# SE-800AV

The SE-800AV is an analog only version of the SE-800 Digital Mixer. It has all the same features as the SE-800 without the DV and SDI digital ports. The function of the SE-800AV is the same as the SE-800 but without the digital interface options.

You can refer to the operation instructions from the SE-800 user manual and just ignore the sections regarding DV and SDI inputs and outputs.
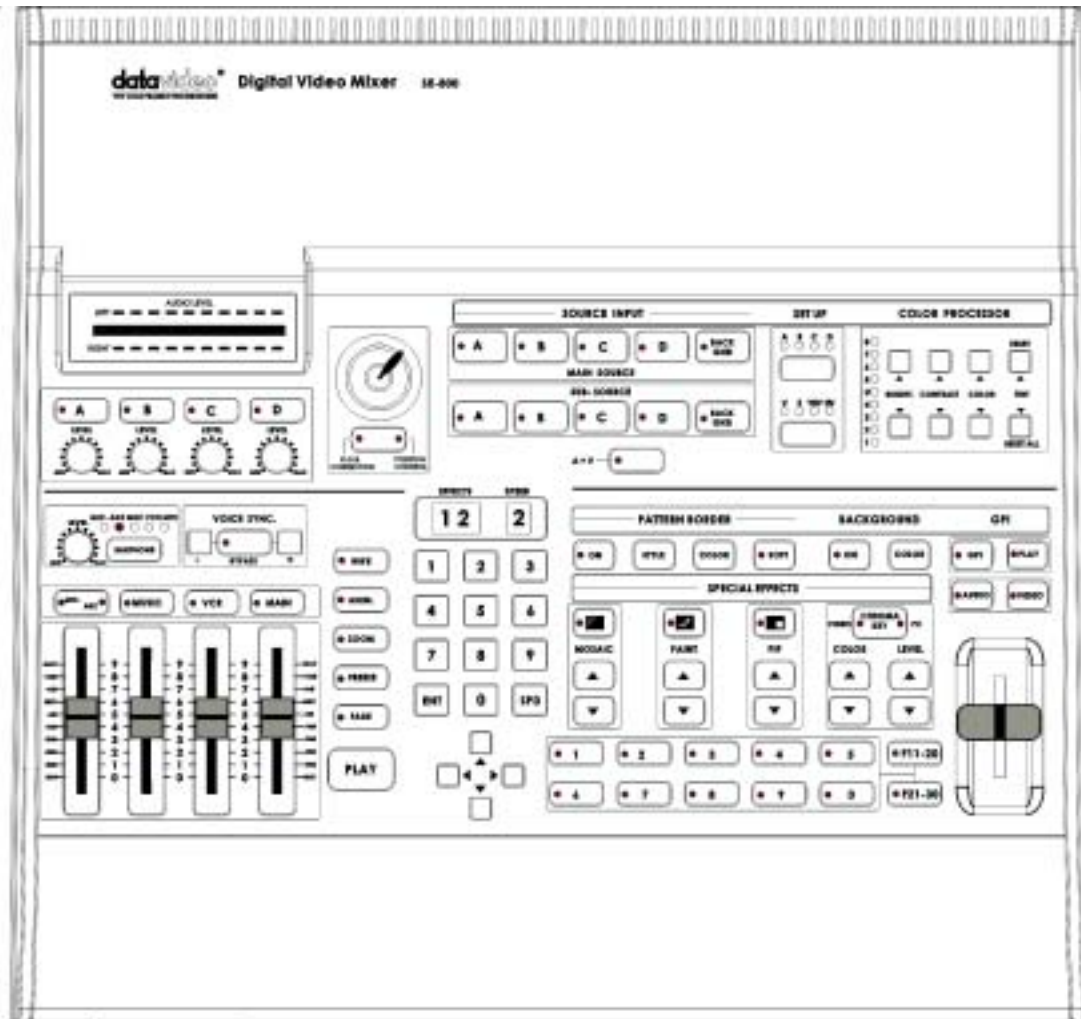
**Datavideo SE-800 VIDEO & AUDIO mixer with 4 DV inputs**

Basic Controls and Operations
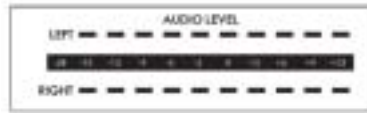
1. Audio meters: LED style meters which show the signal strength at the Audio Output. The signal they measure is determined by the sources selected by the Audio Bus selectors (**22.**) and the levels set by the Faders **(21.**). The LEDs turn red at +9 dB to indicate clipping distortion. For more information, see **Controls and Operations: Audio Inputs, levels, and meters**.
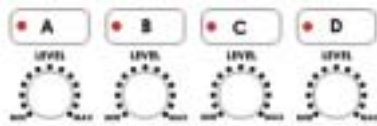
2. Audio Input Selectors and Level Controls: Controls which audio input channel (A, B, C, and/or D) is sent to the Audio Bus Video (VCR) channel (**22.**) and its associated Fader (**21.**) The row of selector buttons across the top of this section have LEDs to show which input channel is active. If the A+V function (**6.**) is engaged, the source channel selected on the Main Source bus is automatically selected. If A+V is not engaged, the input source is user selectable. Level controls for each input source are the rotary pots below the selection buttons. For more information, see **Controls and Operations: Audio Inputs, levels, and meters**.
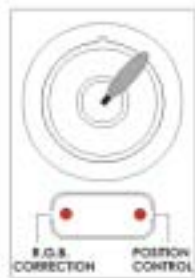
2. Joystick and Joystick mode selector: The Joystick control can function either in RGB Color Correction mode or Position Control mode, depending on the position of the selector below it. In RGB Correction mode, you can make real time RGB white balance corrections to the Main Source video. (For more information, see **Controls and Operations: RGB Color Correction**.)In Position Control mode, the joystick is used to position the selected effect (Mosaic or Picture In Picture) anywhere on the screen in real time. For more information, see the **Using Effects** chapter.

3. Main Video Source Selector: Used to select which of the four video input channels or background is sent to the Main video output. For more information, see **Controls and Operations: Video Source**.

4. Sub Video Source Selector Used to select which of the four video input channels or background will be transitioned to or used as a

sub source in an effect. For more information, see **Controls and Operations: Video Source**.


5.   A+V: Audio follow video switch. When this button is engaged (you'll know it is engaged because the LED is lit), the audio associated with a selected input source automatically follows the video through the dissolve. When the button is inactive, audio must be switched manually. For more information, see **Controls and Operations: A+V**.

6.   (SET UP) Input Format selectors: These buttons allow you to select the input video format for each channel. To operate, press the upper button to select the channel (each press cycles the LED to the next channel), then press the lower button to select the proper format. Disengage the selectors by pressing a button in any other section on the front panel. For more information, see **Controls and Operations: Input Formats**.
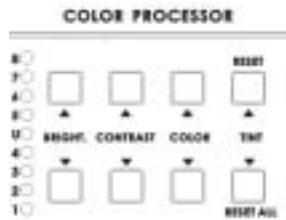
7.   Color Processor: These controls become active in conjunction with the Input Format selector (**7.**). When that control is active, you can make adjustments to the selected channel's brightness, contrast, color, and tint (NTSC only) by pressing the up and down arrow buttons. The LEDs on the left side of this section indicate relative steps above or below unity (the signal exits the control unchanged). Press and hold the Reset button in the upper right for 2 seconds or more to reset the Color Processor controls all to unity. The "Reset All" button resets the color correction and RGB correction settings for all 4 inputs. For more information, see **Controls and Operations: Color Processor** and **Controls and Operations: RGB Color Correction**.
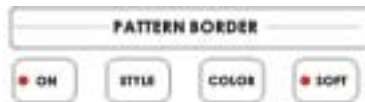

8.   Pattern Border: controls the border style and color for the Picture in Picture effect. This control is accessible when the Picture in Picture controls (**14.**) are engaged. For more information, see **Using Effects: Effects: Picture in Picture**.

9.   Background: when Background is selected in either the Main or Sub Video Source (**4, 5.**), and the On button is pressed (and the LED is lit), repeated presses of the color button cycle through the 9 possible solid backgrounds. For more information, see **Using Effects: Background**.

10. Mode: selects the operating mode of the SE-800, between Video (default), Audio, GPI, and Play. For more information, see **Using Transitions: Mode select** and **Using Effects**: **Mode select**.
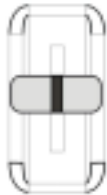
11. T bar: used to manually perform a transition. For more information, see **Using Transitions: Playing a Transition Manually**.

12. Chroma Key: when engaged, this removes the selected color from the Main Video Source and reveals the corresponding portions of the Sub Video Source. Repeated presses of the Color up and down buttons selects the color to be removed. Repeated presses of the Level up and down buttons sets how much of the color will be removed. Color and level information are displayed in the windows above the Keypad (**18**.). For more information, see **Using Effects: Chroma Key**.

13. Picture in Picture: when engaged (and the LED is lit), puts the selected Sub Video Source in a window on the Main Video Source, with control over window size and placement. Used in conjunction with the Pattern Border keys (**10**.) For more information, see **Using Effects: Picture in Picture**.

14. Paint: when engaged (and the Paint LED is lit), this applies a posterized effect to the selected Main Video Source. Repeated presses of the up and down buttons set the intensity level of the effect, from 1 (least) to 4 (most). The level setting is displayed in the Effects window above the Keypad (**18.**). For more information, see **Using Effects: Paint**.

15. Mosaic: when engaged (and the Mosaic LED is lit), this turns the selected Main Source Video into a mosaic of colored squares. There are 8 mosaic patterns to choose from, selected by repeated presses of the up and down buttons. The effect can be applied to the whole image or one of two window sizes, which can be positioned anywhere on the screen. For more information, see **Using Effects: Mosaic**.

16. Preset selectors: control the 30 user programmable preset locations for storing customized effects and transitions. For more information, see in **Using Transitions: Preset bank** and **Using Effects: Preset bank**.

17. Keypad: used to enter numerical data that controls effects or transitions. The Effects and Speed windows above the Keypad display parameter information for the selected effect or transition. For more information, see **Using Transitions: Using the keypad** and **Using Effects: Using the keypad**.
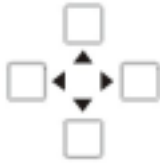
18. Cursors: used as one way to position the Picture in Picture effects window. For more information, see **Using Effects: Effects:Picture in Picture**

19. Transition mode selectors: These five selection buttons determine the transition type and allow for the selection of certain effects that are performed on the selected Main Video Input channel. The Play button executes an auto play. For more information, see the **Using Transitions** and **Using Effects** chapters.
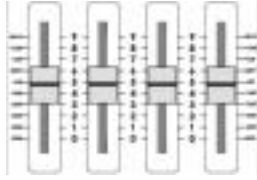
20. Faders: sliders to control audio levels for the Main audio output mix. Each is active when the LED on the Audio bus selector button (**22.**) above it is lit. For more information, see **Controls and Operations: Audio inputs, levels, and meters**.

21. Audio Bus selectors: the LEDs indicate which of the audio inputs are active in the Main audio output mix. Press the button to either include or exclude the channel. The left button, labeled Mic/Aux, can be set to either Mic, Aux, or off. For more information, see **Controls and Operations: Audio inputs, levels, and meters**.
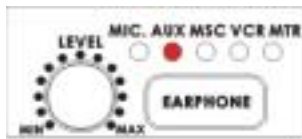
22. Earphones: controls Headphone level and signal(s) present at the Earphone jack (**26.**). Level is controlled by the rotary pot. Signals present are indicated by the LEDs, and are selected by repeated presses of the Earphone button. For more information, see **Installation: Outputs and Monitor** and **Controls and Operations: Audio Inputs, Levels, and Meters**.

23. Voice Sync: adjusts for audio delay or advance from –19 to +3 frames. For more information, see **Controls and Operations: Voice sync**.

24. Mic inputs L and R: accepts 1/4 Inch mono plugs, carrying high impedance signals from one or two mono microphones. With high impedance mics, the longer the cable from microphone to the SE-800, the more noise is introduced into the signal. If you are using an audio mixer (to combine more than two sources), connect the mixer's line level output to the SE-800's Aux inputs.

25. Earphones: accepts a stereo 1/4 inch plug for stereo headphones. The signal present at the Earphones jack is controlled by the Earphone control switches and level pots on the front panel. For more information, see the **Controls and Operations** chapter and **Installation: Output and Monitor**.

Video Source
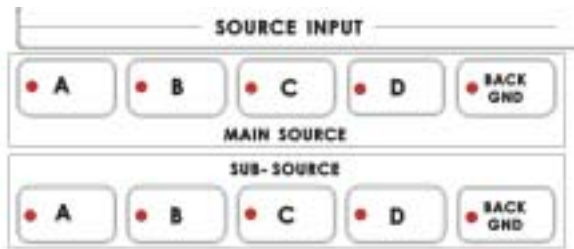
Selecting the Main and Sub Video Sources is the first thing to do when setting up the SE-800.

The source you select (by pressing one of the buttons; a bright red LED on the selected button lights for confirmation) on the Main Source bus is what is sent to the Video output. This means that you can perform cuts between sources by simply pressing different buttons. (If A+V is engaged, video and audio from the selected source will switch together. See **Controls and Operations: A+V** for more details on this function.)

The Sub Source selection determines which input will be transitioned to when using any of the transition controls (Wipe, Fade, and Zoom) and provides the video for Picture in Picture and Chroma Key functions. (See the **Using Transitions** and **Using Effects** chapters.)

Channel selections are not "remembered" after you power down the SE-800. In other words, each time you power up your mixer, channel A will be selected as the Main Video Source and channel B will be selected as the Sub Video Source.

In addition to selecting which video input channel will be present in the Main and Sub Source busses, you must also select the appropriate format for each channel in use. (See **Input Format**, below.) If the incorrect format is selected or if there is no valid video signal present, you will see frozen or distorted video when that channel is selected for output. For example, if you have a DV Bank connected to channel A through the DV In port, and you have selected channel A's input format to be composite, you will see a freeze frame, even if the DV Bank is playing a clip. You will also see a freeze frame if the DV Bank is not in play mode, even if DV is selected as the input format.

Tech note: The frozen image is a function of how the time base corrector (TBC, a.k.a. frame synchronizer) works. The SE-800 has a TBC at the Main Video Source and the Sub Video Source inputs. Their purpose is to stabilize the video signals as they come into the switcher, and to synchronize their timing so that they can be switched and otherwise combined with no disruption to the video signal. When the TBC stops receiving a video signal, the only signal it can output is the last frame that passed through its memory. Hence, the freeze frame. For more information on TBCs, see **Introduction: What is a frame synchronizer?**.

Input Formats

This is the second thing to do when setting up your SE-800 for use: select the input format for each channel you'll be using. These controls are active as soon as you push the upper channel select button. They become inactive when you have cycled through all 4 channels or when you press a button in any other control except the Color Processor.

Select a channel and it is temporarily shown on the video output, allowing you to select the proper video format and use the Color Processor (see below).

The lower button makes the format selection and lights an LED to indicate the choice.
DV=IEEE 1394 digital video (a.k.a. FireWire, iLink)
V=composite video
S=S-video (Y/C) (S-VHS, Hi8, etc.)
YUV=analog component video (betacam, DVCPro, DVCam, etc.)

Settings made in this section are "remembered" by the SE-800 after you power down the unit. In other words, these settings remain in effect until they are changed or the Reset All button is pressed (see **Color Processor** below).

For more information on video formats, see the **Appendix: Tech notes**.

Tech note: Transcoding is the act of changing video from one format to another, for example, from composite video to S-video. The SE-800 has been designed to perform transcoding, as well as digital to analog and analog to digital conversions, as part of its standard operating procedure. Select a video source at the Main Source Input bus, and it will be available at the Main Output in all formats, digital and analog, simultaneously. With the exception of analog component (YUV) and S-video (Y/C): only one of these output formats can be available at a time.

Color Processor
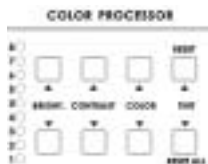
The Color Processor is active only when the Input Format section is active. Its controls work on the channel selected by the upper button in the Input Format section, which is temporarily displayed at the Video Output. These controls are like picture controls on a video monitor or the

proc amp (processing amplifier) controls on a time base corrector. In fact, they *are* the proc amp controls of one of the SE-800's 2 internal TBCs.

On the left side of this section is a column of 9 LEDs, 4 red ones above and below the green LED marked "U." These LEDs are lit, and this section's controls are engaged, when any of the 4 pairs of control buttons (Brightness, Contrast, Color, and Tint) are pressed. U stands for Unity, or perhaps Unchanged. In either case, it shows that the signal passing through that particular control is being neither boosted or cut. To see the settings for another control, press either one of that control's buttons. To change the settings, press the up and down arrow buttons.

You can see the extent of color processing available in this section by experimenting with the controls. Brightness has to do with how light or dark the colors in the image will appear at the Video Output. The Contrast controls affect the range between the lightest and the darkest parts of the image, including how much shadow and highlight detail can be seen. Color controls the saturation or intensity of the color image, from fully saturated or extremely intense at the top of the scale to completely desaturated or monochrome (black and white) at the bottom. The Tint buttons (NTSC only) control the actual hue or specific colors in the image, in effect rotating all the colors equally around an imaginary color wheel.

The up and down Tint buttons do double duty as Reset and Reset All. Reset works on the selected input source, and when pressed and held for 2 seconds, resets the Color Processor controls for just that input to U or unity. (Press and hold the Reset button until you see the image shake a bit and return to it's unprocessed state.) Reset All is activated the same way, but resets the Color Processor and RGB Corrector settings on all 4 inputs to U or neutral.

But how do you know for certain how effective any of these adjustments are? You can see the changes by looking at the Main Output on a video monitor, but how do you know if that reference is accurate?

The first part of the answer is: by having an accurately calibrated monitor that shows exactly, with reference to a standard, what the video looks like. That standard has been described and agreed to by the Society of Motion Picture and Television Engineers (SMPTE) and the European Broadcasters Union (EBU), and is most commonly shown as "color bars." Color bars are an image consisting of columns and blocks of specific colors and gray tones. Because of differences in television standards, SMPTE bars and EBU bars do not look the same. They are used in much the same ways: when these are displayed on a monitor, the monitor can then be adjusted to meet the standard.

The most serious, accurate color correction is done with the aid of a waveform monitor/vectorscope, a signal analysis instrument (actually a pair of instruments) common in video editing suites, which shows precisely the details of the video signal. With one of these instruments, you can see at a glance (once you know what you are looking for) the most intimate electronic details and irregularities of the video signal.

Many users may not have access to a waveform monitor or vectorscope, but this does not necessarily condemn them to produce less than high quality video. It means that more care must be taken and some different procedures must be followed.

Nothing will take the place of a calibrated, properly adjusted monitor, so that must always be your first step. For more information on monitor calibration procedure, see **Appendix: Monitor Calibration**.

If you don't have any video test equipment, follow the suggested procedure to adjust all the video sources, which is described at the end of **Appendix: Monitor Calibration**.

Settings made in this section are "remembered" by the SE-800 after you power down the unit. In other words, these settings remain in effect until they are changed or either the Reset or the Reset All button is pressed.


RGB color correction

RGB color correction can only be engaged when the Input Format section is active (see above) and works on the channel selected in that section of the controls. Its purpose is to perform white balance correction, compensating very precisely for an overall color shift in the image. The color shift can be caused by a number of factors, for example poor white balance settings on the video camera or poor lighting conditions.

To activate the RGB Color Correction control, press the button beneath the joystick once, and the LED on the left will light. Operate the control by moving the joystick around and observing how the color cast of the image changes as seen on the output monitor. Notice also that the windows above the Keypad show changing numbers as you rotate the joystick. The number in the left window is a read out of the degrees of color correction (up to 10 degrees, the decimal point between the digits is assumed. 97 in the window means 9.7 degrees, etc.) The symbol in the right window shows graphically the quadrant of the color wheel where the correction is taking place (upper left, lower right, etc.).

Settings made in this section are "remembered" by the SE-800 after you power down the unit. In other words, these settings remain in effect until they are changed or the Reset All button is pressed (see **Color Processor**, above).

As we said above (in the Color Processor section), it is vitally important to perform RGB Correction only with a properly adjusted monitor and/or a waveform monitor/vectorscope (if at all possible), so that you can be fully confident of the results. And that is the point: to be confident of the quality and colors at the output of the SE-800. When you change any aspect of how the video looks, you are actually changing the video signal. This is not a big deal if you are just looking at one signal on a monitor, but it becomes much more complicated when you try to combine signals (such as in a dissolve) and/or try to record the results.

Audio Inputs, levels, and meters (Headphone, faders, bus selectors,)
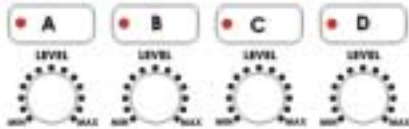
These Input Bus Selectors and Level pots are the first stage in the audio signal path. Each channel carries the audio associated with a video input. Analog audio comes in through the RCA connectors on the rear panel; audio from the DV input is converted to analog and passed to this bus.

Audio Input level calibration procedure
The first step in setting up the audio for a session with your SE-800 consists of adjusting the levels on each channel you will be using. To do this, first make sure A+V is not selected. If it is, you will only be able to adjust the audio for whichever channel is selected on the Main Video Source bus. Set the Audio Bus Selectors (see below) to Video (VCR) and Main, and push the Main fader to 9 or Max, and set the other faders to 6 or Unity. Then, select a channel, and while listening to the audio and watching the Audio Meters (see below), set the level with the rotary pot so that the sound is consistently at between +3 dB (green LED) and +6 dB (yellow LED) and just barely peaks occasionally to +9 dB (red LED). The idea is to avoid any audible distortion (clipping), caused by making the signal level too high at this stage.

The audio selected at this bus is fed to the main Audio Bus at the Video (VCR) channel.

The three selectors on the left are the inputs, which determine what signals are present at the Main Output. The Main Output is controlled by the button on the extreme right. If the Main button is not selected, there will be no audio heard at the output.
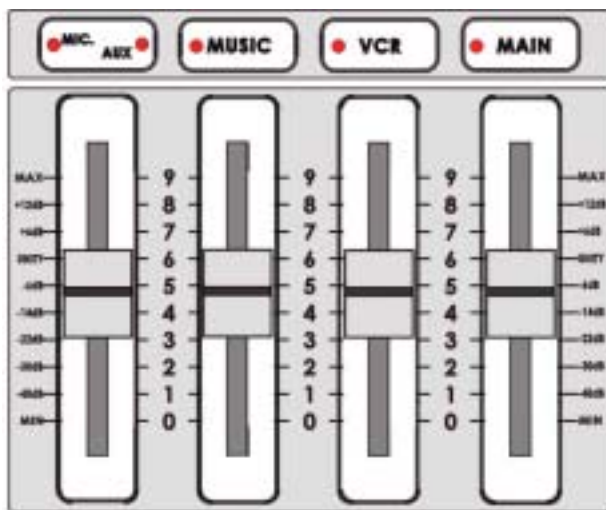
These faders correspond to the selector buttons above and control the relative volume of each input in the master output as well as the master output level. They are called faders because they

are used to decrease (rather than increase) the signal levels to make a balanced and pleasing mix. When they are set at Unity, at 6, they pass the audio signal through at the same level it was at when it entered this bus. This is why level setting at the Input Bus is so important.
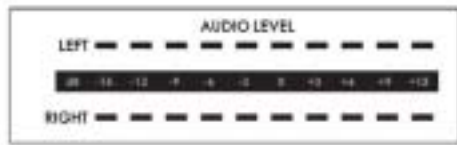
These meters show the audio signal level at the Main output. The strength of any audio signal that is routed to the output will be displayed here. As mentioned above, these meters play a vital part in correctly setting the audio levels to avoid clipping or other distortion. You'll notice that the LEDs are green up through the +3 dB level, turn yellow at +6 dB, and turn red at +12 dB. As you set the audio level for each input, make sure that the signal peaks to +6 dB or very occasionally to +9 dB. Every time the signal goes to +12 dB, it will be distorted.

Use the Headphone section to accurately monitor any of the sources (Microphones, Aux 1, Aux 2 (Msc), or Video (VCR)) or Master output. Repeated presses of the Headphone button cycle through the monitoring choices. In many cases, headphones may be a more useful and accurate choice than speakers for audio monitoring. For example, in a noisy club or at a concert, you won't be able to hear any additional sound coming through speakers. Headphones will also more accurately reproduce the sound you wish to monitor at a lower cost than speakers.

Voice sync

When engaged, this control allows you to compensate for delays in the video as it travels through the various components, processors, and converters of the mixer, so that the video maintains sync with the audio. This control is adjustable from +3 frames (audio advanced) to –19 frames (audio delayed), and affects the video/audio sync at the Master Output. Adjust this control while watching the Master Video Output on a monitor and listening to the Main Audio Out.

A+V

When this button is active, the audio follows the video through a transition. This means that when this LED is lit, only one channel of the Audio input section can be active at a time. When the transition is a cut, the audio will switch abruptly at the same time the video does. When any other transition is selected, the audio will do a cross-fade, with the Main Source audio fading out as the Sub Source audio fades in.

A audio source fade out to B audio source
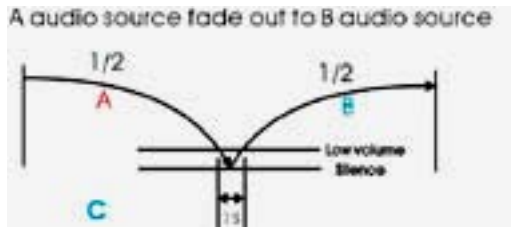
This is a representation of the audio fade between source A and source B. As you can see, audio A fades to silence, then audio B fades in. This will be changed in the next revision of the SE-800 to an equal power cross fade from source A to source B. A retrofit will be available at no charge to early purchase customers.

Try this: With A+V engaged, select channel B on the Main Source bus (of course, you must have a valid video and audio source at this input!). Notice that channel B is lit in the Audio Input section. Now, select channel A on the Sub Source bus. Work the T bar to manually perform a transition (if no specific transition is selected, the sources will dissolve) and watch Audio Input Source channel change from B to A, following the video.

When this feature is not engaged, you can select which of the 4 Audio input channels will be applied to the Video (VCR) bus at the Fader. In fact, you have to select one or more of the channels, or there will be no audio present at the Video (VCR) bus.

This button should be inactive while doing beginning-of-session level setting so that you can select an input and adjust the level.

For more information, see **Audio inputs, levels, and meters**, above.

Using Effects

The SE-800 is capable of producing a wide variety of digital effects. These fall into 2 categories: single channel and dual channel effects.

Single channel effects are produced on the source selected in the Main Video Source bus and need no second video input. Single channel effects include Strobe (ANIM), Freeze, Mosaic, and Paint.

For example, select any input channel having a valid signal as the Main Video Input. Press the Freeze button once. You'll see, on the program monitor, that the source video stops instantly. Press the button again, and watch the source video return to full motion. With the Freeze effect, there are no parameters, just a single source stopping and starting.

For more information on single channel effects, see the appropriate section (Strobe (ANIM), Freeze, Mosaic, Paint) below.

Dual channel effects are produced on the source selected in the Main Video Source bus and require a second source, which is always selected in the Sub Video Source bus. Dual channel effects include Picture in Picture and Chroma Key.

For example, select Main and Sub Video Sources, then press the PiP (Picture in Picture) button. Immediately, on the program monitor, you will see the Sub Video Source in a small window.

For more information on these dual channel effects, see the appropriate section (Picture in Picture, Chroma Key) below.

Selecting and customizing an effect

To apply an effect to the input selected on the Main Video Source bus: press the button associated with the effect (the LED on the button will light, confirming the selection), and adjust the parameters using either the buttons associated with the effect or the Keypad. For more information, see the appropriate section below.

Using the Keypad to customize an effect

EFFECTS   SPEED

| 1 2 | 2 |

1	2	3
4	5	6
7	8	9
ENT	0	SPD

The Effects and Speed windows at the top of this section display parameter data related to the selected effect.

Values are entered into the Effects Window by pressing numbers on the key pad. Values are entered into the Speed Window by pressing the "SPD" key. The arrow buttons at the bottom can be used to set the location for the Picture in Picture Window.

See the relevant section below for specific details about each effect.

Freeze

WIPE

ANIM.

ZOOM

FREEZE ◄

FADE

PLAY

This effect freezes the incoming video, as selected on the Main Video Source bus. Simple as that! There are no parameters, no variations. Press the button once, and the video freezes, press it again, and it returns to the selected source in full motion.

The Freeze effect is single channel, and can work in conjunction with any transition.

Strobe (ANIM)

WIPE

ANIM. ◀

ZOOM

FREEZE

FADE

PLAY

This effect takes a freeze frame of the selected incoming video at one of four preset rates. Engage the effect by pressing the Strobe (ANIM) button and verifying that the LED on the button is lit The rate (1 to 4) is adjusted by pressing the SPD key on the Keypad; the rate is displayed in the Speed window above the Keypad. 1 is the fastest rate (more frames per second), 4 is the slowest.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Mosaic

MOSAIC

The Mosaic effect turns the selected Main Source Video into a grid of colored squares. Engage the effect by pressing the Mosaic button and verifying that the LED on the button is lit. There are 8 mosaic patterns to choose from, selected by repeated presses of the up and down buttons. The patterns are represented by numbers 1-8 displayed in the Effects window above the Keypad.

1 = small mosaic blocks, horizontal and vertical
2 = medium mosaic blocks, horizontal and vertical
3 = large mosaic blocks, horizontal and vertical
4 = very large mosaic blocks, horizontal and vertical
5 = very large mosaic blocks, vertical only
6 = large mosaic blocks, vertical only
7 = medium mosaic blocks, vertical only
8 = small mosaic blocks, vertical only

The effect can be applied to the whole image or one of two window sizes, which can be positioned anywhere on the screen, using the Joystick in Position Control Mode. The size of the effect window is represented by numbers 1-2 displayed in the Speed window above the Keypad, and may be changed by pressing the UP and DOWN Arrow buttons beneath the PIP button.

PIP off = the effect is full screen
1 = large window is the affected area
2 = small window is the affected area

To position the Mosaic window effects, press the button under the Joystick until the LED for Position Control is lit. Then you can use the joystick to position the effect in real time, anywhere on the screen. When you exit the effect, the position will be remembered as long as the Position Control LED is lit. This means that the next time you activate the Mosaic effect, the position will remain the same as previously.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Paint

PAINT

Paint applies a posterizing effect to the selected Main Video Source. This effect reduces the number of colors and brightness levels visible, giving the image a high contrast look with few gradations of color or brightness.

Engage the effect by pressing the Paint button and verifying that the LED on the button is lit. Repeated presses of the up and down buttons set the intensity level of the effect, from 1 (least) to 4 (most). The level setting is displayed in the Effects window above the Keypad.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Picture in Picture

PIP

The Picture in Picture effect puts the selected Sub Video Source in a window on the Main Video Source. Variables for this effect include window size and position. Engage the effect by pressing the Picture in Picture button and verifying that the LED on the button is lit.

Window size (2 sizes are available) values are displayed in the Speed window above the Keypad; change the window size by pressing the arrow keys under the Picture in Picture button (1 is larger, 2 is smaller).

Position values are displayed in Effects window above the Keypad. 9 preset locations are available, numbered 1-9 and corresponding to a 3 x 3 grid. Select from one of the preset locations by using the Keypad number keys.

This effect may also be used in conjunction with the Border keys (see below).

This is a dual channel effect, and cannot be used with any other transitions or effects.

Pattern Border

These controls are used in conjunction with the Picture in Picture Effect and the Zoom transition only, and can only be activated when either the Picture in Picture or Zoom control is active.

With the On button's LED lit, parameters for Style, Color, and Border Softness can be set by pushing the appropriate button.

There are 2 Styles available: thin and thick. These choices are cycled through at each button press.

8 Colors are available for the border: black, blue, cyan, purple, green, teal, yellow, and white. These are cycled through at each button press.

Softness can be either on or off, as indicated by the LED on the button. When off, the border is solid. When Softness is on, the border has a somewhat beveled look with a fuzzy inside edge. Softness can be engaged with no border color. The result is a soft translucent edge to the Picture in Picture window.

Background

While not strictly an effect, these controls are in the same general area, and we thought you'd look here for any information on Background you might need. These controls select what solid color the background will be when selected on either the Main or Sub Video bus. There are eight possible background colors, see below, with the value displayed in the Effect window above the Keypad.

The background colors are:
1: black
2: blue

3: cyan
4: purple
5: green
6: teal
7: yellow
8: white

Engage this control by pressing the On button in this section. The LED on the button will blink to indicate that the controls are active. Repeated presses of the color button select colors: 1 is black, 8 is white.

When you have selected the color background you want, lock the choice in by pressing the On button again to disengage the control.

Chroma Key

When engaged, Chroma Key removes the selected color from the Main Video Source and reveals the corresponding portions of the Sub Video Source.

To engage this effect, select sources in the Main and Sub sections. Then, press the Chroma Key button once to select video as the key overlay, press a second time to select PC input as the overlay, and a third time to select both.

Repeated presses of the Color up and down buttons selects the color to be removed. Some examples are:
1: red
4: yellow
6: green
8: cyan
11: blue
12: magaenta
15: black
16: white

Repeated presses of the Level up and down buttons sets how much of the color will be removed. Color (15 possible colors) and level (15 levels) information is displayed in the windows above the Keypad (**18**.)

Preset bank

These preset banks offer 30 memory locations to store transitions or effects that will be executed at the touch of a button. 10 locations are accessed by the numbered buttons 1-0 above. Presets 11-20 are accessed by first pressing the F11-20 button until the LED on it is lit, then pressing one of the single numbered buttons. Presets 21-30 are accessed by pressing the F21-30 button, then one of the single numbered buttons.

To store a transition or effect into one of the Preset Banks, do the following:
1. Select the effect or transition.
2. Set the parameters for the effect or transition.
3. Press and hold the "ENT" key on the keypad for 1 second until the windows above the keypad read "Sto."
4. Push and hold the function button (where you wish to store the preset) for 1 second (until the button's LED is on.).
 Press the "ENT" key again to reconfirm the programming.

To play back a stored transition or effect, simply press the button corresponding to the preset you want to play.

Mode select and use

The default mode for the SE-800, and the one you will use most often, is Video.
In Video mode, the T bar operates as expected and as described everywhere in this manual.
In Audio mode, the T bar switches only the audio between selected sources.
In GPI mode, transitions and effects are played by the trigger (see below).
When in GPI mode, pressing the Play button in this section has the same effect as using the GPI trigger.

External trigger using GPI

When you plug in a GPI trigger device to the rear panel GPI input, pressing the trigger plays sequentially (one at each trigger) through all the presets stored in all the preset banks.

Using Effects

The SE-800 is capable of producing a wide variety of digital effects. These fall into 2 categories: single channel and dual channel effects.

Single channel effects are produced on the source selected in the Main Video Source bus and need no second video input. Single channel effects include Strobe (ANIM), Freeze, Mosaic, and Paint.

For example, select any input channel having a valid signal as the Main Video Input. Press the Freeze button once. You'll see, on the program monitor, that the source video stops instantly. Press the button again, and watch the source video return to full motion. With the Freeze effect, there are no parameters, just a single source stopping and starting.

For more information on single channel effects, see the appropriate section (Strobe (ANIM), Freeze, Mosaic, Paint) below.

Dual channel effects are produced on the source selected in the Main Video Source bus and require a second source, which is always selected in the Sub Video Source bus. Dual channel effects include Picture in Picture and Chroma Key.

For example, select Main and Sub Video Sources, then press the PiP (Picture in Picture) button. Immediately, on the program monitor, you will see the Sub Video Source in a small window.

For more information on these dual channel effects, see the appropriate section (Picture in Picture, Chroma Key) below.

Selecting and customizing an effect

To apply an effect to the input selected on the Main Video Source bus: press the button associated with the effect (the LED on the button will light, confirming the selection), and adjust the parameters using either the buttons associated with the effect or the Keypad. For more information, see the appropriate section below.

Using the Keypad to customize an effect

The Effects and Speed windows at the top of this section display parameter data related to the selected effect.

Values are entered into the Effects Window by pressing numbers on the key pad. Values are entered into the Speed Window by pressing the "SPD" key. The arrow buttons at the bottom can be used to set the location for the Picture in Picture Window.

See the relevant section below for specific details about each effect.

Freeze

This effect freezes the incoming video, as selected on the Main Video Source bus. Simple as that! There are no parameters, no variations. Press the button once, and the video freezes, press it again, and it returns to the selected source in full motion.

The Freeze effect is single channel, and can work in conjunction with any transition.

Strobe (ANIM)

WIPE
ANIM. ◀
ZOOM
FREEZE
FADE

PLAY

This effect takes a freeze frame of the selected incoming video at one of four preset rates. Engage the effect by pressing the Strobe (ANIM) button and verifying that the LED on the button is lit The rate (1 to 4) is adjusted by pressing the SPD key on the Keypad; the rate is displayed in the Speed window above the Keypad. 1 is the fastest rate (more frames per second), 4 is the slowest.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Mosaic

MOSAIC

▲

▼

The Mosaic effect turns the selected Main Source Video into a grid of colored squares. Engage the effect by pressing the Mosaic button and verifying that the LED on the button is lit. There are 8 mosaic patterns to choose from, selected by repeated presses of the up and down buttons. The patterns are represented by numbers 1-8 displayed in the Effects window above the Keypad.

1 = small mosaic blocks, horizontal and vertical
2 = medium mosaic blocks, horizontal and vertical
3 = large mosaic blocks, horizontal and vertical
4 = very large mosaic blocks, horizontal and vertical
5 = very large mosaic blocks, vertical only
6 = large mosaic blocks, vertical only
7 = medium mosaic blocks, vertical only
8 = small mosaic blocks, vertical only

The effect can be applied to the whole image or one of two window sizes, which can be positioned anywhere on the screen, using the Joystick in Position Control Mode. The size of the effect window is represented by numbers 1-2 displayed in the Speed window above the Keypad, and may be changed by pressing the UP and DOWN Arrow buttons beneath the PIP button.

PIP off = the effect is full screen
1 = large window is the affected area
2 = small window is the affected area

To position the Mosaic window effects, press the button under the Joystick until the LED for Position Control is lit. Then you can use the joystick to position the effect in real time, anywhere on the screen. When you exit the effect, the position will be remembered as long as the Position Control LED is lit. This means that the next time you activate the Mosaic effect, the position will remain the same as previously.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Paint

PAINT

Paint applies a posterizing effect to the selected Main Video Source. This effect reduces the number of colors and brightness levels visible, giving the image a high contrast look with few gradations of color or brightness.

Engage the effect by pressing the Paint button and verifying that the LED on the button is lit. Repeated presses of the up and down buttons set the intensity level of the effect, from 1 (least) to 4 (most). The level setting is displayed in the Effects window above the Keypad.

This is a single channel effect and cannot be used with any other transitions or effects.

Effects: Picture in Picture

PIP

The Picture in Picture effect puts the selected Sub Video Source in a window on the Main Video Source. Variables for this effect include window size and position. Engage the effect by pressing the Picture in Picture button and verifying that the LED on the button is lit.

Window size (2 sizes are available) values are displayed in the Speed window above the Keypad; change the window size by pressing the arrow keys under the Picture in Picture button (1 is larger, 2 is smaller).

Position values are displayed in Effects window above the Keypad. 9 preset locations are available, numbered 1-9 and corresponding to a 3 x 3 grid. Select from one of the preset locations by using the Keypad number keys.

This effect may also be used in conjunction with the Border keys (see below).

This is a dual channel effect, and cannot be used with any other transitions or effects.

Pattern Border

PATTERN BORDER

● ON   STYLE   COLOR   ● SOFT

These controls are used in conjunction with the Picture in Picture Effect and the Zoom transition only, and can only be activated when either the Picture in Picture or Zoom control is active.

With the On button's LED lit, parameters for Style, Color, and Border Softness can be set by pushing the appropriate button.

There are 2 Styles available: thin and thick. These choices are cycled through at each button press.

8 Colors are available for the border: black, blue, cyan, purple, green, teal, yellow, and white. These are cycled through at each button press.

Softness can be either on or off, as indicated by the LED on the button. When off, the border is solid. When Softness is on, the border has a somewhat beveled look with a fuzzy inside edge. Softness can be engaged with no border color. The result is a soft translucent edge to the Picture in Picture window.

Background

BACKGROUND

● ON   COLOR

While not strictly an effect, these controls are in the same general area, and we thought you'd look here for any information on Background you might need. These controls select what solid color the background will be when selected on either the Main or Sub Video bus. There are eight possible background colors, see below, with the value displayed in the Effect window above the Keypad.

The background colors are:
1: black
2: blue
3: cyan
4: purple
5: green
6: teal
7: yellow
8: white

Engage this control by pressing the On button in this section. The LED on the button will blink to indicate that the controls are active. Repeated presses of the color button select colors: 1 is black, 8 is white.

When you have selected the color background you want, lock the choice in by pressing the On button again to disengage the control.

Chroma Key

When engaged, Chroma Key removes the selected color from the Main Video Source and reveals the corresponding portions of the Sub Video Source.

To engage this effect, select sources in the Main and Sub sections. Then, press the Chroma Key button once to select video as the key overlay, press a second time to select PC input as the overlay, and a third time to select both.

Repeated presses of the Color up and down buttons selects the color to be removed. Some examples are:
1: red
4: yellow
6: green
8: cyan
11: blue
12: magaenta
15: black

16: white

Repeated presses of the Level up and down buttons sets how much of the color will be removed. Color (15 possible colors) and level (15 levels) information is displayed in the windows above the Keypad (**18**.)

Preset bank

These preset banks offer 30 memory locations to store transitions or effects that will be executed at the touch of a button. 10 locations are accessed by the numbered buttons 1-0 above. Presets 11-20 are accessed by first pressing the F11-20 button until the LED on it is lit, then pressing one of the single numbered buttons. Presets 21-30 are accessed by pressing the F21-30 button, then one of the single numbered buttons.

To store a transition or effect into one of the Preset Banks, do the following:
5. Select the effect or transition.
6. Set the parameters for the effect or transition.
7. Press and hold the "ENT" key on the keypad for 1 second until the windows above the keypad read "Sto."
8. Push and hold the function button (where you wish to store the preset) for 1 second (until the button's LED is on.).
 Press the "ENT" key again to reconfirm the programming.

To play back a stored transition or effect, simply press the button corresponding to the preset you want to play.

Mode select and use

The default mode for the SE-800, and the one you will use most often, is Video.

In Video mode, the T bar operates as expected and as described everywhere in this manual.

In Audio mode, the T bar switches only the audio between selected sources.

In GPI mode, transitions and effects are played by the trigger (see below).

When in GPI mode, pressing the Play button in this section has the same effect as using the GPI trigger.

External trigger using GPI

When you plug in a GPI trigger device to the rear panel GPI input, pressing the trigger plays sequentially (one at each trigger) through all the presets stored in all the preset banks.

Using Transitions

Transitions are the centerpiece of the SE-800's functionality, sort of its reason for being. (Would the SE-800 still be a mixer if it didn't do transitions? This is the sort of philosophical question that will be dealt with in volume 2 of this manual: SE-800, an Observer's Manual.)

The SE-800 can do 4 kinds of transitions: cut, fade, wipe, and zoom. The cut is a simple switch from one input source to another, and can be accomplished by selecting a source on the Main Source Bus, and then selecting a second one. One source is replaced by the next at the video output. Not flashy, not fancy, nothing to customize, but gets the job done. In fact, if you watch a film or video, paying attention to transitions, you'll see that the cut is far and away the most often used transition.

When you want a transition that is more stylish or fancy, see the next section.

Selecting a transition: Fade, Wipe, Zoom

First, some definitions:
A fade, also known as a dissolve, is a transition wherein all the pixels of one source are replaced by all the pixels of another, at a smooth rate, and at the same time.

In a wipe transition, the change from one source to another happens along a predefined edge. It is like one source is being pulled back or pushed on to the other.

A zoom transition has one source shrinking and flying off the screen, revealing the Sub Source, or vice versa.

But a picture is worth a thousand words, so...
Select a source and sub source, select Wipe, Zoom, or Fade from the buttons above, press Play and see what happens. See below for a list of transitions and variations.

Playing a transition manually
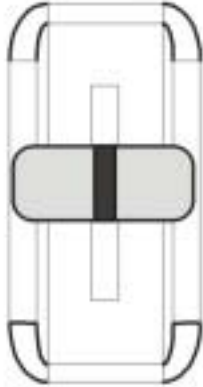
The T bar is the traditional switcher device for performing transitions manually; it can be either all the way up, all the way down, or anywhere in between. The up and down positions are relative, meaning one position is before and one position is after the transition.

The T bar performs the selected transition between the selected sources as fast as you move the T bar. And it performs as much of the transition as you want.

If no transition is selected, moving the T bar performs a fade between the selected sources.

Auto-play

The Play button automatically plays the selected transition between the selected sources. Parameters (effect variation and speed) are displayed in the windows above the Keypad. See the next section below for more information.

Using the Keypad to customize a transition

The windows at the top of this section display parameter data relating to the selected effect. The Effects window shows which variation of a particular transition is selected; the Speed window shows the speed the transition will play at, with the lowest number being the slowest speed. Each transition (Fade, Wipe, Zoom) will have different variations and/or speed possibilities. See the **List of transitions and parameters** below for all the permutations.

Values are entered into the Effects Window by pressing numbers on the key pad. Values are entered into the Speed Window by pressing the "SPD" key.

Preset Banks
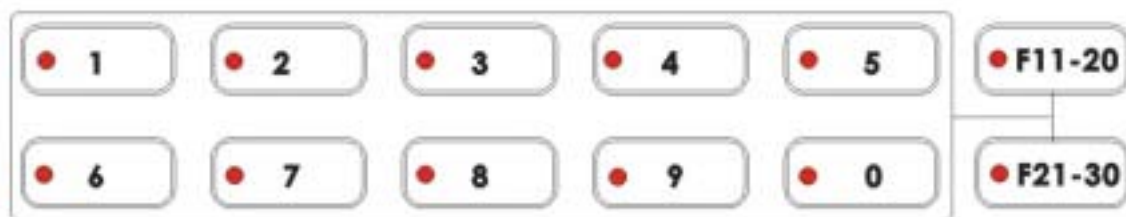
These preset banks offer 30 memory locations to store transitions or effects that will be executed at the touch of a button. 10 locations are accessed by the numbered buttons 1-0 above. Presets 11-20 are accessed by first pressing the F11-20 button until the LED on it is lit, then pressing one of the single numbered buttons. Presets 21-30 are accessed by pressing the F21-30 button, then one of the single numbered buttons.

To store a transition or effect into one of the Preset Banks, do the following:
9. Select the effect or transition.
10. Set the parameters for the effect or transition.

11. Press and hold the "ENT" key on the keypad for 1 second until the windows above the keypad read "Sto."
12. Push and hold the function button (where you wish to store the preset) for 1 second (until the button's LED is on.).
13. Press the "ENT" key again to confirm the programming.

To play back a stored transition or effect, simply press the key corresponding to the preset you want to play.

List of transitions and parameters
The numbers at left are the ones you select from the keypad.
Zoom (works in conjunction with Border controls):

1: Zoom off to upper left

2: Zoom on from upper left

3: Zoom off to upper right

4: Zoom on from upper right

5: Zoom off to lower left

6: Zoom on from lower left

7: Zoom off to lower right

8: Zoom on from lower right

9: Zoom off to center

10: Zoom on from center

Wipe (works in conjunction with Border controls except Soft):

1: Horizontal wipe, top to bottom

2: Horizontal wipe, bottom to top

3: Vertical wipe, left to right

4: Vertical wipe, right to left

5: Horizontal compress, top to bottom

6: Horizontal compress, bottom to top

7: Vertical compress, left to right

8: Vertical compress, right to left

9: Right angle wipe off, lower right to upper left

10: Right angle wipe on, upper left to lower right

11: Right angle wipe off, lower left to upper right

12: Right angle wipe on, upper right to lower left

13: Right angle reveal, upper right to lower left

14: Right angle reveal, lower left to upper right

15: Right angle reveal, upper left to lower right

16: Right angle reveal, lower right to upper left

17: Vertical wipe, left and right to middle

18: Vertical wipe, middle to left and right

19: Horizontal wipe, top and bottom to middle

20: Horizontal wipe, middle to top and bottom

21: Vertical compress, left and right to middle

22: Vertical expand, middle to left and right

23: Horizontal compress, top and bottom to middle

24: Horizontal expand, middle to top and bottom

Mode select

The default mode for the SE-800, and the one you will use most often, is Video.
In Video mode, the T bar operates as expected and as described everywhere in this
manual.

In Audio mode, the T bar switches only the audio between selected sources.
In GPI mode, transitions and effects are played by the trigger (see below).
When in GPI mode, pressing the Play button in this section has the same effect as using the GPI trigger.

External trigger using GPI

When you plug in a GPI trigger device to the rear panel GPI input, and the Mode is set to GPI, pressing the trigger plays sequentially (one at each trigger) through all the presets stored in all the preset banks.

	WIPE (WORKS IN CONJUNCTION WITH BORDER CONTROLS EXCEPT SOFT):		
1: ZOOM OFF TO UPPER LEFT	1: HORIZONTAL WIPE, TOP TO BOTTOM	9: RIGHT ANGLE WIPE OFF, LOWER RIGHT TO UPPER LEFT	17: Vertical wipe, left and right to middle
2: ZOOM ON FROM UPPER LEFT	2: HORIZONTAL WIPE, BOTTOM TO TOP	10: RIGHT ANGLE WIPE ON, UPPER LEFT TO LOWER RIGHT	18: Vertical wipe, middle to left and right
3: ZOOM OFF TO UPPER RIGHT	3: VERTICAL WIPE, LEFT TO RIGHT	11: RIGHT ANGLE WIPE OFF, LOWER LEFT TO UPPER RIGHT	19: Horizontal wipe, top and bottom to middle
4: ZOOM ON FROM UPPER RIGHT	4: VERTICAL WIPE, RIGHT TO LEFT	12: RIGHT ANGLE WIPE ON, UPPER RIGHT TO LOWER LEFT	20: Horizontal wipe, middle to top and bottom
5: HORIZONTAL COMPRESS, TOP TO BOTTOM	5: HORIZONTAL COMPRESS, TOP TO BOTTOM	13: RIGHT ANGLE REVEAL, UPPER RIGHT TO LOWER LEFT	21: Vertical compress, left and right to middle
6: ZOOM ON FROM LOWER LEFT	6: HORIZONTAL COMPRESS, BOTTOM TO TOP	14: RIGHT ANGLE REVEAL, LOWER LEFT TO UPPER RIGHT	22: Vertical expand, middle to left and right

7. ZOOM OFF TO LOWER RIGHT	7: VERTICAL COMPRESS, LEFT TO RIGHT	15: RIGHT ANGLE REVEAL, UPPER LEFT TO LOWER RIGHT	23: Horizontal compress, top and bottom to middle
8: ZOOM ON FROM LOWER RIGHT	8: VERTICAL COMPRESS, RIGHT TO LEFT	16: Right angle reveal, lower right to upper left	24: Horizontal expand, middle to top and bottom
9: ZOOM OFF TO CENTER			
10: ZOOM ON FROM CENTER			