass.)

BS - HARD is the default selection and is for keys that have high frequency content. The other selections provide varying degrees of softening of the key, and can reduce ringing on hard key edges.

If you have a 068904-00 Keyer module, one level of chroma filtering is provided, and the **CHROMA TRAP** choices are **ON** and **OFF**.

Keyer Copy Menu

The Keyer Copy Menu allows you to copy all keyer settings from any keyer to another.

KEYER COPY MENU
keyer / keyer copy

COPY	M/E 1 KEY 2	TO	M/E 2 KEY 2
SWAP	M/E 1 KEY 2	WITH	M/E 2 KEY 2

M/E 1	KEY 1		M/E 1	KEY 1
M/E 2	KEY 2	EXCLUDE	M/E 2	KEY 2
M/E 3	KEY A	INCLUDE	M/E 3	KEY A
DSK	KEY B		DSK	KEY B

| FROM GROUP | FROM KEYER | WIPES | TO GROUP | TO KEYER | DO KEYER SWAP | DO KEYER COPY |

Selections in the Keyer Copy Menu are as follows:

FROM GROUP and **FROM KEYER** — Select the Keyer whose setup parameters are to be copied.

WIPES — Allows you to include or exclude Wipe settings that may be associated with the selected keyers.

TO GROUP and **TO KEYER** — Select the destination Keyer that is to receive the copied keyer setup.

DO KEYER SWAP — Initiates the keyer Swap currently selected.

DO KEYER COPY — Initiates the keyer Copy currently selected.

NOTE: *An* **UNDO** *function appears in the menu after a Copy or Swap operation has been initiated. The Undo must be performed before exiting the menu in order for it to take effect.*

> **NOTE:** *If the destination Keyer has parameters that the source Keyer does not, those parameters are set to default values in the destination Keyer.*

Video Process Menu

The Video Processing Menu allows you to adjust luminance gain, chroma gain, and dc offset for the selected bus.

VIDEO PROCESS MENU				LUM GAIN = 1.00
keyer / video process				

M/E 2	KEY 1	OFF	OFF
	KEY 2	**ON**	**ON**
	A	ON	OFF
	B	OFF	ON

CHROMA GAIN = 1.00

DC OFFSET = 0.00 IRE

M/E 1			
M/E 2		**ON**	**ON**
M/E 3	KEY 2	OFF	OFF

CORING = 7.50 IRE

M/E SELECT	BUS SELECT	VIDEO PROCESS	CORING	RESTORE DEFAULTS

The Video Process Menu selections are as follows:

M/E SELECT — Selects the M/E to be adjusted.

BUS SELECT — Selects the bus to be adjusted.

VIDEO PROCESS — Enables or disables the Video Processing adjustments listed below for the selected bus.

    LUM GAIN — Sets luminance gain of the selected bus.

    CHROMA GAIN — Sets chroma gain of the selected bus.

    DC OFFSET — Sets dc offset of the selected bus.

CORING — Enables or disables the coring function for linear keys on the selected key bus (applies only to Key 1 and Key 2 buses in Standard mode and A and B buses in Layered mode). Does not apply to the DSK

    CORING — Adjusts M/E background video in key area to ensure that video is fully removed.

RESTORE DEFAULTS — Restores default settings of the selected soft knob functions.

Key 1 NAM Menu

The Key 1 NAM Menu allows NAMing Key 2 into Key 1 on an M/E-by-M/E basis.

KEY 1 NAM MENU
keyer / key 1 nam

NAM SOFTNESS
= 0%

NAM OFFSET
= 50%

M/E 1	KEY 1	ON
M/E 2	KEY 1	OFF
M/E 3	KEY 1	OFF

M/E 1	
M/E 2	ON
M/E 3	OFF

M/E SELECT	NAM K2 INTO K1	RESTORE DEFAULTS

Selections in the Key 1 NAM Menu are as follows:

M/E SELECT — Selects the M/E to be set.

NAM K2 INTO K1 — Enables or disables NAMing Key 2 into Key 1. In this mode, the signal with the highest instantaneous value is passed.

> **NAM SOFTNESS** — Adjusts the softness of the transition between two video signals for the selected M/E.

> **NAM OFFSET** — Sets the transition threshold between the two video signals (similar to a clip adjustment).

NOTE: *When NAMing Key 2 into Key 1, Key 2 will be on the M/E output but not indicated by a key **ON** indicator. (The crosspoint button tally will be correct.)*

RESTORE DEFAULTS — Restores the default values of the selected soft knob functions.

Chroma Key Menu

The Chroma Key Menu allows selection and adjustment of a variety of chroma key parameters.

CHROMA KEY MENU				FOREGROUND CORING = 7.50 IRE

chr key

M/E 1 KEY 1	ON	ON	OFF
M/E 1 KEY 2	ON	ON	FIXED
M/E 2 KEY 1	ON	ON	VARIABLE
M/E 2 KEY 2	ON	ON	OFF
M/E 3 KEY 1	ON	ON	OFF
M/E 3 KEY 2	ON	ON	OFF

SHADOW GAIN = 50%

SHADOW CLIP = 50%

			VARIABLE
	ON	ON	FIXED
M/E 2 KEY 1	OFF	OFF	OFF

CHR KEY SELECT	FOREGROUND VIDEO	BACKGROUND VIDEO	FOREGROUND CORING	SECONDARY COLOR >	HUE MODS >	KEY ADJUST >

The Chroma Key Menu selections are as follows:

CHR KEY SELECT — Selects the M/E Keyer to which the menu selections apply.

FOREGROUND VIDEO — Turns the foreground on and off. When off, the foreground image is replaced with black.

BACKGROUND VIDEO — Turns the background on and off. When on, the foreground image is a full raster image.

FOREGROUND CORING — Turns foreground coring on and off. Coring replaces the key area of the background with black to ensure a clean key when background and fill are additively keyed together.

VARIABLE provides a **FOREGROUND CORING** knob which allows adjustment of the coring level.

FIXED provides a factory default foreground coring level.

OFF must be selected to enable the Chroma Key panel **BKGD SUPR LUM** and **CHROMA** knobs to operate.

SHADOW GAIN — May be used to adjust the gain of the Chroma Key shadow after the function has been turned on by the **SHDW ON** button on the Chroma Keyers subpanel.

SHADOW CLIP — May be used to adjust the clip level of the Chroma Key shadow after the function has been turned on by the **SHDW ON** button on the Chroma Keyers subpanel.

SECONDARY COLOR> — Displays the Secondary Color Menu, which allows adjustment of the secondary color suppression angle, secondary color selectivity, and secondary chroma suppression level.

HUE MODS> — Displays the Hue Modifications Menu, which allows adjustment of the secondary hue angle, separate hue suppression, flare suppression, and flare suppression offset.

KEY ADJUST> — Displays the CK Key Adjust Menu, which provides adjustment of the chroma key position, width, and key softness.

Chroma Key Secondary Color Menu

The Chroma Key Secondary Color Menu allows you to select and adjust selectivity and suppression of the secondary color.

```
CK SECONDARY COLOR MENU              SEC COLOR SUPPRESS ANGLE
chr key / sec color                            = 34 degrees


  M/E 1 KEY 1      OFF
  M/E 1 KEY 2      ON                  SEC COLOR SUPPRESS SELECTIVITY
  M/E 2 KEY 1      ON                                 = 50%
  M/E 2 KEY 2      OFF
  M/E 3 KEY 1      OFF
  M/E 3 KEY 2      OFF
                                       SEC CHROMA SUPPRESS LEVEL
                                                     = 50%



                   ON
  M/E 2 KEY 1      OFF
   CHR KEY      SEC COLOR
   SELECT       SUPPRESS
```

The CK Secondary Color Menu selections are as follows:

CHR KEY SELECT — Delegates the chroma keyer to be adjusted.

SECONDARY COLOR SUPPRESS — Enables or disables the following soft knobs:

> **SEC COLOR SUPPRESS ANGLE** — Provides an offset adjustment to the primary chroma key hue setting.

> **SEC COLOR SUPPRESS SELECTIVITY** — Adjusts selectivity of the chroma key hue control.

> **SEC CHROMA SUPPRESS LEVEL** — Allows you to change a second color in the foreground that may have been affected by the primary color suppression. For example, if the set is a person with blond hair in front of a blue background, after suppressing the blue background, individual strands of the blond hair may appear bluish. By adjusting the secondary chroma suppression level, you can adjust the hair color back to its normal blond.

Chroma Key Hue Modifiers Menu

The Chroma Key Hue Modifiers Menu allows you to select and adjust hue selectivity and flare suppression.

CK HUE MODIFIERS MENU

chr key / hue mods

SEPARATE HUE SUPPRESS
= 127 degrees

M/E 1 KEY 1	OFF	ON	ON
M/E 1 KEY 2	ON	OFF	ON
M/E 2 KEY 1	ON	ON	ON
M/E 2 KEY 2	OFF	ON	ON
M/E 3 KEY 1	OFF	OFF	OFF
M/E 3 KEY 2	OFF	OFF	OFF

FOREGROUND FLARE SUPPRESS
= 75%

HUE SUPPRESS OFFSET
= 0%

	ON	ON	ON
M/E 2 KEY 1	OFF	OFF	OFF

CHR KEY SELECT	SEP HUE SUPPRESS	FLARE SUPPRESS	HUE SUPRSS OFFSET

The CK Hue Modifiers Menu selections are as follows:

CHR KEY SELECT — Delegates the chroma keyer to be adjusted.

SEP HUE SUPPRESS — Enables or disables suppression of the selected hue from background and foreground. Also enables or disables the **SEPARATE HUE SUPPRESS** soft knob.

> **SEPARATE HUE SUPPRESS** — Adjusts hue suppression applied to background and foreground.

FLARE SUPPRESS — Enables or disables suppression of the selected hue from the foreground. Also enables or disables the **FOREGROUND FLARE SUPPRESS** soft knob.

> **FOREGROUND FLARE SUPPRESS** — Adjusts flare suppression.

HUE SUPRSS OFFSET — Enables or disables the **HUE SUPPRESS OFFSET** soft knob.

> **HUE SUPPRESS OFFSET** — Corrects for color impurities in video tape. For example, if you are keying out blue in your source tape and the white on the tape is blue-shifted, you will also key out the white. The offset suppression adjustment allows you to change the origin of the suppression space, so that the blue-shifted white is not included in the suppression.

Chroma Key Adjust Menu

The Chroma Key Adjust Menu provides adjustment of the chroma key horizontal position, key width, and softness.

CK KEY ADJUST MENU

chr key / key adjust

KEY WIDTH
= 0.00 clocks

M/E 1 KEY 1	OFF	ON	OFF
M/E 1 KEY 2	ON	OFF	OFF
M/E 2 KEY 1	ON	ON	OFF
M/E 2 KEY 2	OFF	ON	OFF
M/E 3 KEY 1	OFF	OFF	OFF
M/E 3 KEY 2	OFF	OFF	OFF

KEY SOFTNESS
= 50%

HORIZ KEY POSITION
= 0.00 clocks

	ON	ON	ON
M/E 2 KEY 1	OFF	OFF	OFF

CHR KEY SELECT	KEY WIDTH	KEY SOFTNESS	FGD RESHAPING

The Chroma Key Adjust Menu selections are as follows:

CHR KEY SELECT — Delegates the chroma keyer to be adjusted.

KEY WIDTH — Enables or disables the **KEY WIDTH** soft knob.

> **KEY WIDTH** — Adjusts the width of the chroma key.

KEY SOFTNESS — Enables or disables the **KEY SOFTNESS** soft knob.

> **KEY SOFTNESS** — Adjusts softness of the chroma key.

FGD RESHAPING — When **ON**, causes the shaped fill from the chroma keyer to be multiplied with the key signal from the chroma keyer. Depending upon the picture(s), **FGD RESHAPING** may improve the appearance of the chroma key.

HORIZ KEY POSITION — Adjusts the horizontal position of the chroma key.

Wipe Menu

The Wipe Menu allows you to access the Wipe submenus.

WIPE MENU
 wipe

PATTERN >   TEXTURE >   WIPE
                        MODS >   WIPE
                                            COPY >
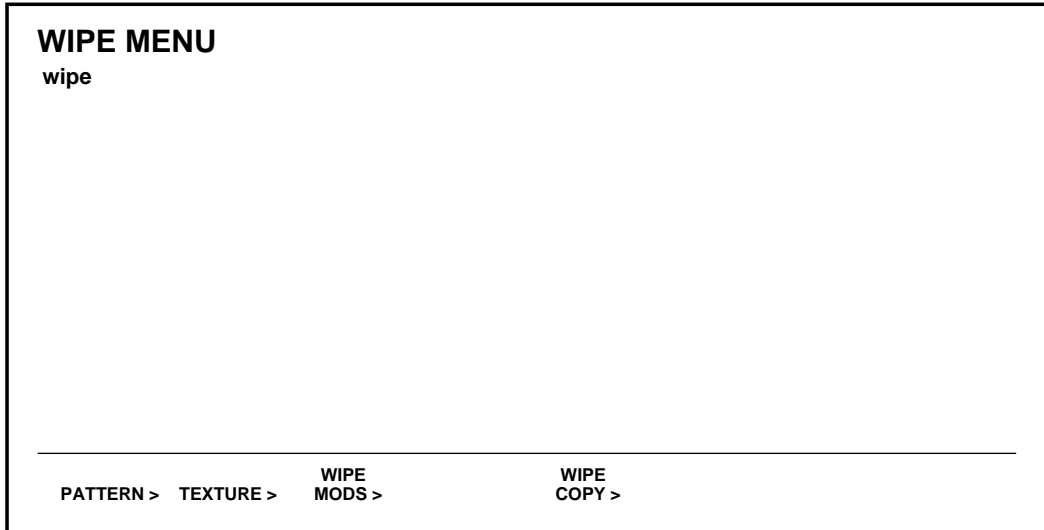
PATTERN> — Displays the Wipe Pattern Menu.

TEXTURE> — Displays the Wipe Texture Menu.

WIPE MODS> — Displays the Wipe Modifiers Menu.

WIPE COPY> — Displays the Wipe Copy Menu.

Wipe Pattern Menu

The Wipe Pattern Menu allows you to assign a variety of wipe patterns to a selected wipe generator.

The following selections are available through the Wipe Pattern Menu:

M/E 1 PRI — Delegates the **PATTERN SELECT** soft knob to the M/E 1 Primary Wipe Generator.

M/E 1 SEC — Delegates the **PATTERN SELECT** soft knob to the M/E 1 Secondary Wipe Generator.

M/E 2 PRI — Delegates the **PATTERN SELECT** soft knob to the M/E 2 Primary Wipe Generator.

M/E 2 SEC — Delegates the **PATTERN SELECT** soft knob to the M/E 2 Secondary Wipe Generator.

M/E 3 PRI (3000-3 only) — Delegates the **PATTERN SELECT** soft knob to the M/E 3 Primary Wipe Generator.

M/E 3 SEC (3000-3 only) — Delegates the **PATTERN SELECT** soft knob to the M/E 3 Secondary Wipe Generator.

> **PATTERN SELECT** — Selects a wipe pattern from the pattern menu for use by the currently delegated wipe generator.

Wipe Texture Menu

The Wipe Texture Menu allows you to adjust the appearance of the video texture.

WIPE TEXTURE MENU
wipe / texture

WIPE GEN SELECT		HORIZ STRETCH	VERT MODE	FILTER MODE	LENGTH A	LENGTH B	SOURCE
M/E 1 PRI		1:1	2:1	NONE	3	1	6
M/E 1 SEC		1:1	FREE RUN	NOTCH	6	1	6
M/E 2 PRI		**6:1**	**2:1**	**NOTCH**	**5**	**2**	**1**
M/E 2 SEC		2:1	1:1	SMOOTHING	2	4	3
M/E 3 PRI		1:1	2:1	NONE	6	2	6
M/E 3 SEC		2:1	1:1	SMOOTHING	3	1	6

		HORIZ STRETCH	VERT MODE	FILTER MODE	LENGTH A	LENGTH B	SOURCE
		1:1	1:1		1		**1**
		2:1	**2:1**		2		2
		3:1	4:1		3	1	3
		4:1	6:1	SMOOTHING	4	**2**	4
		6:1	8:1	**NOTCH**	**5**	3	5
M/E 2 PRI		8:1	FREE RUN	NONE	6	4	6

The Wipe Texture Menu selections are as follows for the selected wipe generator:

HORIZ STRETCH — Selects one of the horizontal stretch ratios listed in the menu.

VERT MODE — Selects one of the vertical stretch ratios listed in the menu.

FILTER MODE — Selects one of the filtering modes listed in the menu.

LENGTH A — Selects one of the lengths listed in the menu.

LENGTH B — Selects one of the lengths listed in the menu.

SOURCE — Selects one of the sources listed.

Wipe Modifiers Menu

The Wipe Modifiers Menu provides adjustment of wipe parameters not available on the Wipe subpanel.

WIPE MODIFIERS MENU   SPLIT OFFSET
                                                                                        = 0%

wipe / wipe mods

ME 1 PRI	MIX	TEXTURE	ON	REVERSE
ME 1 SEC	MIX	NORMAL	OFF	NORMAL
ME 2 PRI	NAM -	NORMAL	ON	NORMAL
ME 2 SEC	NAM+	TEXTURE	ON	REVERSE
ME 3 PRI	MIX	NORMAL	OFF	NORMAL
ME 3 SEC	MIX	NORMAL	OFF	NORMAL

	NAM -			
	NAM+	TEXTURE	ON	REVERSE
ME 2 PRI	MIX	NORMAL	OFF	NORMAL

WIPE GEN SELECT	PTN MIX TYPE	PTN MIX SOURCE	SPLIT OFFSET	PST PTN DIRECTION		WIPE MODULATE >

The Wipe Modifiers Menu selections are as follows:

WIPE GEN SELECT — Selects the desired wipe generator.

PTN MIX TYPE — Selects the type of pattern mix.

PTN MIX SOURCE — Selects the pattern mix source.

> **NORMAL** — Selects a mix between the primary and secondary wipe generators. This selection is prohibited if the secondary wipe option is not installed.

> **TEXTURE** — Selects a mix between the texture pattern and the primary wipe generator.

SPLIT OFFSET button — Enables or disables the split wipe offset function.

> **SPLIT OFFSET** soft knob — Adjusts the offset of split wipes.

PST PTN DIRECTION — Selects the direction of the preset pattern for the selected wipe generator.

WIPE MODULATE> — Displays the Wipe Modulation Menu.

Wipe Modulation Menu

The Wipe Modulation Menu allows modulation to be added to the wipe patterns.

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│  WIPE MODULATION MENU              MODULATION AMPLITUDE            │
│  wipe / wipe mods / wipe modulate            = 50%                │
│                                                                   │
└─────────────────────────────────────────────────────────────────┘
```

WIPE MODULATION MENU
wipe / wipe mods / wipe modulate

MODULATION AMPLITUDE
= 50%

M/E 1 PRI	HORIZ	SINE
M/E 1 SEC	VERT	SINE
M/E 2 PRI	**HORIZ**	**SINE**
M/E 2 SEC	LOCK	TRIANGLE
M/E 3 PRI	HORIZ	SINE
M/E 3 SEC	LOCK	SINE

MODULATION FREQUENCY
= 0.50 cycles/screen

	LOCK	
	HORIZ	
	VERT	TRIANGLE
M/E 2 PRI	OFF	**SINE**

WIPE GEN SELECT   MODULATE   MODULATE WAVEFORM

The Wipe Modulation Menu selections are as follows:

WIPE GEN SELECT — Selects the desired wipe generator.

MODULATE — Turns wipe modulation **ON** or **OFF**. When **OFF**, no other buttons or knobs in this menu are available.

MODULATE WAVEFORM — Selects the modulation waveform — either **TRIANGLE** or **SINE**.

MODULATION AMPLITUDE — Adjusts the amplitude of the modulation signal.

MODULATION FREQUENCY — Adjusts the frequency of the modulation signal.

Wipe Copy Menu

The Wipe Copy Menu allows you to copy or swap Primary (PRI) or Secondary (SEC) wipe generator settings between M/Es.

WIPE COPY MENU
wipe / wipe copy

COPY	M/E 1 PRI	TO	M/E 2 PRI
SWAP	M/E 1 PRI	WITH	M/E 2 PRI

M/E 1			M/E 1			
M/E 2	PRI		M/E 2	PRI		
M/E 3	SEC		M/E 3	SEC		
FROM GROUP	FROM WIPE GEN		TO GROUP	TO WIPE GEN	DO WIPE SWAP	DO WIPE COPY
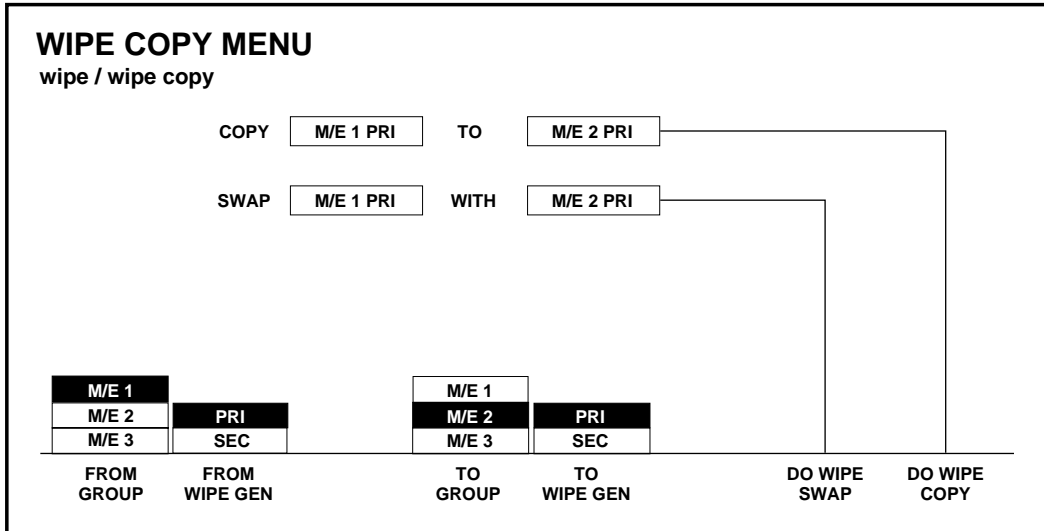
The Wipe Copy Menu selections are as follows:

FROM GROUP — Selects the M/E or PGM PST system to copy or swap from.

FROM WIPE GEN — Selects either the PRI or SEC Wipe Generator to copy or swap from.

TO GROUP — Selects the M/E or PGM PST system to copy or swap to.

TO WIPE GEN — Selects either the PRI or SEC Wipe Generator to copy or swap to.

DO WIPE SWAP — Initiates the wipe swap currently selected.

DO WIPE COPY — Initiates the wipe copy currently selected.

---

*NOTE: An **UNDO** selection appears in the menu after a Copy or Swap operation has been initiated. The Undo must be performed before exiting the menu in order to take effect.*

E-MEM Menu

The E-MEM Menu displays the status of several parameters on all levels of the E-MEM register selected on the Master E-MEM panel and provides access to lower-level E-MEM menus.

E-MEM MENU

E-MEM

E-MEM LEVEL	REG	ENABLE STATUS	LOCK STATUS	SEQ LINK	SEQ DELAY	KEYFRAMES USED	KEYFRAMES AVAILABLE
M/E 1	07	ON	ON	08	000	000	698
M/E 2	07	-	-	08	-	-	698
M/E 3	07	-	-	08	-	-	698
PGM PST	07	-	-	08	-	-	403
DSK	07	-	-	08	-	-	403
BKGD	07	-	-	08	-	-	403
MISC	07	-	-	08	-	-	403
DPM 1	07	-	-	08	-	-	397
DPM 2	07	-	-	08	-	-	397
DPM 3	07	-	-	08	-	-	397
DPM 4	07	-	-	08	-	-	397

| | ENABLE / DISABLE | ENABLE / DISABLE | |

| REGISTER> | SOURCE HOLD> | PERIPH DEVICES> | RUN LEVER | KEYFRAME EDITING | KF PATH > | | GPI & PBUS TRIGGERS> |

The following selections are available under the E-MEM Menu:

REGISTER> — Displays the E-MEM Register Menu.

SOURCE HOLD> — Displays the Source Hold Menu.

PERIPH DEVICES> — Displays the Peripheral Devices Menu.

RUN LEVER — Enables or disables the Run lever arm to manually move the Time Cursor along the timeline and manually run keyframe effects. **DISABLE** may be used in a live situation to avoid problems that might arise from bumping the lever arm.

KEYFRAME EDITING — Enables/disables keyframe editing mode. This activates the effects editing buttons on the E-MEM panel, allowing multiple-keyframe effects to be built and modified.

> **ENABLE** — Enables keyframe editing mode, which activates the effects editing buttons on the E-MEM panel (low tally) and allows multiple-keyframe effects to be built and modified.

> **DISABLE** — Disables keyframe editing and turns off the effects editing buttons.

KF PATHS> — Displays the Keyframe Paths Menu, which allows the type of path to be set for interpolation of parameters between keyframes.

GPI & PBUS TRIGGERS — Displays the GPI and PBUS Trigger Menu.

E-MEM Register Menu

This menu allows you to lock and unlock registers, and to clear registers and sequences.

E-MEM REGISTER MENU
E-MEM / register

| Current Bank: 5 |
| Current Register: 52 |

| CLEAR REG |
| **LOCK REG** |
| CLEAR SEQ |

| SELECT | LOCK ALL | LOCK BANK | LOCK REG |

SELECT — Enables the desired operation: locking/unlocking registers, clearing effects, or clearing sequences from registers.

When **CLEAR REG** or **CLEAR SEQ** is selected, the soft button selections in the above menu are: **CLEAR ALL, CLEAR BANK**, and **CLEAR REG**.

NOTE: Levels are enabled with the Enable buttons on the E-MEM panel.

For **CLEAR REG:**

CLEAR ALL — For all enabled levels, clears all data from all 100 registers, making them empty. After **CLEAR ALL** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

CLEAR BANK — For all enabled levels, clears all data from all registers in the bank whose number is displayed in the menu. After **CLEAR BANK** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

CLEAR REG — For all enabled levels, clears all data from the register whose number is displayed in the menu, making it an empty register. After **CLEAR REG** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

To clear a Master E-MEM function (3000-3), deselect all M/E enables and then use the menu clear buttons.

For **LOCK REG**:

LOCK ALL, **UNLOCK ALL** — For all currently enabled levels, locks or unlocks all 100 registers. If any registers are unlocked, a **LOCK ALL** selection is displayed; if any or all registers are locked, an **UNLOCK ALL** selection is displayed.

LOCK BANK, **UNLOCK BANK** — For all currently enabled levels, locks or unlocks all registers in the bank whose number is displayed in the menu. Note that the current bank displayed may not be the same as the current bank for independent E-MEM levels. If so, the current bank will not get locked on those levels, but the selected bank will.

For the currently displayed bank number, if any currently-enabled E-MEM level has an unlocked register in the bank, a **LOCK BANK** instruction is displayed. When all registers in the bank are locked, an **UNLOCK BANK** instruction is displayed.

LOCK REG, **UNLOCK REG** — For all currently enabled levels, locks the register whose number is displayed in the menu. Note that this may not be the current register for some levels.

If so, the current register will not get locked on those levels, but the selected register will.

For the currently displayed register number, if any currently-enabled E-MEM register level is unlocked, a **LOCK REG** instruction is displayed. When all of the enabled E-MEM register levels are locked, an **UNLOCK REG** instruction is displayed.

For **CLEAR SEQ**:

CLEAR ALL — For all enabled levels, clears only sequence information for all 100 registers. After **CLEAR ALL** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

CLEAR BANK — For all enabled levels, clears only sequence information for all registers in the bank whose number is displayed in the menu. After **CLEAR BANK** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

CLEAR REG — For all enabled levels, clears only sequence information for the register whose number is displayed in the menu. After **CLEAR REG** is pressed, a submenu allows you to **CONFIRM** or **CANCEL** the operation.

Source Hold Menu

The Source Hold Menu permits you to inhibit crosspoint changes on individual buses during E-MEM recalls.

SOURCE HOLD MENU						**BUS**	
E-MEM / source hold						**= M/E 1 A**	

BUS		BUS		BUS		BUS	
M/E 1 A	HOLD	M/E 1 B	-	M/E 1 K1	-	M/E 1 K2	-
M/E 2 A	-	M/E 2 B	-	M/E 2 K1	-	M/E 2 K2	-
M/E 3 A	-	M/E 3 B	-	M/E 3 K1	-	M/E 3 K2	-
PGM	-	PST	-	DSK 1	-	DSK 2	-
PVW	-	MASK	-	AUX 1	-	AUX 2	-
AUX 3	-	AUX 4	-	AUX 5	-	AUX 6	-
AUX 7	-						

Menu changes delegated E-MEMs only.

ON
OFF

CLEAR ALL	ALL		SOURCE
HOLDS	HOLD		HOLD

BUS = ... soft knob — Selects the bus to which the source hold is to be applied.

CLEAR ALL HOLDS — Clears all Source Holds.

ALL HOLD — Sets all Source Holds.

SOURCE HOLD — Enables or disables the Source Hold feature on the selected bus. When **ON**, all crosspoints (video and key) on the bus are held; that is, the state of the crosspoints do not change when E-MEM recalls are done.

Peripheral Devices Menu

This menu allows you to select which peripheral devices you want to be included in E-MEM learns and recalls.

PERIPHERAL DEVICES MENU

E-MEM / periph devices

Set the peripheral devices which are to be affected by E-MEM Learn and Recall operations.

0	OFF	8	OFF	16	OFF
1	ON	9	OFF	17	OFF
2	OFF	10	OFF	18	OFF
3	OFF	11	OFF	19	OFF
4	OFF	12	OFF	20	OFF
5	OFF	13	OFF	21	OFF
6	OFF	14	OFF	22	OFF
7	OFF	15	OFF	23	OFF

DEVICE NUMBER
= 1

ON

OFF

| CLEAR ALL OFF | SET ALL ON | | | | DEVICE 1 |

CLEAR ALL OFF — Turns **OFF** learn and recall operations to all devices on the peripheral bus.

SET ALL ON — Turns **ON** learn and recall operations to all devices connected to the peripheral bus.

DEVICE NUMBER = ... soft knob — Selects the Device Number to be turned **ON** or **OFF** with regard to E-MEM learn and recall operations.

DEVICE ... — Turns **ON** or **OFF** learn and recall operations to the selected device.

Keyframe Path Menu

The Keyframe Path Menu allows you to set the type of path for interpolation of parameters between keyframes.

KEYFRAME PATH MENU   Register: 52   Keyframe: 2
keyframe / kf path

SELECT LEVEL		SELECT GROUP	PATH TYPE
	TRANSITION	S-LINEAR	
	KEY 1	LINEAR	
	KEY 2	S-LINEAR	
M/E 1	KEY A	HOLD	TENSION = 0.00
M/E 2	KEY B	HOLD	
M/E 3	WIPES	S-LINEAR	
PGM PST	WIPEXFORM	CURVE	
DSK	ALL		CONTINUITY = 0.00
MISC	FSTOREXFRM		
BKGD			
DPM 1		HOLD	
DPM 2		LINEAR	
DPM 3		S-LINEAR	BIAS = 0.00
DPM 4	WIPEXFORM	CURVE	

LEVEL SELECT and **GROUP SELECT** — Select the register level and the functional group to which the path type is to be applied. Each functional group of each keyframe can have its own path type. When **ALL** is selected, the same path type can be applied to all functional groups simultaneously.

PATH TYPE — Selects the algorithm to be used for interpolating between keyframes for the selected group. The available path types are Linear, S-Linear, and Hold.

LINEAR — Causes a constant change in parameter values between keyframes, with no acceleration or deceleration.

S-LINEAR — Causes the change to each parameter to begin slowly as it leaves the starting keyframe, to move faster through the midrange of the keyframe duration, then to decelerate as it approaches the destination keyframe.

CURVE — Provides three knobs to control the three parameters of the path vector: **TENSION**, **CONTINUITY**, and **BIAS**. These knobs act on the vector parameters to adjust the path into (entry) and out of (exit) the keyframe. The path through KF2 is parallel with an imaginary line drawn between KF1 and KF2.

TENSION — Controls the length of the tension vector. At a setting of 0, the imaginary line extends an equal distance into and out of the keyframe, and the path through the middle keyframe is curved. At 1.00, the Tension vector is shortened to non-existence through KF2. At -1.00, the effect is a lengthening of the Tension vector, causing the path through the middle keyframe to be longer and broader.

CONTINUITY — Determines the angle of the path into and out of the keyframe. At 1.00, the effect is that of motion dropping into and then out of the keyframe, similar to a bouncing ball. At -1.00, the paths between the keyframes become straight lines, accelerating through the keyframe.

BIAS — Determines whether the path will be "pulled" towards the previous or the following keyframe. At 0, the curve through the keyframe is gentle. At 1.00, the path is pulled towards the previous keyframe. Entrance and exit to the keyframe are on a straight line from the previous keyframe, and the path of the effect travels completely through KF2 before turning towards KF3. At -1.00, the path is pulled towards the following keyframe. Entrance and exit to the keyframe are a straight line pointed to the following keyframe.

HOLD — Causes all parameters to hold at their starting values throughout the keyframe duration. All changes occur at the end of the keyframe duration, with no interpolation between keyframes.

GPI & PBus Triggers Menu

The PBus Device and Function assignments are made in the Peripheral Interface menu under config/ext if/peripheral if.

GPI & PBUS TRIGGERS MENU
E-MEM / gpi & pbus triggers   Effect: Keyframe:

| PERIPHERAL TRIGGERS (PBUS 2) | | | | GPI OUTPUT TRIGGERS | |
	E-MEM LEVEL	DEVICE	FUNCTION		E-MEM LEVEL
A	-	1	6	1	-
B	-	-	-	2	-
C	-	-	-	3	-
D	-	-	-	4	-
E	-	-	-	5	-
F	-	-	-	6	-
G	-	-	-	7	-
H	-	-	-	8	-

	MISC				MISC		
A	OFF			1	OFF		
SELECT PERIPH	ATTACH PERIPH	FIRE A	FIRE ATTACHED	SELECT GPI	ATTACH GPI	FIRE 1	FIRE ATTACHED

SELECT GPI — Selects the GPI Output (1 through 8) to which you may attach an E-MEM register or keyframe. The trigger numbers correspond to the physical connections made to the GPI Output connectors on the rear of the switcher frame.

ATTACH — Attaches the selected PBus or GPI trigger to the indicated E-MEM register or keyframe (**MISC**), or turns the trigger **OFF**.

MISC notation in the upper right-hand corner of the screen reminds you that the Attach GPI/PBus function operates through the **MISC** level on the E-MEM Enables panel, **Effect:** is the currently selected E-MEM register, and **Keyframe:** is the location of the Time Cursor on the Master Timeline.

FIRE ... — Test fires the selected (highlighted) trigger or GPI.

FIRE ATTACHED — Test fires all attached triggers (set to **ON**) simultaneously, regardless of the current selection.

SELECT PERIPH — Selects the Peripheral trigger (A through H) which you may attach to an E-MEM register or keyframe. The triggers are defined in the Peripheral Triggers submenu under Configuration.

Keyframe Timeline Menu

The Keyframe "top level" menu button invokes the Timeline menu. The Timeline Menu provides a graphical display of the keyframe positions for all enabled levels in the current E-MEM register. This menu allows you to view changes to the effect in the selected register while you add, remove, and edit keyframes.

The Timeline Menu can be accessed either by pressing the **KEYFRAME** button on the main menu panel, or by pressing the **TIME CURSR** button on the E-MEM effects editing panel.

TIMELINE MENU			> ——— Run Cursor 1:00 KF 2	TIME	RUN

KF editing enabled   Register 8   2 Keyframes   Duration 1:00

Master Timeline   1   2

RUN DEL
START
KF
EFF DUR
|
SELECT

M/E 1
M/E 2
M/E 3
PGM PST
DSK
BKGD
MISC
DPM 1
DPM 2
DPM 3
DPM 4

ZOOM
1.0X

| LAST PAN / ZOOM | | MOD ALL ABSOLUTE | DELEGATES ENABLES | PAUSE NO PAUSE | TIME ALIGN LEVELS | SET START TIME |

The appearance of the Timeline Menu is determined by the state of the current E-MEM register. Parameters that affect the appearance of the menu include the following:

■   The number of the current E-MEM register selected on the E-MEM keypad

■   Which levels are enabled and which are delegated

■   The number, location, and duration of keyframes stored in the register

■   The position of the Time Cursor on the timeline

The menu illustrated is for a Model 3000-3 switcher with all levels enabled, two keyframes in the effect, and keyframe editing enabled.

MOD ALL ABSOLUTE — Performs a Mod operation (see Effects Editing section) which causes the values in all keyframes to be replaced with the current values in the Current Working Buffer. This modifies all keyframes on a given level to a single value (for example, changing the background to Blue in all keyframes on that level).

DELEGATES/ENABLES:

　　ENABLES — Provides a timeline for each level that is enabled by the E-MEM **ENABLE** buttons. The **ENABLE** button of each enabled level is high-tallied and the name of each enabled level is highlighted in the menu.

　　DELEGATES — Allows individual enabled levels to be delegated for modification while keeping the timelines of the other enabled levels in the display.

　　When **DELEGATES** is selected, the names of the enabled levels become unhighlighted in the menu and the buttons of the enabled levels go to low tally on the E-MEM Enable panel. Then, pressing one or more of the Enable buttons will delegate the selected levels for timeline editing. The buttons of the *delegated* levels will go to high tally and the names of the delegated levels will be highlighted in the menu. (The buttons of the undelegated *enabled* levels will remain at low tally.)

PAUSE — Allows you to insert a pause at a keyframe.

When a pause is added to a keyframe and a run is performed, the run will stop at that keyframe on any level that has the pause programmed. The presence of a pause at any keyframe and on any timeline is indicated by a sloped line following the keyframe marker. Each pause marker will also appear on the Master Timeline.

The rules for adding a pause or inserting a keyframe that contains a pause are the same as for changing any other parameter. You can add a pause to an existing keyframe by parking on that keyframe, enabling **PAUSE**, and doing a **Mod**. Or you can insert a keyframe with a pause by enabling **PAUSE**, then doing an **Insert After** or **Insert Before**.

The basic rules for **Auto Run** on/off remain the same, but the results of running effects appear differently when pauses are programmed.

Example 1 – Inserting a Pause

1. Press the **Keyframe** button on the top menu panel or the **Time Cursr** button on the Effects Editing panel to bring up the Timeline Menu.

2. Recall an empty register or one that you can write over.

3. If in Enable Mode, enable **M/E 1**, **M/E 2**, and **Bkgd**. If in Delegate mode, delegate **M/E 1**, **M/E 2**, and **Bkgd**.

4. Set up a Timeline Menu similar to that shown above; that is, with staggered keyframes on the various levels, staggered independent timeline lengths, and a total of about 8 keyframes. We will discuss adding the pauses in a moment. (If you don't know how to set up these timelines and keyframes, refer to the Effects Editing portion of your User Guide or Operator's manual.)

5. Select **DELEGATES** in the Timeline Menu if not in this mode already.

6. Undelegate **M/E 2** and **Bkgd** (in the above example). (Turn off **M/E** and **Bkgd** on the E-MEM panel.)

7. Rewind the effect, then press **Next KF** to move to Keyframe 2.

8. In the Timeline menu, undelegate the levels you do not wish to modify, and delegate those levels you do wish to modify.

   a. Press **PAUSE/NO PAUSE** button until the desired state appears highlighted.

   b. Press **MOD**.

NOTE: *If the pause state of all delegated levels are not identical, neither* **PAUSE** *or* **NO PAUSE** *is selectable.*

Example 2 – Inserting a Pause

1. Press **E-MEM** on the top menu panel to bring up the E-MEM menu, then the soft **KF PATHS** button in the E-MEM menu to access the Keyframe Path menu. Note (in the upper right corner of the menu) that we are still on Keyframe 2 in the selected register.

2. Select **M/E 1** with the **SELECT LEVEL** button in the E-MEM Keyframe Path Menu, then turn **ON** the **PAUSE** function.

KEYFRAME PATH MENU

E-MEM / kf path

Register: 8   Keyframe: 2

	TRANSITION	**S-LINEAR**	
	KEY 1	**LINEAR**	
	KEY 2	**S-LINEAR**	
M/E 1	**KEY A**	**HOLD**	**TENSION** = 0.00
M/E 2	**KEY B**	**HOLD**	
M/E 3	**WIPES**	**S-LINEAR**	For 2200-2i, delete M/E3,
PGM PST	**WIPEXFORM**	**CURVE**	PGM/PST, DSK; change DPMs
DSK	**ALL**		
MISC	**FSTOREXFRM**		**CONTINUITY** = 0.00
BKGD			
DPM 1		**HOLD**	
DPM 2		**LINEAR**	
DPM 3	**ON**	**S-LINEAR**	**BIAS** = 0.00
DPM 4	**OFF**	**WIPEXFORM** **CURVE**	

SELECT LEVEL	**PAUSE**	**SELECT GROUP**	**PATH TYPE**

3. Press **Last Menu** on the top menu panel to return to the Keyframe Menu.

4. Press **Mod**. This will modify the selected keyframe (2) on the delegated level (M/E 1) to now include the programmed pause.

5. Move to keyframe 4 with the **Next KF** button and, in the same manner, add a pause to the **BKGD** level. (Undelegate **M/E 1** and delegate **Bkgd**.) Note that an easy way to move back and forth between the Keyframe Menu and the E-MEM Menu is with the **Last Menu** button.

6. Press **Rewind**.

Effect Run with Auto Run Off (Master Timeline Enabled)

7. Turn off **Auto Run** if it is on.

8. Press **Run**.

   Note that when a run is performed while **Auto Run** is off (**Auto Run** pushbutton not lit), the run is performed on the Master Timeline; therefore, the run stops at any keyframe that has a pause programmed on *any* level. Thus, in the example, the run stops on all levels at Keyframe 2.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                          > ──── Run Cursor   1:00   KF  2        TIME  ┌──────┐│
│  TIMELINE MENU                                                        │ RUN  ││
│                                                                       ├──────┤│
│                        Register 8     8 Keyframes   Duration 7:00     │RUN DEL││
│  KF editing enabled  1    2    3    4    5    6    7    8             │START ││
│  Master Timeline                                                      ├──────┤│
│                                                                       │  KF  ││
│   M/E 1                                              4:00            ├──────┤│
│   M/E 2                                              5:00            │EFF DUR││
│  BKGD                                                                 └──────┘│
│                                                                              │
│                                                                      SELECT  │
│                                                                              │
│                                                                              │
│                                                                      ZOOM    │
│                                                                      1.0X    │
│ ─────────────────────────────────────────────────────────────────────────── │
│  LAST                       MOD ALL  ┌─────────┐┌────────┐ TIME ALIGN   SET   │
│  PAN / ZOOM                 ABSOLUTE │DELEGATES││ PAUSE  │  LEVELS  START TIME │
│                                      ├─────────┤├────────┤                    │
│                                      │ ENABLES ││NO PAUSE│                    │
│                                      └─────────┘└────────┘                    │
└─────────────────────────────────────────────────────────────────────────────┘
```

9. Press **Run** again. The run proceeds to the pause programmed at keyframe 4 on the **BKGD** level.

10. Press **Run** again. All levels of the effect run to the end of the effect (keyframe 8).

Effect Run with Auto Run On (Independent Timelines Enabled)

11. Turn on **Auto Run** and rewind the effect.

12. Press **Run**.

    Note that when a run is performed while **Auto Run** is on (**Auto Run** pushbutton lit), runs are made on the enabled independent timelines (regardless of delegation), not on the Master Timeline. In the example, the **M/E 1** and **BKGD** levels run to their respective pauses and stop, while the **M/E 2** effect runs to the end of its timeline.

```
TIMELINE MENU         > ——— Run Cursor   0:00   KF   1              TIME   RUN
                                                                           RUN DEL
                             Register 8     8 Keyframes    Duration 7:00   START
KF editing enabled       1      2     3       4      5      6      7    8   KF
Master Timeline                                                            EFF DUR

  M/E 1                                                            4:00
  M/E 2                                                            5:00     SELECT
  BKGD


                                                                           ZOOM
                                                                           1.0X

   LAST                        MOD ALL    DELEGATES   PAUSE    TIME ALIGN   SET
 PAN / ZOOM                    ABSOLUTE    ENABLES    NO PAUSE   LEVELS    START TIME
```

13. Press **Run** again. The **M/E 1** and **BKGD** levels run to the end of their independent timelines, while the **M/E 2** effect remains at the end of its timeline.

NOTE: During a **Run***, independent timelines stop and remain at their respective last keyframe. If all timelines are at their end, then the next* **Run** *command restarts all timelines in sync from the beginning of the timeline.*

With Auto Run on and Independent Timelines running, the Master Timeline remains at its first Keyframe (or zero time). When the Independent Timelines arrive at their last keyframe, the Independent Timelines are "skewed" from the Master Timeline position, and all Timeline edits are disabled. For you to enable a Keyframe edit, press **REWIND** *or* **GO TO KF** *and the Master and Independent Timelines sync, allowing further Timeline editing.*

Lever Arm Scaling

■   Run the effect with the lever arm.

Note that each partial run to the next pause is scaled to full scale of the lever arm. This is true whether **Auto Run** is on or off.

Keyframe Runs in a Sequence

Remember that you must have **Auto Run** on when you Run a sequence in order for the keyframe effects in the recalled registers to run when the sequence is recalled.

Note that, with **Auto Run** on, any Recalled effect that has a pause programmed at any enabled keyframe causes the effect in only that level—and the sequence—to pause.

Pause on First or Last Keyframe

A Pause on the first keyframe with **Auto Run** on causes the effect on that level to not run. Occasions on which the presence of a pause on the first or last keyframe becomes significant are as follows:

■   If the first keyframe on a timeline has a pause and a new keyframe is inserted before it, the second keyframe will then have a pause that *will* affect the running of the effect

■   If the last keyframe on a timeline has a pause and a new keyframe is inserted after it, the next-to-last keyframe will then have the pause.

■   If the first keyframe on an individual level's timeline has a pause and the beginning of that timeline is skewed with respect to the beginning of the overall effect, the effect stops on that pause if the effect is running on the Master Timeline (**Auto Run** off).

■   If the last keyframe on an individual level's timeline has a pause and that timeline is not as long as the overall effect, the entire effect stops on that pause if the effect is running on the Master Timeline (**Auto Run** off).

TIME ALIGN LEVELS — Adjusts the start times of all delegated levels so that their current times align.

SET START TIME — Sets the start time (time of the first keyframe) of all delegated levels to the time of the cursor. The relative timing of all keyframes within a level remains unchanged; only the start times of delegated levels are changed.

TIME SELECT — Selects the function of the **TIME** knob, as follows:

RUN — Runs the current effect with the delegated soft knob. Usage is the same as the E-MEM subpanel **RUN** button. Only enabled levels are activated in this operation.

RUN DEL — Runs multiple keyframe effects in their relative time position.

START — Adds a delay to where the keyframe begins.

KF — "Slides" a delegated keyframe timeline relative to the next/previous keyframe. Durations remain fixed. If CONST DUR is set, the overall effect duration is unaffected.

EFF DUR — "Slides " the overall effect duration; scales the delegated levels.

NOTE: *Other soft button and soft knob functions that appear in the Timeline Menu under specific conditions are discussed in the User Guide.*

Aux Bus Menu

The Aux Bus Menu allows you to select or deselect looping mode on Aux Buses 1 through 4 for use with the Effects Send feature. You can also assign the video and key sources to be used for the Effects Send loop and assign them to the the near and/or far side of a DPM rotation effect.

AUX BUS MENU

aux bus

LOGICAL	PHYSICAL	
PVW BUS	PVW BUS	NO LOOP
MASK BUS	MASK BUS	NO LOOP
AUX BUS 1	AUX BUS 1	EXT LOOP
AUX BUS 2	AUX BUS 2	NO LOOP
AUX BUS 3	AUX BUS 3	NO LOOP
AUX BUS 4	AUX BUS 4	NO LOOP
AUX BUS 5	AUX BUS 5	NO LOOP
AUX BUS 6	AUX BUS 6	NO LOOP
AUX BUS 7	AUX BUS 7	NO LOOP

		NO LOOP
AUX BUS 1		EXT LOOP

| LOG AUX SELECT | | EFX LOOP MODE |

The following selections are available from the Aux Menu:

BUS SELECT — Selects the logical (and physical) aux bus to be assigned to an effects send loop. Logical buses are those bus numbers that are assigned to physical buses via menu mapping. Physical buses (shown in parentheses) are the actual bus outputs.

EFF LOOP MODE — Turns the effects send loop on (**EXT LOOP**) or off (**NO LOOP**) for the selected (highlighted) bus. When **AUX 4** is selected, a **FRAME STORE** selection is added for using the Frame Store in the effects send loop. (The Frame Store option must be present for this selection to be functional.)

E-MEM CONTROL — **MISC** activates E-MEM recalls at the **MISC** or **DPM** level for the selected aux bus, depending on the level selection in the Config/External IF/DPM Setup/Map Aux Buses Menu. **OFF** disables E-MEM recalls for the selected bus.

NEAR/FAR/BOTH — These buttons determine whether the video source for the currently-highlighted aux bus will appear on the near side, the far side, or both. If you visualize a rotating card with an image on the front and an image on the back, the image that you can see at this moment is the near side, and the image hidden on the back is the far side.

TAKE — Changes the source selection for the currently-selected aux bus. Sources can also be changed by selecting them on the Aux Bus or the Remote Aux Panel.

Mask Menu

The Mask Menu allows you to adjust the opacity of the inhibit mask and to set chroma filtering.

MASK MENU		**INHIBIT MASK OPACITY**
mask		**= 100%**

M/E1 KEY1	ON
M/E1 KEY2	**ON**
M/E2 KEY1	OFF
M/E2 KEY2	ON
M/E3 KEY1	OFF
M/E3 KEY2	OFF

	ON			**ON**
M/E1 KEY2	OFF			OFF
KEYER SELECT	**INH MASK OPACITY**			**MASK BUS CHR TRAP**

The Mask Menu selections are as follows:

KEYER SELECT — Delegates a keyer for the following selections.

INH MASK OPACITY — Enables or disables the **INHIBIT MASK OPACITY** soft knob.

> **INHIBIT MASK OPACITY** — Adjusts opacity of the inhibit mask. Available only for Key 1 and Key 2 in the M/Es.

MASK BUS CHR TRAP — Enables or disables the chroma trap on the mask bus. The filtering removes unwanted chroma from video used to generate the mask.

> If you have a 068904-01 Keyer module, four levels of chroma filtering are available — **BS - HARD**, **BS - SOFT**, **LP - HARD**, and **LP - SOFT**. (**BS** = Band Stop; **LP** = Low Pass.) **BS - HARD** is the default selection and is for signals that have high frequency content. The other selections provide varying degrees of softening, and can reduce ringing on hard mask edges.

Matte Menu

The Matte Menu enables the luminance level of Backgrounds 1 and 2 to be adjusted down to superblack, and allows adjustment of the user-definable wash angle.

MATTE MENU
matte

WASH ANGLE
= 250.00 degrees

SUPERBLACK	SUPERBLACK	ON
NORMAL	NORMAL	OFF
BKGD 1 LUM	**BKGD 2 LUM**	**USER DEF WASH ANGLE**

MATTE COPY >

TEXTURE >
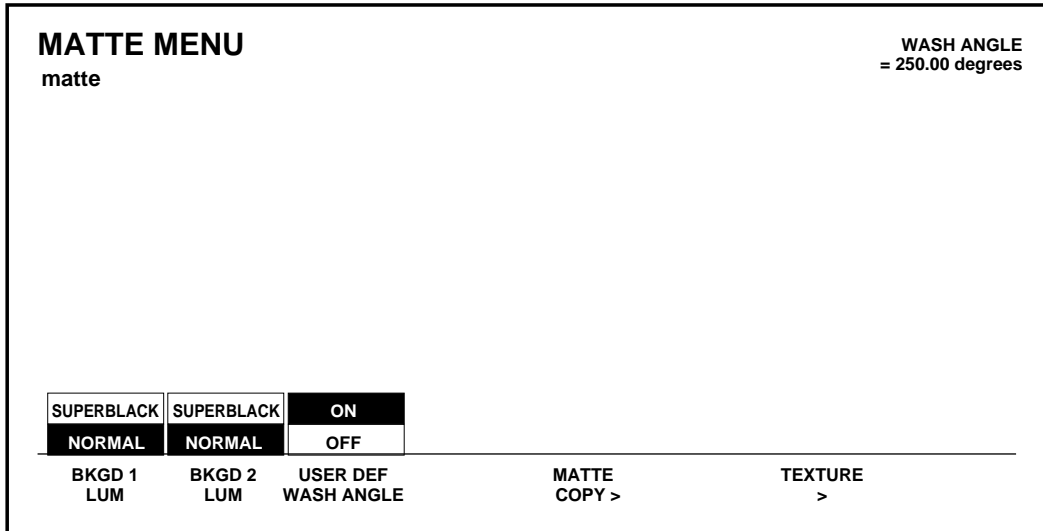
The following selections are accessible through this menu:

BKGD 1 LUM and **BKGD 2 LUM —** Enables or disables luminance adjustment down to superblack with the Background 1 and/or Background 2 **LUM** controls.

USER DEF WASH ANGLE — Enables the **WASH ANGLE** soft knob.

> **WASH ANGLE** — Adjusts the angle of the separation line between two selected wash mattes.

MATTE COPY> — Displays the Matte Copy Menu.

TEXTURE> — Displays the Matte Texture Menu which allows a texture to be applied to the matte.

Matte Copy Menu

The Matte Copy Menu allows you to copy or swap all Matte settings from one Matte Generator to another.

```
MATTE COPY MENU
matte / matte copy

COPY  [ MATTE 2 ]  OF  [ M/E 1 KEY 1 FILL ]  TO  [ MATTE 1 ]  OF  [ M/E 1 KEY 1 FILL ]

SWAP  [ MATTE 2 ]  OF  [ M/E 1 KEY 1 FILL ]  WITH  [ MATTE 1 ]  OF  [ M/E 1 KEY 1 FILL ]
```

	KEY 1 FILL			KEY 1 FILL
M/E 1	KEY 1 BORD	2 TO 1	M/E 1	KEY 1 BORD
M/E 2	KEY 2 FILL	1 TO 2	M/E 2	KEY 2 FILL
M/E 3	KEY 2 BORD	MATTE 1	M/E 3	KEY 2 BORD
DSK	PRI WIPE	MATTE 2	DSK	PRI WIPE
BKGD	SEC WIPE	BOTH	BKGD	SEC WIPE
FROM GROUP	**FROM MATTE GEN**	**SIDE SELECT**	**TO GROUP**	**TO MATTE GEN**	**DO MATTE SWAP**	**DO MATTE COPY**
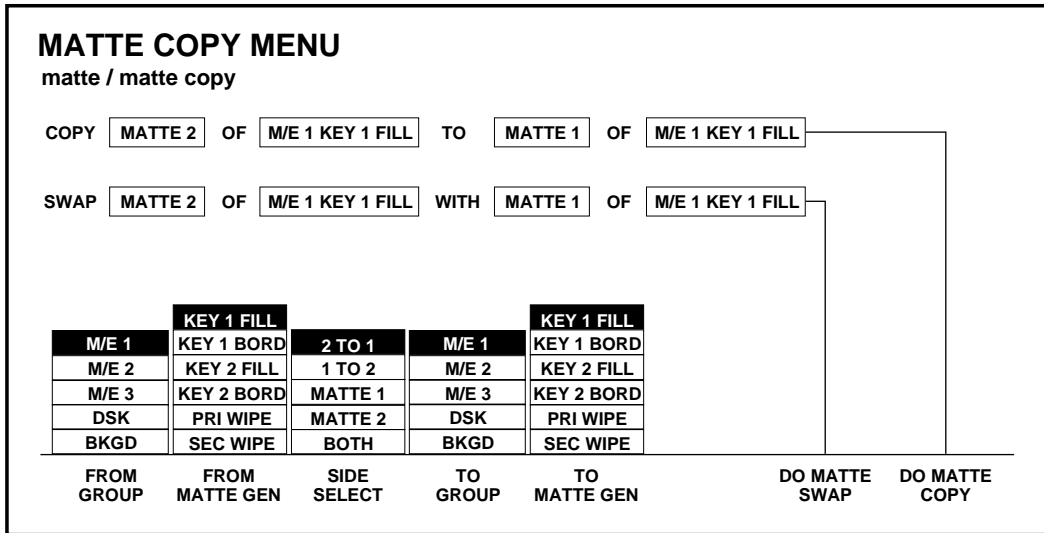
The following menu selections are accessible through the Matte Copy Menu:

FROM GROUP — Selects the M/E or PGM PST bus system to copy or swap from.

FROM MATTE GEN — Selects the Matte Generator to copy or swap from.

SIDE SELECT — Selects the source and destination mattes for copying or swapping. (Each Matte Generator has two mattes.)

TO GROUP — Selects the M/E or PGM PST bus system to copy or swap to.

TO MATTE GEN — Selects the Matte Generator to copy or swap to.

DO MATTE SWAP — Initiates the matte swap currently selected.

DO MATTE COPY — Initiates the matte copy currently selected.

---

*NOTE: An **UNDO** function appears in the menu after a Copy or Swap operation has been initiated. The Undo must be performed before exiting the menu in order to take effect.*

Matte Texture Menu

The Matte Texture Menu allows you to adjust the appearance of the video texture.

MATTE TEXTURE MENU
matte / texture

HORIZ STRETCH	VERT MODE	FILTER MODE	LENGTH A	LENGTH B	SOURCE
1:1	1:1		1		**1**
2:1	**2:1**		2		2
3:1	4:1		3	1	3
4:1	6:1	SMOOTHING	4	**2**	4
6:1	8:1	**NOTCH**	**5**	3	5
8:1	FREE RUN	NONE	6	4	6

The Matte Texture Menu selections are as follows:

HORIZ STRETCH — Selects one of the horizontal stretch ratios listed in the menu.

VERT MODE — Selects one of the vertical stretch ratios listed in the menu.

FILTER MODE — Selects one of the filtering modes listed in the menu.

LENGTH A — Selects one of the lengths listed in the menu.

LENGTH B — Selects one of the lengths listed in the menu.

SOURCE — Selects one of the sources listed.

Frame Store Menu

The Frame Store Menu and submenus include operational settings for the Frame Store.

FRAME STORE MENU
frame store

VIDEO PAGE SELECT
| PAGE 1 | PAGE 2 | PAGE 3 | PAGE 4 |

AUX 4 feeds the Frame Store

KEY PAGE SELECT
| PAGE 1 | PAGE 2 | PAGE 3 | PAGE 4 |

SHADOW BLUR
= 0.0%

SHADOW BLUR SYMMETRY
= 0%

ON	ON	VIDEO					
OFF	OFF	KEY					
DRP SHADOW BLUR	LOCK VIDEO/KEY	KEY STORE MODE	PICTURE PROCESS>	PARAM COPY >	VIDEO STORE>	KEY STORE >	MASK STORE >

3000

DRP SHADOW BLUR — Turns on or off the Frame Store Drop Shadow blur and enables the shadow blur adjustment knobs.

SHADOW BLUR — Adjusts the amount of blur to be applied to the Drop Shadow.

SHADOW BLUR SYMMETRY — Adjusts the ratio of vertical to horizontal blur on the Drop Shadow. When set to 0.0, the vertical and horizontal blur are equal.

LOCK VIDEO/KEY — Causes the key store to follow any parameter change that you make in the associated video store.

KEY STORE MODE — Allows the Key Store to be configured either as a key or video.

PICTURE PROCESS> — Displays the Picture Process Menu.

PARAMETER COPY> — Displays the Parameter Copy Menu.

VIDEO STORE> — Displays the Video Store Menu.

KEY STORE> — Displays the Key Store Menu.

MASK STORE> — Displays the Mask Store Menu. Appears only if a Mask Store board is present in the processor frame.

Picture Process Menu

Decode, Compress, Filter, Bevel, and Copy selections are available on the Frame Store Picture Process Menu. (The Decode function is required.)
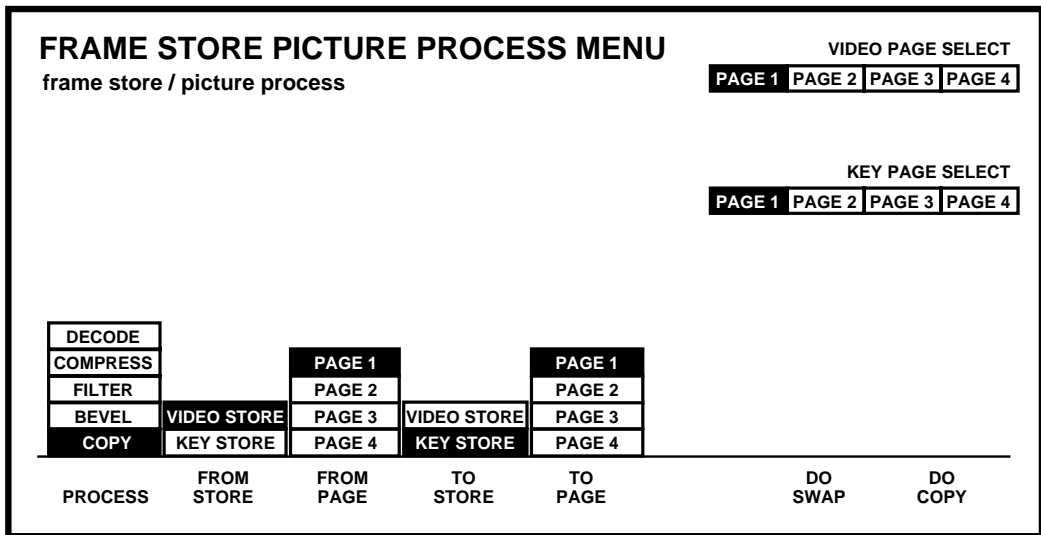
```
FRAME STORE PICTURE PROCESS MENU          VIDEO PAGE SELECT
frame store / picture process          PAGE 1  PAGE 2  PAGE 3  PAGE 4


                                              KEY PAGE SELECT
                                       PAGE 1  PAGE 2  PAGE 3  PAGE 4



    DECODE
   COMPRESS          PAGE 1               PAGE 1
    FILTER           PAGE 2               PAGE 2
    BEVEL  VIDEO STORE  PAGE 3  VIDEO STORE  PAGE 3
    COPY   KEY STORE    PAGE 4  KEY STORE    PAGE 4
             FROM       FROM       TO         TO           DO        DO
   PROCESS   STORE      PAGE      STORE      PAGE          SWAP      COPY
```
3000

Decode

On Model 3000 switchers, you must first decode the frame you will be manipulating before you can use Compress, Filter, or Bevel. The process of decoding means you are separating the chroma and luma parts of the signal.

The decode process must be repeated if any of the following situations occur:

■   Switcher boot-up (Control Processor Program Enable reset)

■   Un**FREZ**ing of any image

■   **GRAB**ing any image.

■   **COMPRESS**ing from the Decode Page to the **TO PAGE**.

The decode procedure is as follows:

1. Set up the switcher for Frame Store operations.

2. Select 2-field mode (**FIELD 2** button) on the Frame Store Subpanel.

3. Press the **FRZE** button on the Frame Store Subpanel.

4. Use the **VIDEO PAGE** or **KEY PAGE** soft knob on the Frame Store Menu to view **PAGE 1** through **PAGE 4** in order to select the page you want to process.

5. Use the **PROCESS** soft button to select the **DECODE** function.

6. Use the **DECODE PAGE** soft button to select the page to decode.

7. Press **DECODE PAGE**.

NOTE: *The decoding process takes about 30 seconds.*

---

8. A Decode complete message displays when the task is done. Another message gives the decoded page number.

9. The **FROM** page is always the decoded page. You can now use the **COMPRESS**, **FILTER**, and **BEVEL** selections to manipulate this page.

Compress

The Compress operation compresses the **FROM** page to the **TO** page. The compressed image appears in the upper left-hand corner of the **TO** page.

NOTE: *On the Model 3000 the FROM page is the decoded page.*

The key from the corresponding **FROM** page in the Key Store can be processed in one of three ways.

1. **CREATE**

    This makes a 4x3 key in the corresponding **TO** Key Store page that is the same size as the compressed video. Use this option if the **FROM** video is a full-screen image. Set up the Frame Store to output Shaped video in this mode.

2. **COMPRESS**

    Use this option to compress titles and other keys. This compressws the corresponding **FROM** Key Store page the same as the Video Store page.

3. **NONE**

    This selection does nothing with or to the Key Store pages.

When using **COMPRESS**, it is best to lock the key to the video. Also, if the edges have blanking the Crop function is useful. It is also useful to note the repositioning of compressed video will run in realtime.

NOTE: *Compress works only on still frozen video.*

Filter

Filter only affects the luma of the video page. Select one of the following filter options, and experiment with them to achieve the desired effect.

NOTE: For a better looking Emboss effect, Soften the image first before using Emboss.

- **EMBOSS** – Use for image edge enhancement and shading; gives image a 3D appearance.

- **SHARPEN** – Sharpens the image.

- **SOFTEN** – Softens the image.

With the filter type selected, press the **DO FILTER** soft button as many times as applicable to implement the effect.

NOTE: Multiple button pushes are stored in a buffer. The buffer will continue to increment even if you have finished pressing buttons. It may take up to 30 seconds to complete five passes.

Bevel

Bevel gives an image a "lighted picture frame" in a 3-D type of effect. The **BRIGHTNESS** soft knob controls the quantity of light projected on the frame. **BEVEL WIDTH** controls the width of the frame. The **LIGHT SOURCE** button selects where the light comes from: Bottom, Top, Right, or Left.

NOTE: This should be used on a full 4x3 image. The results may look strange otherwise.

Copy

Use **COPY** from the **PROCESS** choices to copy or swap from and to video and key store pages.

Parameter Copy Menu

Use the Parameter Copy menu to copy or swap all parameter settings from video to video, key to key, or video to key.

FRAME STORE PARAMETER COPY MENU
frame store / parameter copy

COPY PARAMETERS FROM | VIDEO STORE | TO | KEY STORE |

SWAP PARAMETERS FROM | VIDEO STORE | WITH | KEY STORE |

VIDEO STORE
KEY STORE

VIDEO STORE
KEY STORE

FROM STORE   TO STORE   DO SWAP   DO COPY
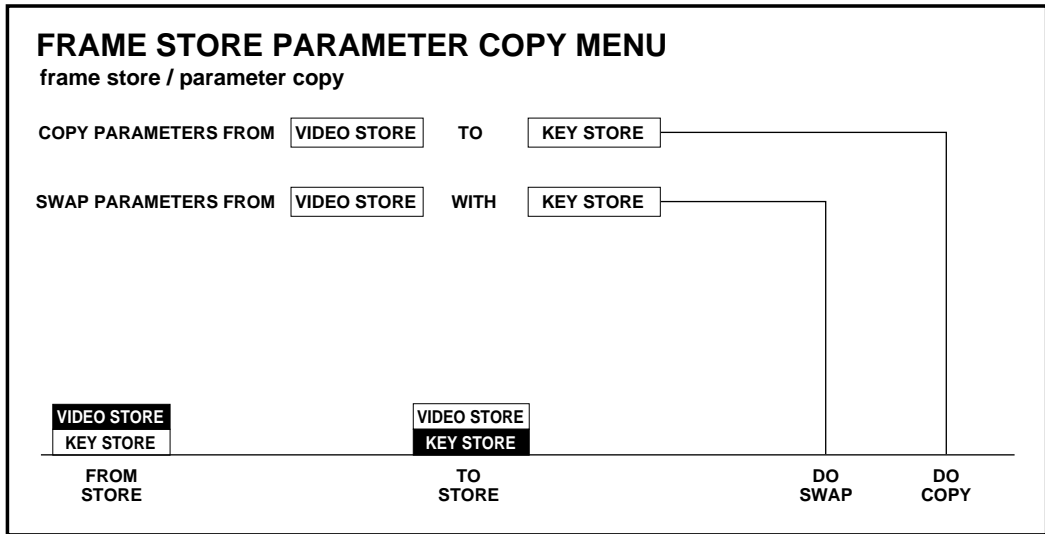
The Parameter Copy menu selections are:

FROM STORE — Selects the store to copy/swap from.

TO STORE — Selects the store to copy/swap to.

DO SWAP — Initiates the Parameter swap currently selected.

DO COPY — Initiates the Parameter copy currently selected.

Video Store Menu

The Video Store Menu allows you to select a page of stored video, create a strobe effect by setting a strobe time period between a stored image and a delegated source image, and provides access to Video Store positioning and pseudo color controls.

VIDEO STORE MENU
frame store / video store

PAGE SELECT

| PAGE 1 | PAGE 2 | PAGE 3 | PAGE 4 |

STROBE TIME PERIOD
= 20

STROBE FREEZE PERIOD
= 10

| 4 FIELD | INTERPOLATE | ON |
| 2 FIELD | REPLICATE | OFF |

| FRAME TYPE | INTERPOLATE | STROBE | MOSAIC > | PSEUDO COLOR > | CROP > | REPOSITION > | FILTER > |

FRAME TYPE — Select either 4 or 2 field video format. Four-field mode has 2 pages of video/key. Two-field mode has 4 pages of video/key.

INTERPOLATE — (**FRAME TYPE** must be in "2-field" mode to display this function.) Select how the video data is to be interpreted. For example, interpolate evaluates screen lines 1 and 3 and averages them to get line 2. Replicate copies line 1 to create line 2, etc.

STROBE—When **ON** is selected, strobe is activated. Strobe alternates between a frozen framestore image and a selected source image (M/E, PGM, etc. delegated to Aux Bus 4) with the frequency set by the soft knobs described below. The difference between the time settings is what varies the strobe effect.

STROBE TIME PERIOD — Sets the time (in fields) for the delegated video source to be displayed. Minimum time period is 4 fields.

STROBE FREEZE PERIOD — Sets the time (in fields) during which the frozen frame store image is displayed. Minimum time period is 8 fields.

PAGE SELECT —Selects one of four pages (frames) of the video image.

MOSAIC> — Opens the Video Store Mosaic Menu.

PSEUDOCOLOR> — Opens the Video Store Pseudo Color Menu.

CROP> — Opens the Video Store Crop Menu.

REPOSITION> — Opens the Video Store Reposition Menu.

FILTER> — Opens the Video Store Filter Menu.

NOTE: *The Mosaic, Pseudo Color, and Filter modes are functional only in 2-field mode.*

Video Store Mosaic Menu

This menu allows you to apply and adjust a mosaic pattern to the video store video.

VIDEO STORE MOSAIC MENU

frame store / video store / mosaic

MOSAIC SIZE
= 50%

MOSAIC ASPECT
= 0.00

FIRST ACTIVE PIXEL
= 0

ON

OFF
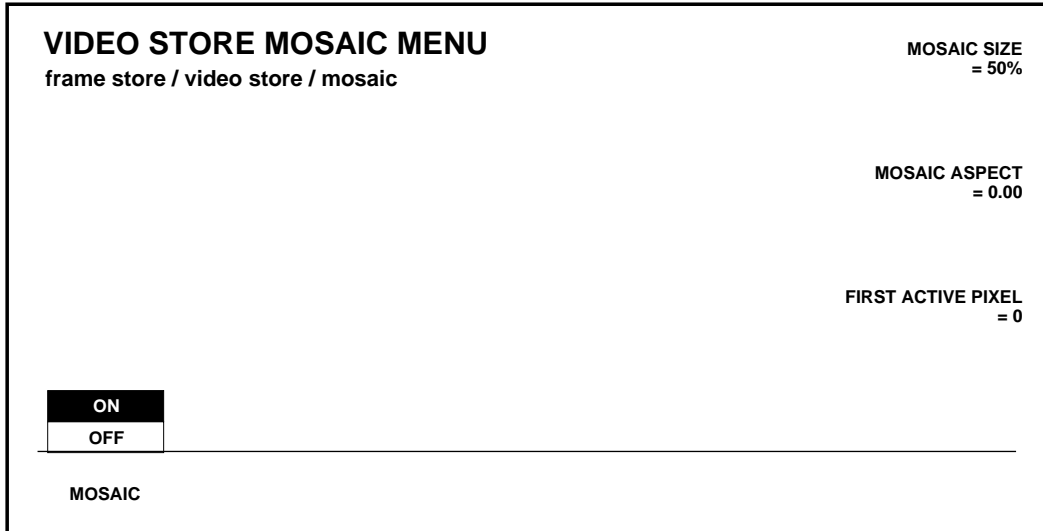
MOSAIC

MOSAIC — Turns on the mosaic feature and enables the mosaic adjustment soft knobs.

MOSAIC SIZE — Adjusts the width of the mosaic area, up to 100% of the screen.

MOSAIC ASPECT — Adjusts the vertical-to-horizontal aspect of the mosaic area.

FIRST ACTIVE PIXEL — Adjusts the positioning of the left edge of the mosaic area.

Video Store Pseudo Color Menu

The Pseudo Color Menu allows you to select normal or reversed video, and several pseudocolor modes. The mode selected determines the functions of the fourth and fifth soft buttons and the soft knobs.

The following illustration is the appearance of the Video Store Pseudo Color Menu when **POSTR/SOLR** is selected.

VIDEO STORE PSEUDO COLOR MENU
frame store / video store / pseudo color

POSTERIZATION
= 0.0

SOLARIZATION
= 0.0

		POSTR/SOLR		
		HUE MOD		
ON	ON	COLOR MOD	ON	ON
OFF	OFF	CONTRAST	OFF	OFF
REVERSE VIDEO	UNSHAPE/ RESHAPE	MODE SELECT	POSTERIZE	SOLARIZE

REVERSE VIDEO — Turns reverse video on or off, which inverts the luminance (white and black are reversed) and places each hue 180° away from its original color.

UNSHAPE/RESHAPE — Allows shaped video (of a video/key pair) to be unshaped before being bitmapped, then reshaped after bitmapping. This button appears only if Key Store is configured as Key.

MODE SELECT — Selects one of four pseudocolor modes, as described on the following pages.

Posterization/Solarization Menu

Selecting **POSTR/SOLR** mode provides adjustment of the posterization and solarization parameters.

POSTERIZE — Causes the luminance values of a frozen image to be changed from a continuous scale to a limited(adjustable) number of steps.

POSTERIZATION — Adjusts the number of steps of luminance.

SOLARIZE — Causes the chrominance values of a frozen image to be changed from a continuous scale to a limited(adjustable) number of steps.

SOLARIZATION — Adjusts the number of steps of chrominance.

Pseudo Color Hue Modification Menu

The following illustration is the appearance of the Pseudo Color Menu when **HUE MOD** is selected.

HUE MOD–Enables the hue modification feature, which strips chroma from the stored image and substitutes a spectrum of

VIDEO STORE PSEUDO COLOR MENU
frame store / video store / pseudo color

HUE MOD START PHASE
= 0.0

HUE MOD END PHASE
= 0.0

HUE MOD SATURATION
= 0.0

		POSTR/SOLR		
		HUE MOD		
ON	ON	COLOR MOD	ON	CW
OFF	OFF	CONTRAST	OFF	CCW
REVERSE VIDEO	UNSHAPE/ RESHAPE	MODE SELECT	HUE MOD	HUE MOD PATH

colors for the resulting black and white. Also enables the soft knobs for adjustment of the colors to be substituted.

HUE MOD START PHASE and **HUE MOD END PHASE —** Adjust the starting color and ending color of the spectrum to be substituted for black and white.

HUE MOD SATURATION — Adjusts the saturation of the color spectrum to be substituted.

HUE MOD PATH — Sets the direction of the hue substitution from black to white, as viewed on a vectorscope.

Pseudo Color Modification Menu

The following illustration is the appearance of the Pseudo Color Menu when **COLOR MOD** is selected. This menu provides adjustment of the color modification parameters.

COLOR MOD — Enables the color modification feature, which strips chroma from the stored image, then substitutes two colors for the black and white limits of the resulting image.

VIDEO STORE PSEUDO COLOR MENU
frame store / video store / pseudo color

BLACK HUE
= 0.0

BLACK SAT
= 0.0

BLACK BRIGHT
= 0.0

| POSTR/SOLR |
| HUE MOD |

| ON | ON | COLOR MOD | ON |
| OFF | OFF | CONTRAST | OFF |

| REVERSE VIDEO | UNSHAPE/ RESHAPE | MODE SELECT | COLOR MOD | | | | | BLK/WHT DELEGATE |

BLK/WHT DELEGATE — Delegates the soft knobs for adjustment of the color to be substituted.

BLACK HUE, BLACK SAT, and **BLACK BRIGHT** or **WHITE HUE, WHITE SAT,** and **WHITE BRIGHT** — Adjust the color and luminance of the colors to be substituted for the black and white portions of the signal.

Pseudo Color Contrast Menu

The following illustration is the appearance of the Pseudo Color Menu when **CONTRAST** is selected.

CONTRAST — Turns on the contrast function and enables the contrast adjustment knobs. Adjustment of these controls is highly subjective and depends on the characteristics of the image and the desires of the operator.

VIDEO STORE PSEUDO COLOR MENU

frame store / video store / pseudo color

CONTRAST LUM SLOPE
= 0.0

CONTRAST LUM RANGE
= 0

CONTRAST SATURATION
= 0.0

		POSTR/SOLR	
		HUE MOD	
ON	ON	COLOR MOD	ON
OFF	OFF	CONTRAST	OFF
REVERSE VIDEO	**UNSHAPE/ RESHAPE**	**MODE SELECT**	**CONTRAST**

CONTRAST LUM SLOPE — Adjusts the luminance contrast of the stored video.

CONTRAST LUM RANGE — Adjusts the luminance contrast of the video.

CONTRAST SATURATION — Adjusts the saturation of the video chrominance.

Video Store Crop Menu

This menu allows you to crop (mask) portions of the stored video image.

CROP — Turns on the crop feature and enables the soft knob adjustments for positioning the crop.

TOP, **BOTTOM**, **LEFT**, and **RIGHT** — Adjust the limits of the crop for the stored video.

VIDEO STORE CROP MENU
frame store / video store / crop

TOP
= 0.00 screen units

BOTTOM
= 0.00 screen units

LEFT
= 0.00 screen units

RIGHT
= 0.00 screen units

ON
OFF

CROP

Video Store Reposition Menu

This menu allows positioning of the video store output image.

VIDEO STORE REPOSITION MENU
frame store / video store / reposition

Coarse Adjust Horizontal

= 0.0000 Screen Units
(0.00 Pixels)

Blur is currently ON.
Position values are limited to
4 Line, 1 Pixel boundaries

Fine Adjust Horizontal

Coarse Adjust Vertical

= 0.0000 Screen Units
(0.00 Lines)

ON	ON	ON	Fine Adjust Vertical
OFF	OFF	OFF	
HORIZONTAL POSITION	VERTICAL POSITION	PIXEL DETENT	RESTORE DEFAULTS

HORIZONTAL POSITION — Enables or disables horizontal positioning of the stored (frozen) image.

> **Coarse Adjust Horizontal** and **Fine Adjust Horizontal soft knobs** — Adjust the horizontal position of the image.

VERTICAL POSITION — Enables or disables vertical positioning of the stored image.

> **Coarse Adjust Vertical** and **Fine Adjust Vertical soft knobs** — Adjust the vertical position of the image.

RESTORE DEFAULTS — Returns the image to the original position.

Video Store Filter Menu (Blur)

The Video Store Filter Menu allows you to apply either a blur or hue spectrum to the video store output image.

FILTER SELECT — Selects either **BLUR** or **HUE ROTATE** filter mode.

Following is the appearance of the menu when **BLUR** is selected.

KEY STORE FILTER MENU
frame store / key store / filter

LUM BLUR
0%

CHROMA BLUR
0%

BLUR SYMMETRY
0%

BLUR	ON	ON	ON	ON	ON
HUE ROTATE	OFF	OFF	OFF	OFF	OFF
FILTER SELECT	BLUR	SEPARATE LUM/CHROMA	LUM BLUR	CHROMA BLUR	BLUR SYMMETRY

BLUR — Turns on the blur filter mode.

SEPARATE LUM/CHROMA — Allows separate adjustment of luminance blur and chrominance blur applied to the video store image.

LUM BLUR — Enables the **LUM BLUR** adjustment.

> **LUM BLUR** — Adjust the amount of luminance blur applied to the image

CHROMA BLUR — Enables the **CHROMA BLUR** adjustment.

> **CHROMA BLUR** — Adjusts the amount of chrominance blur applied to the video store image.

BLUR SYMMETRY — Enables the **BLUR SYMMETRY** adjustment.

> **BLUR SYMMETRY** — Adjusts the proportions of luminance and chrominance blur.

Video Store Filter Menu (Hue Rotate)

This is the appearance of the Video Store Filter Menu when **HUE ROTATE** is selected.
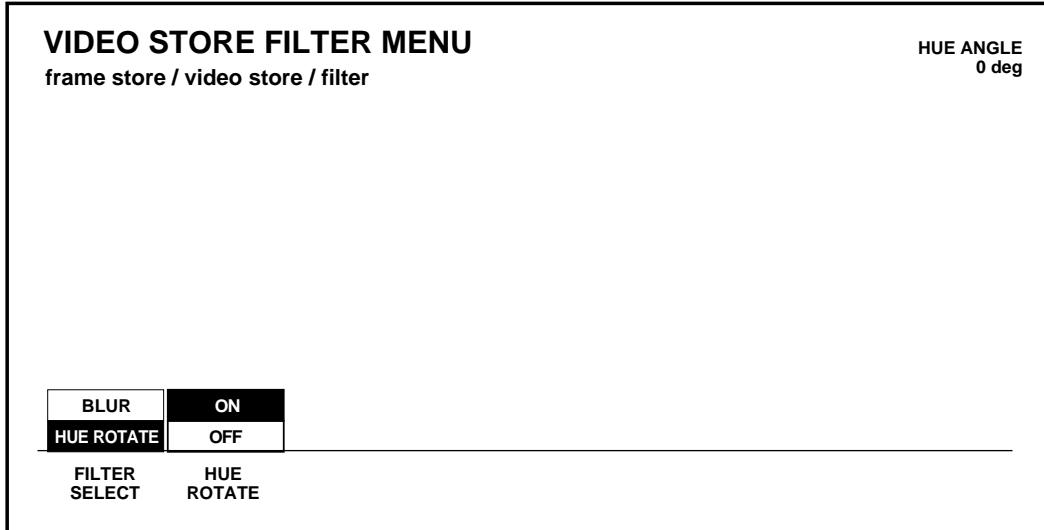
VIDEO STORE FILTER MENU
frame store / video store / filter

HUE ANGLE
0 deg

BLUR	ON
HUE ROTATE	OFF

FILTER
SELECT

HUE
ROTATE

HUE ROTATE — Turns on the hue rotate filter mode which strips chroma from the stored image and substitutes a full spectrum of colors for the black , white, and in between portions of the resulting image.

HUE ANGLE — Adjusts the hue of the color substituted for black. (The complement of the selected hue is substituted for white.)

Key Store Menu

The Key Store Menu allows you to select either 4-field or 2-field storage mode for Key Store, and provides access to Key Store positioning controls.

KEY STORE MENU
frame store / key store

PAGE SELECT

| PAGE 1 | PAGE 2 | PAGE 3 | PAGE 4 |

| 4 FIELD | INTERPOLATE |
| 2 FIELD | REPLICATE |

FRAME
TYPE   INTERPOLATE   CROP >   REPOSITION > FILTER >
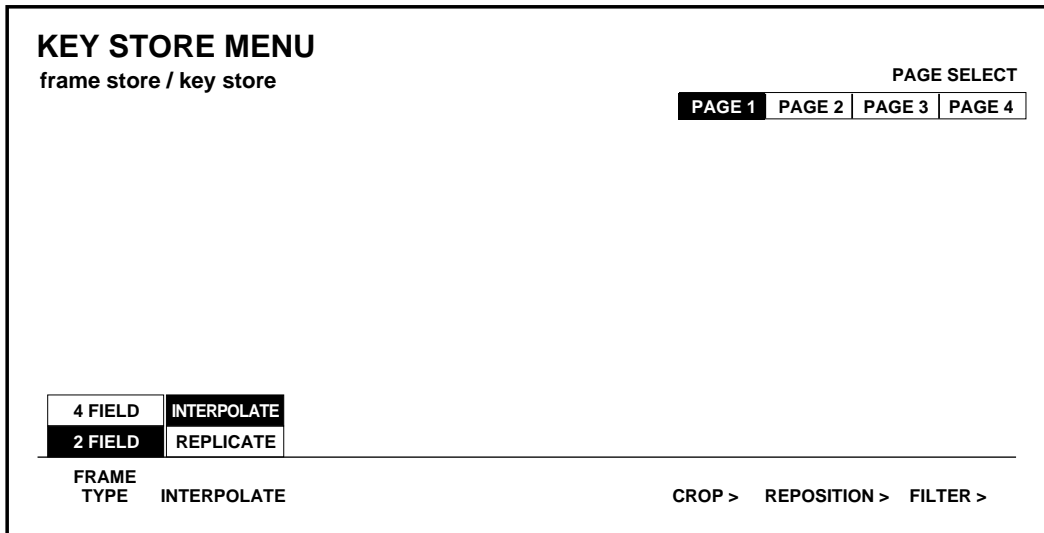
FRAME TYPE — Selects either 4-field or 2-field mode:

> **4-FIELD** — Stores all of the color information in the original composite signal.

> **2-FIELD** — Uses only 2 of the 4 fields of color information, but allows twice as many pages to be stored.

INTERPOLATE — When **2 FIELD** mode is selected, you may choose either **DUPLICATE** or **REPLICATE** to produce the other 2 fields of color information.

> **INTERPOLATE** — Causes vertical interpolation (averaging) between pixels in each pair of adjacent raster lines of the selected field for use as the other field of each frame.

> **REPLICATE** — Causes the selected field to be used twice for each frame.

PAGE SELECT — Selects one of four pages (fields) of the video image in 2-field mode, or one of two pages in 4-field mode.

REPOSITION> — Displays the Key Store Reposition Menu.

FILTER> — Displays the Key Store Filter Menu.

Key Store Crop Menu

This menu allows you to crop (mask) portions of the stored key.

KEY STORE CROP MENU
frame store / key store / crop

| | TOP |
| | = 0.00 screen units |

| | BOTTOM |
| | = 0.00 screen units |

| | LEFT |
| | = 0.00 screen units |

ON	
OFF	RIGHT
	= 0.00 screen units

CROP

CROP — Turns on the crop feature and enables the soft knob adjustments for positioning the crop.

TOP, **BOTTOM**, **LEFT**, and **RIGHT** — Adjust the limits of the crop for the stored key.

Key Store Reposition Menu

This menu allows positioning of the key store output image.

KEY STORE REPOSITION MENU
frame store / key store / reposition

Coarse Adjust Horizontal

= 0.0000 Screen Units
0 Pixels)

> Blur is currently ON.
> Position values are limited to
> 4 Line, 1 Pixel boundaries

Fine Adjust Horizontal

Coarse Adjust Vertical

= 0.0000 Screen Units
(0 Lines)

ON	ON	ON
OFF	OFF	**OFF**

Fine Adjust Vertical

| HORIZONTAL POSITION | VERTICAL POSITION | PIXEL DETENT | RESTORE DEFAULTS |

HORIZONTAL POSITION — Enables or disables horizontal positioning of the stored key.

> **Coarse Adjust Horizontal** and **Fine Adjust Horizontal soft knobs** — Adjust the horizontal position of the key.

VERTICAL POSITION — Enables or disables vertical positioning of the stored key.

> **Coarse Adjust Vertical** and **Fine Adjust Vertical soft knobs** — Adjust the vertical position of the key.

RESTORE DEFAULTS — Returns the key to the original position.

Key Store Filter Menu (Blur–Video Mode)

The Key Store Filter Menu allows you to apply a blur to the key store output. If the key is configured as video, it also allows you to apply a hue spectrum to the key store output.

FILTER SELECT — Selects either **BLUR** or **HUE ROTATE** filter mode.

Following is the appearance of the menu when **BLUR** is selected and the key is configured as video.

KEY STORE FILTER MENU							LUM BLUR 0%
frame store / key store / filter							
							CHROMA BLUR 0%
							BLUR SYMMETRY 0%
BLUR	ON	ON	ON	ON	ON		
HUE ROTATE	OFF	OFF	OFF	OFF	OFF		
FILTER SELECT	**BLUR**	**SEPARATE LUM/CHROMA**	**LUM BLUR**	**CHROMA BLUR**	**BLUR SYMMETRY**		

BLUR — Turns on the blur filter mode.

SEPARATE LUM/CHROMA — Allows separate adjustment of luminance blur and chrominance blur applied to the video store image.

LUM BLUR — Enables the **LUM BLUR** adjustment.

> **LUM BLUR** — Adjust the amount of luminance blur applied to the image,

CHROMA BLUR — Enables the **CHROMA BLUR** adjustment.

> **CHROMA BLUR** — Adjusts the amount of chrominance blur applied to the video store image.

BLUR SYMMETRY — Enables the **BLUR SYMMETRY** adjustment.

> **BLUR SYMMETRY** — Adjusts the proportions of luminance and chrominance blur.

Key Store Filter Menu (Blur–Key Mode)

The Key Store Filter Menu appears as follows when **BLUR** is selectedand the key is configured as a key.

KEY STORE FILTER MENU   BLUR
frame store / key store / filter   0%

                                                                    BLUR SYMMETRY
                                                                              0%

BLUR	ON			ON
HUE ROTATE	OFF			OFF

| FILTER SELECT | BLUR | | | BLUR SYMMETRY |
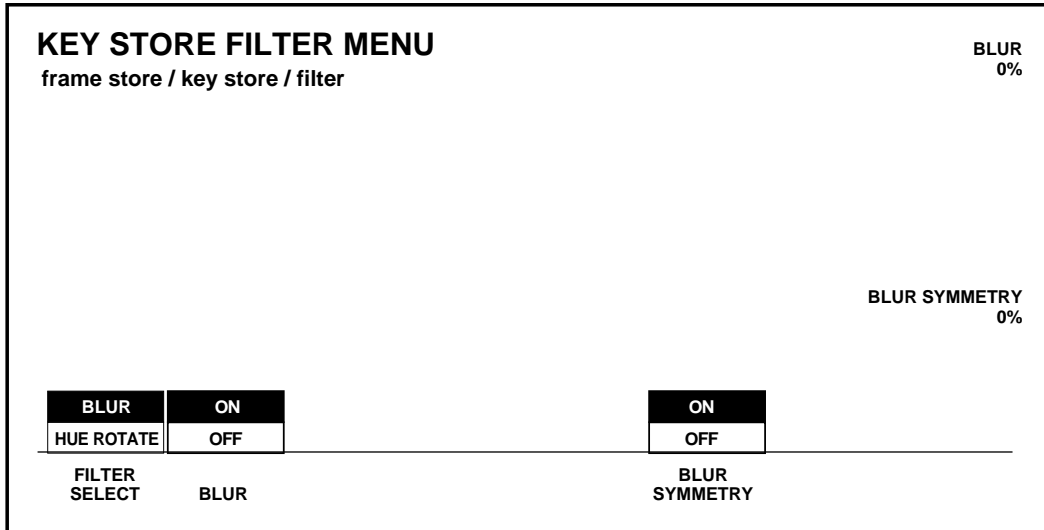
BLUR — Turns on the blur filter mode and enables the **BLUR** adjustment.

BLUR — Adjust the amount of blur applied to the image,

BLUR SYMMETRY — Enables the **BLUR SYMMETRY** adjustment.

BLUR SYMMETRY — Adjusts the vertical and horizontal ratio of the blur.

Key Store Filter Menu (Hue Rotate)

When **HUE ROTATE** is selected, the Key Store Filter Menu appears as follows:
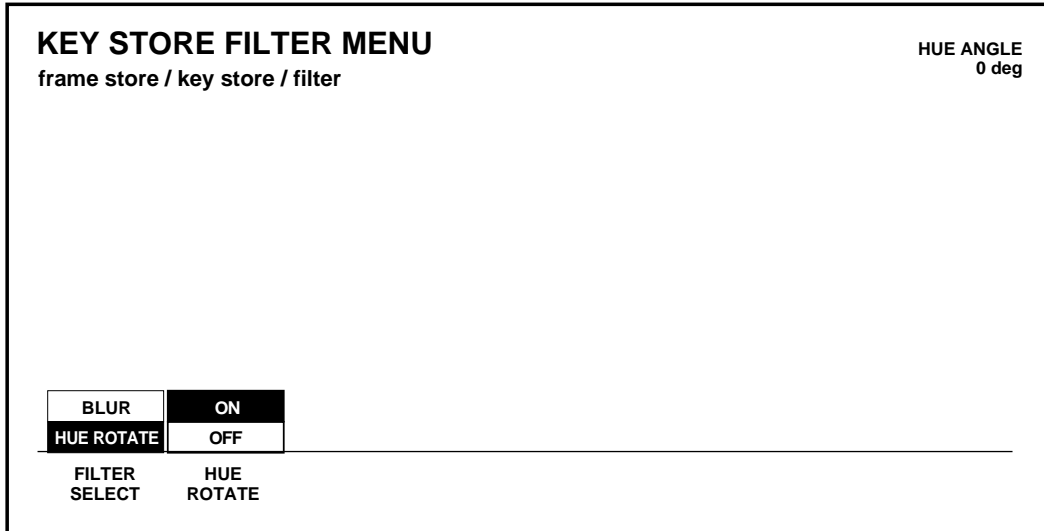
```
KEY STORE FILTER MENU                               HUE ANGLE
                                                        0 deg
frame store / key store / filter




                    ┌──────────────┬──────────┐
                    │    BLUR      │    ON     │
                    ├──────────────┼──────────┤
                    │  HUE ROTATE  │   OFF     │
                    └──────────────┴──────────┘
                       FILTER         HUE
                       SELECT        ROTATE
```

HUE ROTATE — Turns on the hue rotate filter mode which strips chroma from the stored image and substitutes a full spectrum of colors for the black , white, and in between portions of the resulting image.

> **HUE ANGLE** — Adjusts the hue of the color substituted for black. (The complement of the selected hue is substituted for white.)

Mask Store Menu

The Mask Store Menu allows you to select straight or freehand drawing, paint brush parameters, screen parameters, and fill shapes. You can also save, or undo, your current work.

DRAW — Use to enable/disable the graphics tablet, the pen cursor, and the Mask Store Menu.

MASK STORE MENU
frame store / mask store

BRUSH OPACITY
= 50%

BRUSH SIZE
= 14 (TV LINES)

BRUSH SOFTNESS
= 35%

ON	STRAIGHT	BLACK
OFF	FREEHAND	WHITE

| DRAW | DRAW MODE | BRUSH SOURCE | SAVE | FILL SHAPE | BLACK SCREEN | WHITE SCREEN | UNDO |

DRAW MODE — Selects between freehand and straight drawing tools.

BRUSH SOURCE — Selects either Black or White brush strokes. Use the following soft knobs to adjust brush parameters.

BRUSH OPACITY soft knob — Makes brush strokes lighter or darker.

BRUSH SIZE soft knob — Selects brush size from 1 TV lines to 31 TV lines high.

BRUSH SOFTNESS soft knob — Adjusts the thickness of the brush.

SAVE — Saves current work to a "save buffer." (A Save is automatic after **FRZE** or **GRAB** is pressed.

FILL SHAPE — Fills a closed object with either a black or white background (determined by BRUSH SOURCE selection).

BLACK SCREEN — Fills the mask store screen with system black.

WHITE SCREEN — Fills the mask store screen with system white

UNDO — Erases all work not saved to the save buffer. Any data not saved, freezed, or grabbed is lost.

Miscellaneous Menu

The **MISC** button on the main menu subpanel brings up the top-level Miscellaneous menu.

MISC MENU
 misc

                                    SIGNAL   SAFE
                                    PROCESS >   TITLE >
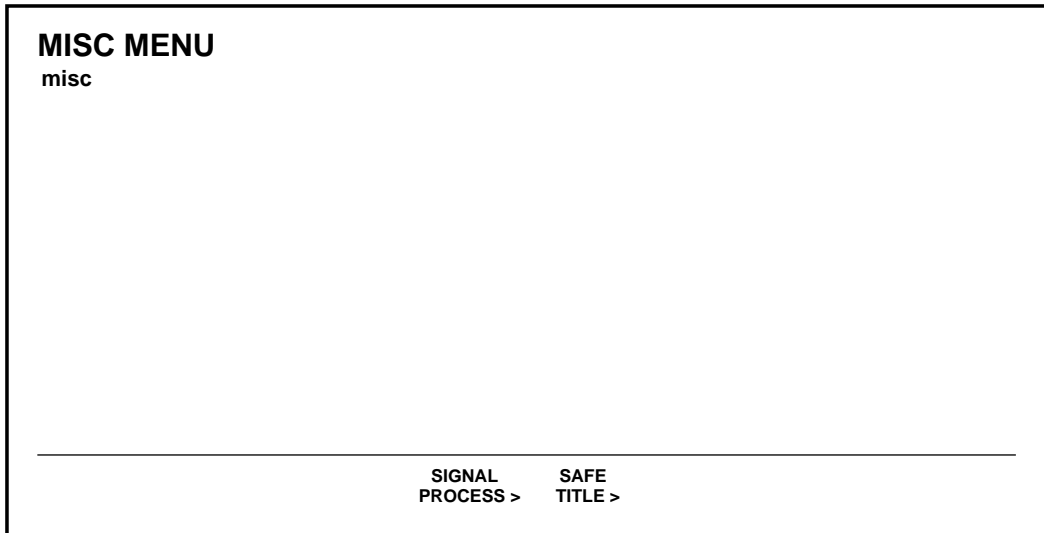
The following menu selections are accessible through the Miscellaneous menu:

SIGNAL PROCESS> — Displays the Signal Process Menu, which allows you to select Fineline and Dither modes.

SAFE TITLE> — Displays the Safe Title Menu, which allows you to turn on or off safe title and select a safe title pattern.

Signal Processing Menu

The Signal Processing Menu allows you to turn Fineline and Dither modes on or off.

SIGNAL PROCESSING MENU
misc / signal process

	OFF
ON	**FREE RUN**
OFF	**FRAME LOCK**
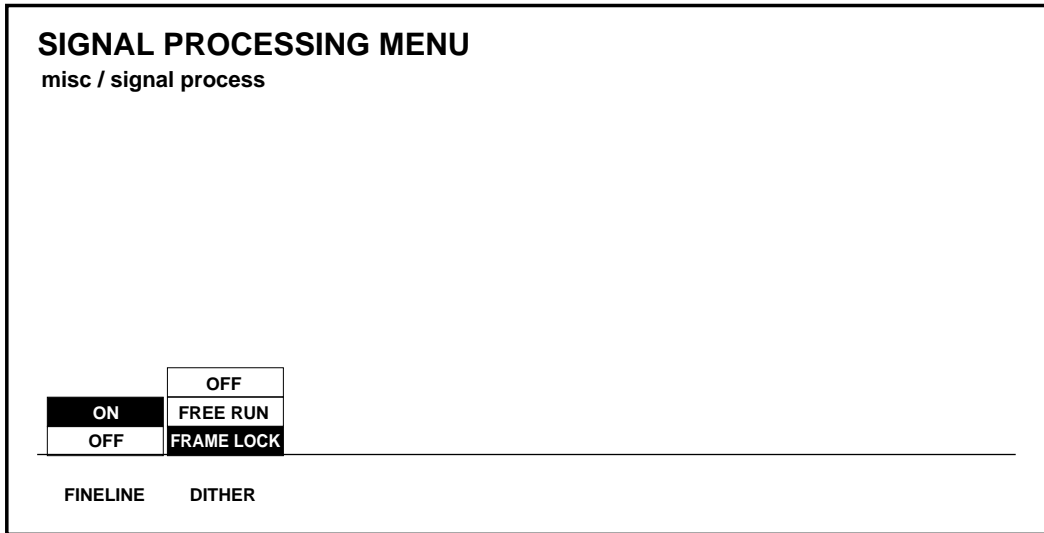
FINELINE   DITHER

The Signal Processing Menu selections are as follows:

FINELINE — Enables∕disables Fineline mode.

DITHER — Selects **FRAME LOCK** or **FREE RUN** dithering for 8-bit digital outputs, or turns **OFF** the output dithering.

Safe Title Menu

The Safe Title Menu allows you to turn the Safe Title mode on or off, select a safe title pattern, and adjust safe title horizontal position. The functions of this menu appear only if the Safe Title option is installed.

SAFE TITLE MENU
misc/safe title

SAFE TITLE H-POSITION
= 0.0000 clocks
(0.0000 nsec)

	SAFE TITLE
	SCREEN CTR
ON	**TITLE & CTR**
OFF	X-HATCH
SAFE TITLE	SAFE TITLE SELECT
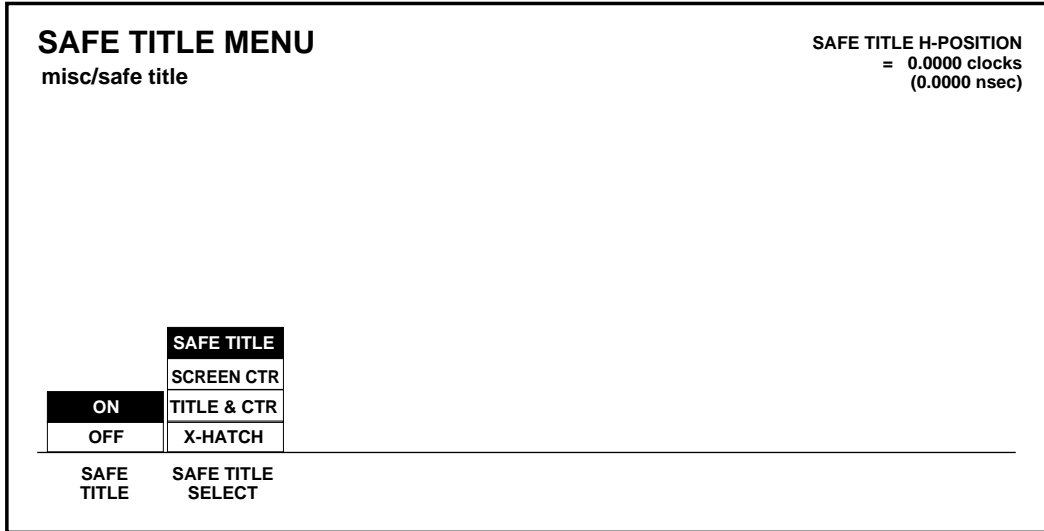
The Safe Title Menu selections are as follows:

SAFE TITLE — Turns the Safe Title Generator preview monitor display on or off.

SAFE TITLE SELECT — Selects a safe title pattern. This soft button appears only when **SAFE TITLE** is on.

SAFE TITLE H-POSITION — Positions safe title horizontally. This soft knob appears only when **SAFE TITLE** is on.

Disk Menu

The Disk Menu provides disk and file management functions such as creating directories and loading and saving files to and from diskettes.

The following menu appears when the main menu **DISK** button is pressed and no directory has been read.

```
DISK MENU                                                    FILE
 disk                                                        SELECT
                      ┌─────────────────────────────────────────┐
                      │ CURRENT DIRECTORY              TOTAL BYTES│
                      │ /FLOPPY                                  0│
                      ├─────────────────────────────────────────┤
  ┌─────────────────┐ │ FILENAME    EXT    BYTES    DATE     TIME │
  │  MARKED FILES   │ │ FLOPPY           <DEV>                    │
  ├────────┬────────┤ │                                          │
  │ # FILES│ # BYTES│ │                                          │
  ├────────┼────────┤ │                                          │
  │    0   │    0   │ │                                          │
  └────────┴────────┘ │                                          │
                      │                                          │
                      │                                          │
                      │                                          │
                      └─────────────────────────────────────────┘

              CHILD
            DIRECTORY                                      UTILS >
```

CHILD DIRECTORY — Causes the system to read a diskette, if present, in the disk drive, and to list the parent directory of the diskette.

Pressing **CHILD DIRECTORY** also changes the appearance of the Disk Menu to enable certain other functions:

DISK MENU
disk

| FILE |
| SELECT |

CURRENT DIRECTORY		TOTAL BYTES
/FLOPPY		0

MARKED FILES	
# FILES	# BYTES
0	0

FILENAME	EXT	BYTES	DATE	TIME
/FLOPPY		<DEV>		

VIEW BY
NAME

| LIST DIRECTORY | PARENT DIRECTORY | LOAD FILE > | SAVE FILE > | MARK FILE FOR DELETE | DELETE FILE > | UTILS > |

LIST DIRECTORY — Causes the system to re-read the directory of the diskette in the disk drive.

PARENT DIRECTORY — Backs you out from a subdirectory to the parent directory.

LOAD FILE> — Displays the Load File Menu. If a subdirectory is selected (see **FILE SELECT** below), the **CHILD DIRECTORY** label appears instead of **LOAD FILE>**. This allows you to read the selected subdirectory.

SAVE FILE> — Displays the Save File Menu.

MARK FILE FOR DELETE — Allows you to mark a number of files so that they may all be deleted simultaneously. (Does not enable simultaneous loading or saving of files.)

DELETE FILE> — Displays the Confirm Delete Menu which allows you to **DO DELETE** or **CANCEL**. Either a single selected file or a number of marked files can be deleted.

UTILS> — Displays the Utilities Menu.

FILE SELECT — Moves the selection box through the list of files in the directory to select the file or directory to be acted upon by subsequent operations.

VIEW BY NAME/EXT/DIR ONLY — Allows the directory to be listed in alphabetical order by file name or by extension, or to just list subdirectories. The display changes automatically as the new selection is made.

After the diskette directory has been read, the display might look something like the following example:

DISK MENU
disk

FILE
SELECT

CURRENT DIRECTORY				TOTAL BYTES
/FLOPPY				8004

MARKED FILES

# FILES	# BYTES
0	0

FILENAME	EXT	BYTES	DATE	TIME
LOCAL	R32	1329	JUL-23-1996	11:23
LOCAL	K32	2365	JUL-23-1996	11:23
NEWS	CFG	543	MAY-02-1996	07:00
NEWS	KFG	2432	MAY-02-1996	07:00

VIEW BY
NAME

LIST DIRECTORY	PARENT DIRECTORY	LOAD FILE >	SAVE FILE >	MARK FILE FOR DELETE	DELETE FILE >	UTILS >

Load File Menu

The following menu comes up when you press **LOAD FILE>** if the selected file is an E-MEM register.

LOAD FILE MENU
disk / load file

Load file:
/FLOPPY/ABLE.R01

| E-MEM REGISTER | E-MEM BANK | E-MEM ALL | | E-MEM LOAD SELECT |

NO LOAD	NO LOAD	NO LOAD	NO LOAD	NO LOAD	NO LOAD	NO LOAD	
LOAD	LOAD	LOAD	LOAD	LOAD	LOAD	LOAD	
M/E 1	M/E 2	M/E 3	PGM PST DSK	BKGD/ MISC	DPMs 1-4	MASTER E-MEM	DO LOAD

M/E 1 through **MASTER E-MEM** — Allow you to include or omit portions of the selected file before loading it from disk into the switcher.

E-MEM LOAD SELECT — Enables loading of the selected **E-MEM REGISTER**, the **E-MEM BANK** containing the selected register, or **E-MEM ALL** (all 100 E-MEM registers).

NOTE: *It takes approximately 6 minutes to load all 100 registers, even if most of them are empty, so you may prefer to load only specific banks.*

DO LOAD — Displays the Confirm File Load Menu, which allows you to **DO LOAD** or **CANCEL**.

If the selected file is a Configuration file instead of an
E-MEM file, the Load File Menu will appear as follows:

LOAD FILE MENU
disk / load file

Load file:
/FLOPPY/NEWS.CFG

NO LOAD	NO LOAD	NO LOAD	NO LOAD	NO LOAD	NO LOAD		
LOAD	**LOAD**	**LOAD**	**LOAD**	LOAD	LOAD		
USER PREFS	SYSTEM PARAMS	INPUTS	OUTPUTS	EXTERN I/F	CLR WK BUF		DO LOAD

USER PREFS through **CLR WK BUF** — Allow you to include or
omit portions of the selected file before loading it into the
switcher.

DO LOAD — Displays the Confirm File Load Menu, which allows
you to **DO LOAD** or **CANCEL**.

Save File Menu

The Save File Menu allows you to save selected portions of
E-MEM register data or Configuration data to disk.

SAVE FILE MENU
disk / save file

CURRENT DIRECTORY	TOTAL BYTES
/FLOPPY	8004

REGISTER
= 24

CONFIG	E-MEM REGISTER	E-MEM BANK	E-MEM ALL

SAVE
SELECT

NO SAVE	NO SAVE	NO SAVE	NO SAVE	NO SAVE	NO SAVE		
SAVE	SAVE	SAVE	SAVE	SAVE	SAVE	SAVE	
M/E 1	M/E 2	M/E 3	PGM PST DSK	MISC/ BKGD	DPMs 1-4	MASTER E-MEM	NAME FILE >

M/E 1 through **MASTER E-MEM** — Select portions of the E-MEM register data or switcher Configuration data to be included or omitted when saving it to disk.

SAVE SELECT — Selects the type of save to be done. The switcher serial protocol for use with Editors has been enhanced to support the transfer of E-MEM registers to and from an Editor. This allows an Editor to save its decision list (E DL) together with the switcher E-MEMs on one diskette. Refer to your Editors Operations Manual to see if this feature is supported by your Editor.

REGISTER = — Selects a single register to be saved. When **E-MEM BANK** is selected, 10 registers at a time can be saved. When **E-MEM ALL** is selected, all 100 registers may be saved in one operation.

NAME FILE> — Displays the Name File Menu for you to name the file(s) that you wish to create on the disk. For an E-MEM file, an automatic extension is added to the file name on the disk (for example, .R24 for register 24). If an E-MEM bank or if all E-MEM registers are saved, a separate file is created on the disk for each E-MEM register.

If **CONFIG** is selected in the Save File Menu, the menu looks like this:

SAVE FILE MENU
disk / save file

CURRENT DIRECTORY	TOTAL BYTES
/FLOPPY	8004

CONFIG	E-MEM REGISTER	E-MEM BANK	E-MEM ALL		SAVE SELECT

NO SAVE	NO SAVE	NO SAVE	NO SAVE	NO SAVE	NO SAVE	
SAVE	SAVE	SAVE	SAVE	SAVE	SAVE	
USER PREFS	SYSTEM PARAMS	INPUTS	OUTPUTS	EXTERN I/F	CLR WK BUF	NAME FILE >

USER PREFS through **CLR WK BUF** — Select portions of the switcher Configuration data to be included or omitted when saving it to disk.

NAME FILE> — Displays the Name File Menu which allows you to name the file you wish to create on the disk. For a Configuration file, an automatic extension of CFG is added to the file name on the disk.

Name File Menu

This menu is used to name files to be saved. It is similar to the Name Inputs Menu described earlier in this section.
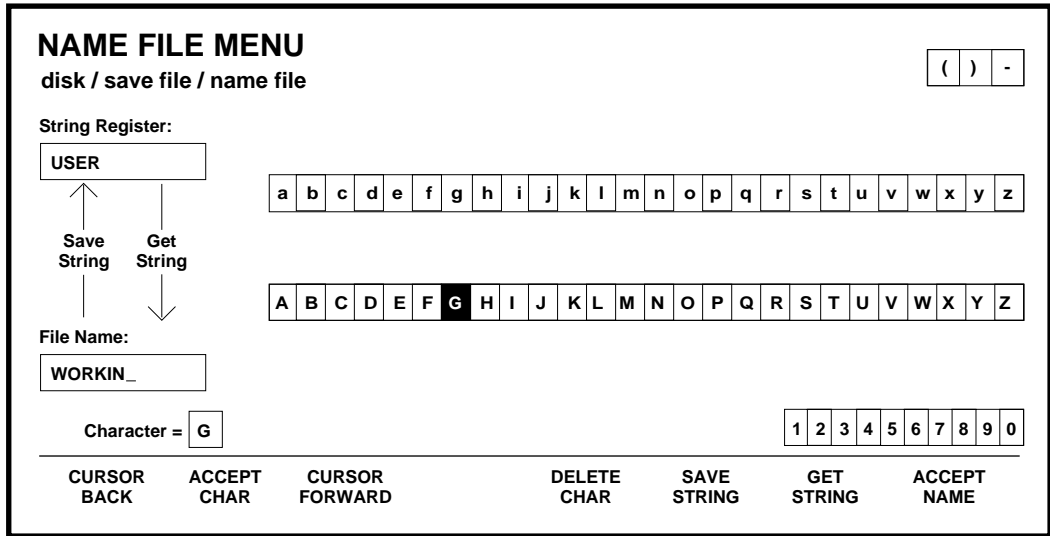
When **ACCEPT NAME** is pressed, the Confirm File Save Menu comes up, allowing you to **DO SAVE** or **CANCEL**. If a file with the same name already exists in the directory, you will be warned of that fact and given a third alternative, **OVER WRITE.** This selection will cause the new file to be written over the existing file, erasing the existing file.

Utilities Menu

The Utilities Menu allows you to format disks and create subdirectories for the purpose of organizing your saved files.

UTILITIES MENU
disk / utils

CURRENT DIRECTORY	TOTAL BYTES
/	**Ø**

DISK USAGE			
KBYTES USED	% USED	KBYTES AVAIL	% AVAIL

CREATE DIR >	FORMAT 720K >	FORMAT 1.44M >

FORMAT 720K> and **FORMAT 1.44M>** — Bring up the Confirm Format Disk Menu which allows you to format a blank or previously used disk in the appropriate format. The Confirm Format Disk Menu allows you to **DO FORMAT** or **CANCEL**.

NOTE: Be sure to have the write-protect tab set to off (closed) to allow writing to the disk.

CREATE DIR> — Displays the Name Directory Menu, which allows you to create subdirectories on the disk. This menu uses the same format as the Name File Menu described earlier in this section.

Pressing **ACCEPT NAME** allows you to **DO CREATE** or **CANCEL**. If a directory with the same name already exists in the parent directory, you will be warned of that fact and the Confirm Create Directory Menu will allow you to **RENAME** or **CANCEL**.

To save files to a subdirectory, first create the subdirectory, then have it open when you save the files that you wish to be in it. (To open the subdirectory, select it with the **FILE SELECT** knob in the next higher directory and press **CHILD DIRECTORY**.)

Introduction

Many Model 3000 features are accessed via software menus displayed on a flat panel that can show both alphanumeric text and graphics.

Main Menu Buttons

CONFG	M/E MODE	STAT
KEYER	CHR KEY	WIPE
E-MEM	KEY FRAME	AUX BUS
MASK	MATTE	FRAME STORE
LAST MENU	MISC	DISK
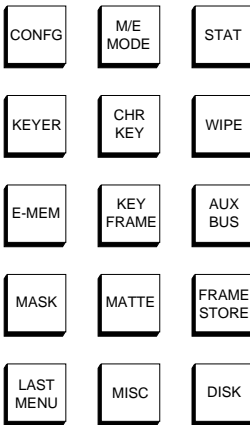
The menu system is divided into groups of related menus. Any particular group of menus can be accessed by pressing one of the main menu buttons located at the left of the menu display.

Each main menu button (except **LAST MENU**) brings up a main menu, under which there may be sub-menus that allow selection of less-frequently used options. (Some of the main menus contain only one or two levels of sub-menus.)

Pressing a main menu button causes the soft button assignments in the display to change specifically for that menu.

Soft Buttons

The eight "soft" buttons located below the menu display allow you to make function and sub-menu selections from menus displayed on the screen. The symbol ">" following the name of a soft button indicates that pressing that button will bring up a lower-level menu.

A ninth button in the row is a dedicated **EXIT** button that allows you to leave the menu you are in and return to the next higher menu on the tree.

Menu Tree Structures

Tree-structure diagrams are presented on the following pages for the main menu buttons.

Figure 4-1. CONFG Menu Tree (Part 1)

PGM
M/E 1 PGM
M/E 2 PGM
M/E 3 PGM
AUX BUS 1
AUX BUS 2
AUX BUS 3
AUX BUS 4
AUX BUS 5
AUX BUS 6
AUX BUS 7
FRAME STORE

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See CONFIG Part 1

ON
OFF
ON
OFF
SHAPED
UNSHAPED
ON
OFF

OUTPUT SELECT
SUPER BLACK
SETUP ON KEY
VIDEO/KEY FMT
LIMITER
DIGITAL RES
OUTPUT TIMING

CONFG

USER PREFS
SYSTEM PARAMS
INPUTS
OUTPUTS
EXTERN I/F
AUX BUS FORMAT

○ LUM CLIP
○ CHROMA CLIP
○ COMPOSITE CLIP
○ BLACK CLIP

GROUP SELECT
CARD SELECT
M/E 1 PVW
M/E 2 PVW
M/E 3 PVW
DSK PVW

4 TO 10
11 TO 17
A ...

8 BIT
10 BIT

DEVICE 1
DEVICE 2
DEVICE 3
DEVICE 4

RESTORE DEFAULT

○ OUTPUT TIMING OFFSET

2400
4800
9600
19200
38400
ODD
EVEN
NONE

KSCOPE
KRYSTAL
OTHER
NONE

EDITOR I/F
DPM I/F
PERIPH I/F
GPI OUTPUTS

BAUD
PARITY

SWR IN
SWR OUT
BOTH
OFF

MISC
PHYS CHAN
DEVICE 1
DEVICE 2
DEVICE 3
DEVICE 4

CHAN 1-8
AUX 1-7

DEVICE SELECT
DPM TYPE
CHANNEL ROUTING
DPM MAP AUX BUS
DPM MAP INPUTS

DEVICE SELECT

○ NO. OF CHANNELS
○ CHAN 1 = AUX ...

○ EFF SEND DELAY
○ CONTROL DELAY

2400
4800
9600
19200
38400
ODD
EVEN
NONE

DEVICE 1
DEVICE 2
DEVICE 3
DEVICE 4

DPM SELECT
CHANNEL SELECT

CHAN A
CHAN B
CHAN C
CHAN D
CHAN E
CHAN F
CHAN G
CHAN H
SECONDARY

BAUD
PARITY
PERIPH TRIGGERS

○ VIDEO INPUT
○ KEY INPUT

TRIGGER SELECT
FIRE ...

A
B
C
D
E
F
G
H

○ DEVICE NUMBER
○ FUNCTN NUMBER

PGM CUT TRIGGER
SELECT GPI
E-MEM LEVEL

OFF
GPI 1 — 8
1 — 8
MISC
DPM 1
DPM 2
DPM 3
DPM 4

○ GPI LENGTH

AUX BUS 1B
AUX BUS 2B
AUX BUS 3B
AUX BUS 4B
AUX BUS 5B
AUX BUS 6B
AUX BUS 7B

VIDEO
KEY

Software Version 5.3   3 M/E Switcher =
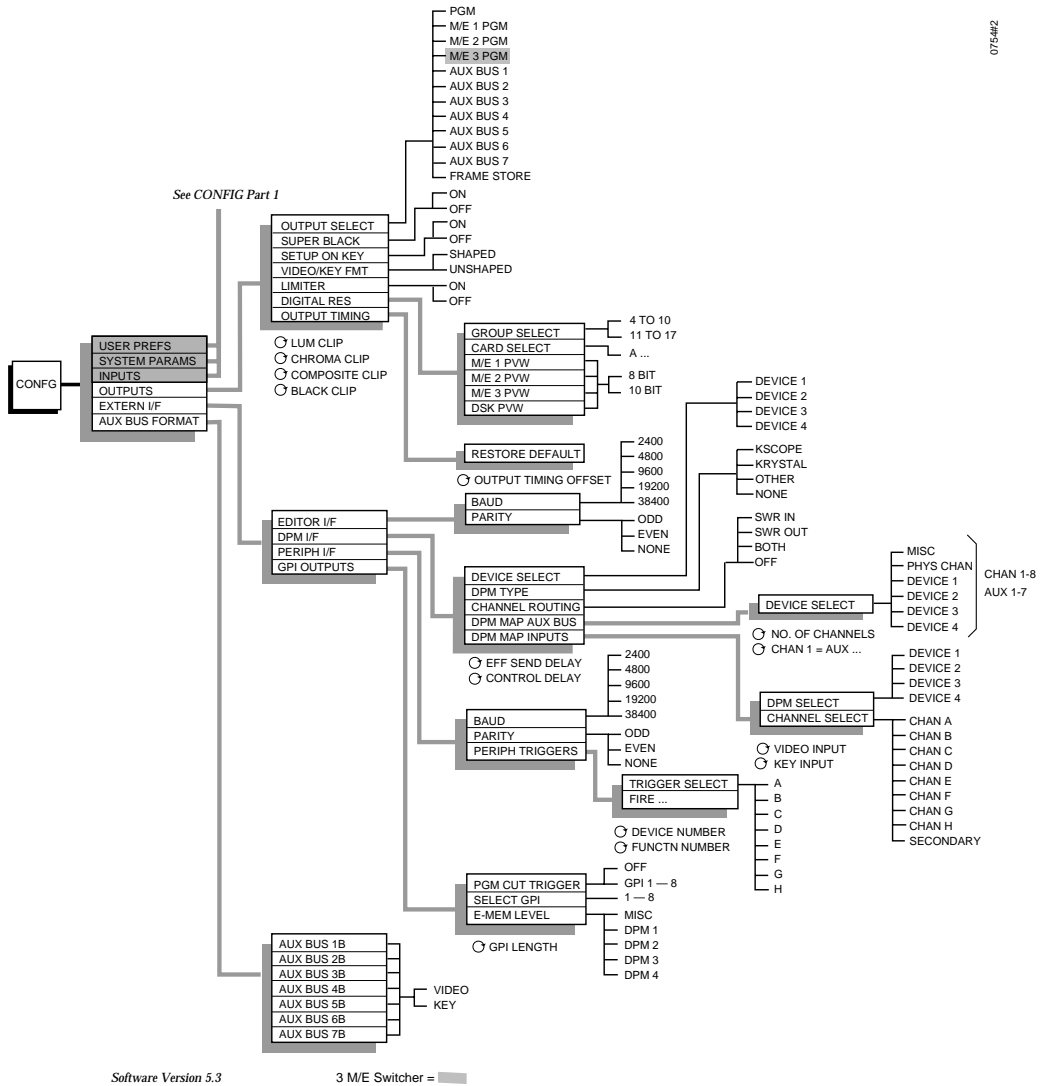
Figure 4-2. CONFG Menu Tree (Part 2)
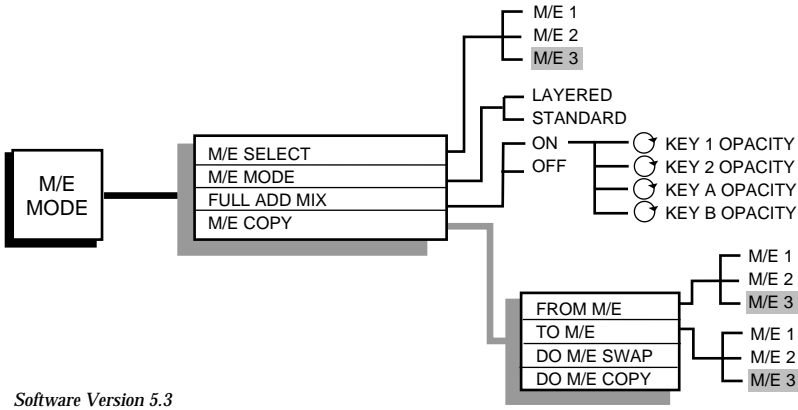
Figure 4-3. M/E MODE Menu Tree
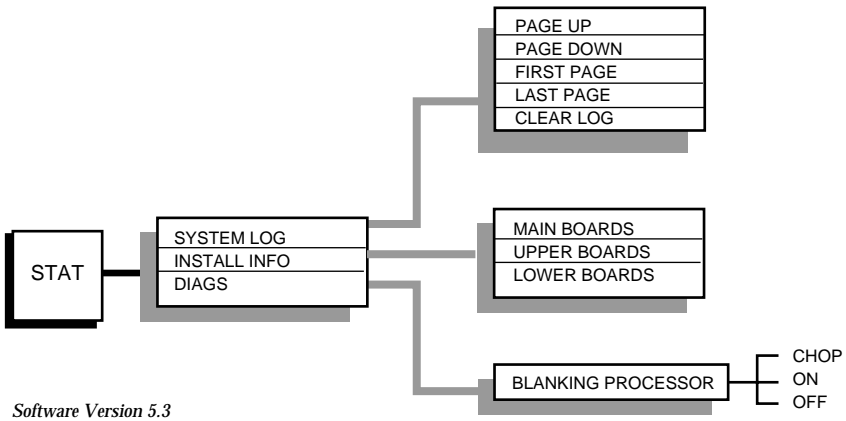
Figure 4-4. STAT Menu Tree
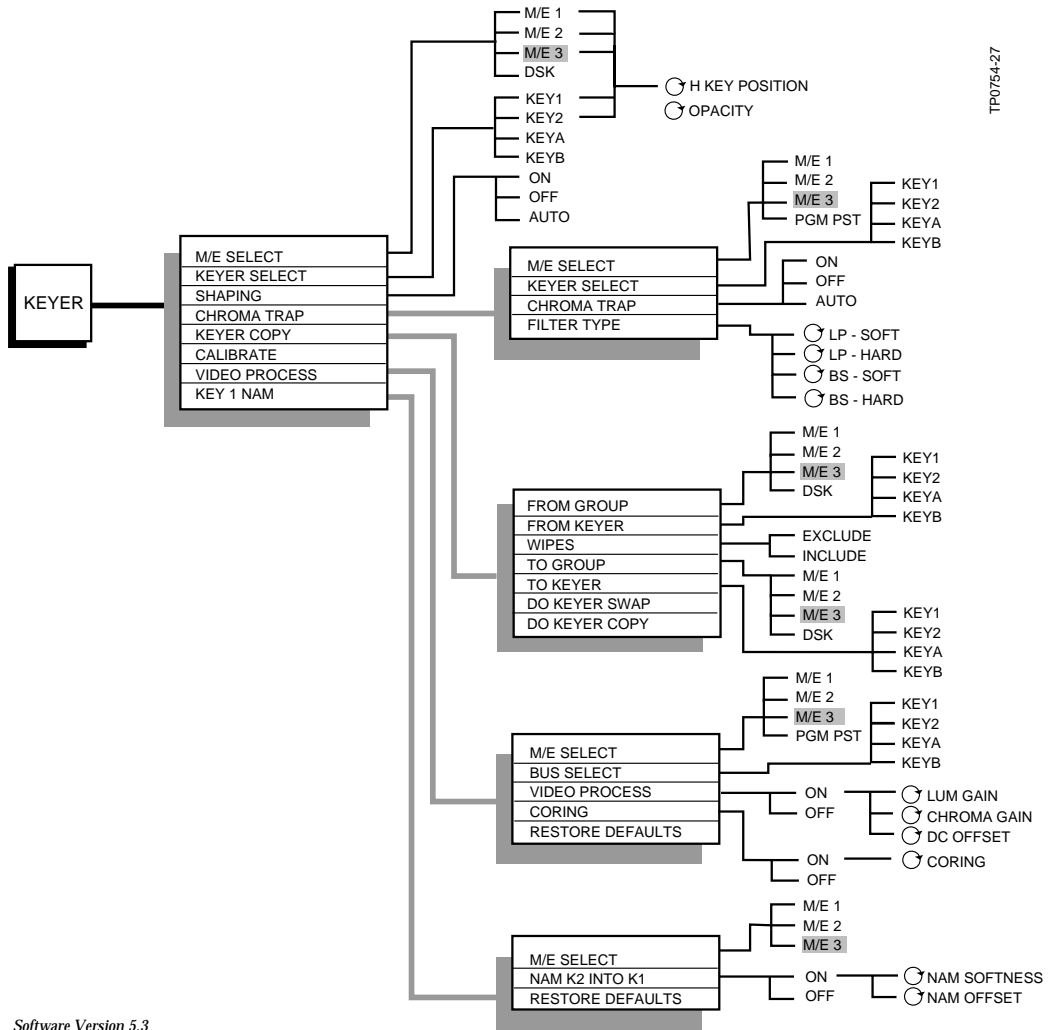
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Figure 4-5. KEYER Menu Tree
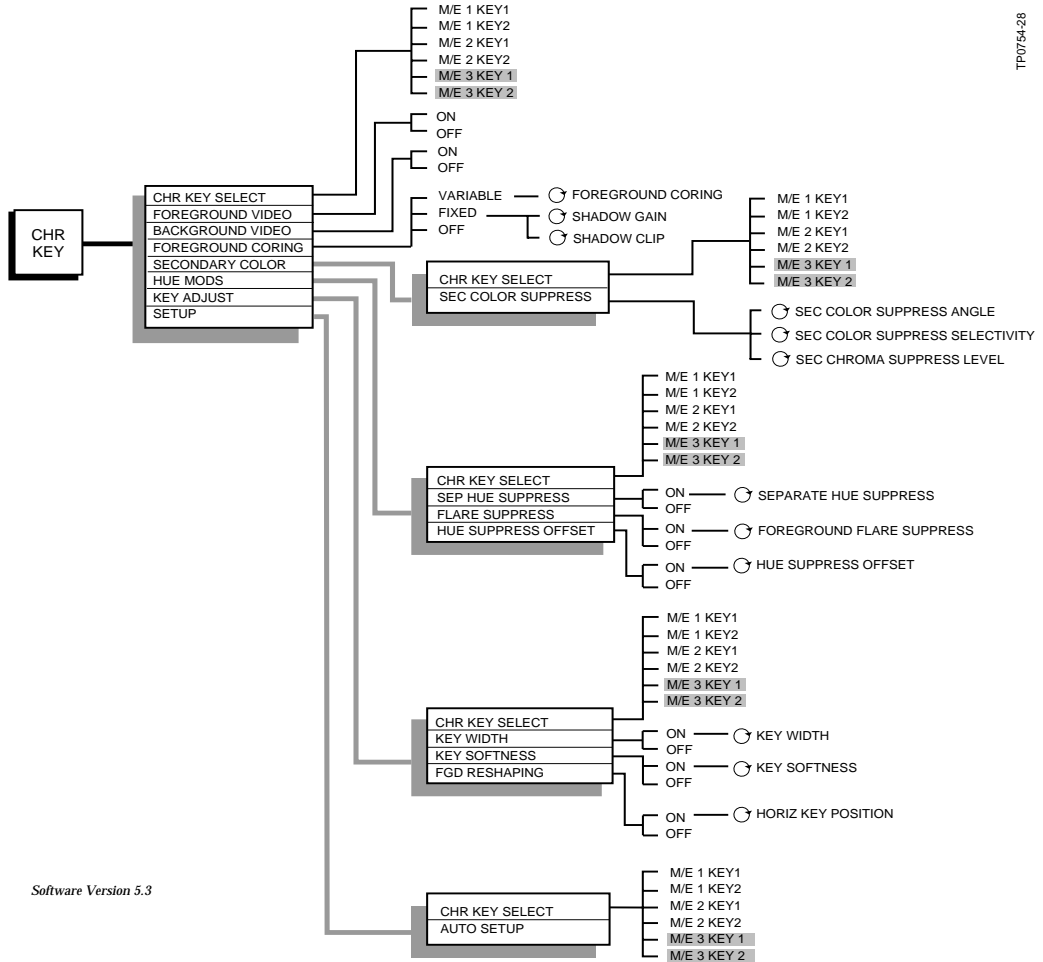
Figure 4-6. CHR KEY Menu Tree

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M/E 1 PRI	
M/E 1 SEC	
M/E 2 PRI	
M/E 2 SEC	PATTERN SELECT
M/E 3 PRI	
M/E 3 SEC	

M/E1 PRI
M/E1 SEC
M/E2 PRI
M/E2 SEC
M/E 3 PRI
M/E 3 SEC

WIPE GEN SELECT	
HORIZ STRETCH	1:1, 2:1, 3:1, 4:1, 6:1, 8:1
VERT MODE	1:1, 2:1, 4:1, 6:1, 8:1, FREE RUN
FILTER MODE	SMOOTHING
LENGTH A	1, 2, 3, 4, 5, 6 — NOTCH
LENGTH B	1, 2, 3, 4 — NONE
SOURCE	1, 2, 3, 4, 5, 6

WIPE — PATTERN
TEXTURE
WIPE MODS
WIPE COPY

M/E1 PRI
M/E1 SEC
M/E2 PRI
M/E2 SEC
M/E 3 PRI
M/E 3 SEC

WIPE GEN SEL	
PTN MIX TYPE	NAM+
PTN MIX SOURCE	NAM-
SPLIT OFFSET	MIX
PST PTN DIRECTION	NORMAL
WIPE MODULATE	TEXTURE

ON — SPLIT OFFSET
OFF

REVERSE
NORMAL

M/E1 PRI
M/E1 SEC
M/E2 PRI
M/E2 SEC
M/E 3 PRI
M/E 3 SEC

WIPE GEN SELECT	
MODULATE	LOCK — MODULATION AMPLITUDE
MODULATE WAVEFORM	HORIZ — MODULATION FREQUENCY
	VERT
	OFF

TRIANGLE
SINE

M/E 1
M/E 2
M/E 3

FROM GROUP	
FROM WIPE GEN	PRI
TO GROUP	SEC
TO WIPE GEN	M/E 1
DO WIPE SWAP	M/E 2
DO WIPE COPY	M/E 3

PRI
SEC

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Figure 4-7. WIPE Menu Tree

Figure 4-8. E-MEM Menu Tree

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M/E 1
M/E 2
PGM PST
DSK
MISC
BKGD
DPM 1
DPM 2
DPM 3
DPM 4

DELEGATES / ENABLES
TIME ALIGN LEVELS
SET START TIME
TIME KNOB SELECT

RUN
RUN DEL
START
KF
EFF DUR

ZOOM

M/E 1
M/E 2
PGM PST
DSK
MISC
BKGD
DPM 1
DPM 2
DPM 3
DPM 4

SELECT LEVEL
SELECT GROUP
PATH TYPE

TRANSITION
KEY1
KEY2
KEYA
KEYB
WIPES
WIPEXFORM
ALL

KEY
FRAME

TIMELINE
KF PATHS
KEYFRAME EDITING
RUN LEVER
MOD ALL ABSOLUTE
ENABLE BUTTONS
ATTACH GPI
ATTACH TRIGGER

ENABLE
DISABLE

ENABLE
DISABLE

DELEGATES
ENABLES

HOLD
LINEAR
S-LINEAR
CURVE

1
2
3
4
5
6
7
8

SELECT GPI
ATTACH
FIRE GPI (1-8)
FIRE ATTACHED

ON
OFF

A
B
C
D
E
F
G
H

TRIGGER SELECT
ATTACH
FIRE (A-H)
FIRE ATTACHED

ON
OFF

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Figure 4-9. KEYFRAME Menu Tree

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Figure 4-10. AUX BUS Menu Tree

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Figure 4-11. MASK Menu Tree

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MATTE

BKGD 1 LUM
BKGD 2 LUM
USER DEF WASH ANGLE
MATTE COPY
TEXTURE

SUPERBLACK
NORMAL

SUPERBLACK
NORMAL

ON — ⟳ WASH ANGLE
OFF

FROM GROUP
FROM MATTE GEN
SIDE SELECT
TO GROUP
TO MATTE GEN
DO MATTE SWAP
DO MATTE COPY

M/E 1
M/E 2
M/E 3
DSK
BKGD

KEY 1 FILL
KEY BORD
KEY 2 FILL
KEY 2 BORD
PRI WIPE
SEC WIPE

2 TO 1
1 TO 2
MATTE 2
MATTE 1
BOTH

M/E 1
M/E 2
M/E 3
DSK
BKGD

KEY 1 FILL
KEY 1 BORD
KEY 2 FILL
KEY 2 BORD
PRI WIPE
SEC WIPE

HORIZ STRETCH
VERT MODE
FILTER MODE
LENGTH A
LENGTH B
SOURCE

1:1, 2:1, 3:1, 4:1, 6:1, 8:1
1:1, 2:1, 4:1, 6:1, 8:1, FREE RUN
SMOOTHING
NOTCH
NONE
1, 2, 3, 4, 5, 6
1, 2, 3, 4
1, 2, 3, 4, 5, 6

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Figure 4-12. MATTE Menu Tree

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Figure 4-13. FRAME STORE Menu Tree (Part 1)

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See
Part 1

FRAME
STORE

DRP SHADOW BLUR
LOCK VIDEO/KEY
KEY STORE MODE
PICTURE COPY
PARAM COPY
VIDEO STORE
KEY STORE
MASK STORE

FRAME TYPE
STROBE
MOSAIC
PSEUDO COLOR
CROP
REPOSITION
FILTER

○ 4 FIELD
○ 2 FIELD

ON
OFF

○ PAGE SELECT
○ STROBE TIME PERIOD
○ STROBE FREEZE PERIOD

ON
OFF

ON
OFF

MOSAIC
ON
OFF

○ MOSAIC SIZE
○ MOSAIC ASPECT
○ FIRST ACTIVE PIXEL

POSTRSOLR
HUE MOD
COLOR MOD
CONTRAST

REVERSE VIDEO
UNSHAPE/RESHAPE
MODE SELECT
POSTERIZE / HUE MOD
/ COLOR MOD / CONTRAST
SOLARIZE / HUE MOD PATH
BLK/WHT DELEGATE

ON
OFF

○ POSTERIZATION
○ HUE MOD START PHASE
○ HUE MOD END PHASE
○ HUE MOD SATURATION
○ BLACK HUE
○ BLACK SAT
○ BLACK BRIGHT

ON — ○ SOLARIZATION
OFF
CW
CCW

CROP
ON
OFF

○ TOP
○ BOTTOM
○ LEFT
○ RIGHT

○ BLACK / WHITE HUE
○ BLACK / WHITE SAT
○ BLACK / WHITE BRIGHT

HORIZONTAL POSITION
VERTICAL POSITION
PIXEL DETENT
RESTORE DEFAULTS

ON — ○ COARSE ADJUST HORIZ
OFF ○ FINE ADJUST HORIZONTAL

ON — ○ COARSE ADJUST VERTICAL
OFF ○ FINE ADJUST VERTICAL

ON
OFF

FILTER SELECT
BLUR
SEPARATE LUM / CHROMA
BLUR SYMMETRY

ON — ○ BLUR
OFF ○ CHROMA BLUR
ON ○ BLURE SEMETRY
OFF
ON — ○ LUM BLUR
OFF

FILTER SELECT
HUE ROTATE

ON — ○ HUE ANGLE
OFF

FRAME TYPE
STROBE
CROP
REPOSITION
FILTER

○ 4 FIELD
○ 2 FIELD

ON
OFF

○ PAGE SELECT
○ STROBE TIME PERIOD
○ STROBE FREEZE PERIOD

CROP
ON
OFF

○ TOP
○ BOTTOM
○ LEFT
○ RIGHT

HORIZONTAL POSITION
VERTICAL POSITION
PIXEL DETENT
RESTORE DEFAULTS

ON — ○ COARSE ADJUST HORIZ
OFF ○ FINE ADJUST HORIZONTAL

ON — ○ COARSE ADJUST VERTICAL
OFF ○ FINE ADJUST VERTICAL

ON
OFF

BLUR
BLUR SYMMETRY

ON — ○ BLUR
OFF
ON — ○ BLUR SYMMETRY
OFF

DRAW
DRAW MODE
SAVE
SOFTEN
FILL SHAPE
BLACK SCREEN
WHITE SCREEN
UNDO

ON
OFF

STRAIGHT
FREEHAND

○ BRUSH SOURCE
○ BRUSH OPACITY
○ BRUSH SIZE
○ BRUSH SOFTNESS

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Figure 4-14. FRAME STORE Menu Tree (Part 2)

Figure 4-15. MISC Menu Tree

Figure 4-16. DISK Menu Tree

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