Switchblade GL

OWNER'S MANUAL

Document OMGL0905

Sound Sculpture™

Sound Products for Sound Minds

Limited Warranty

Sound Sculpture Musical Instrument Products (Sound Sculpture) warrants this Switchblade GL to the original purchaser to be free of defects in material and workmanship under normal use for a period of 2 years from the date of purchase from an authorized Sound Sculpture dealer or directly from Sound Sculpture.

Sound Sculpture's liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, and only if the product is returned for repair directly to Sound Sculpture or to the authorized Sound Sculpture dealer from which the unit was purchased.

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In Case of Difficulty

In the unlikely event that you experience problems with the Switchblade GL, please refer to the section in this manual pertaining to the operation you are having difficulty with. Very often the difficulty is simply a result of improper setup or programming and can be resolved by studying this manual.

If, after reading this manual, you are unable to resolve the problem call Sound Sculpture at the number listed below during normal business hours. If we are unable to resolve your problem over the phone and determine that the unit needs repair, you will be given a return authorization number and further procedures for returning the unit. UNAUTHORIZED REPAIR OF THE SWITCHBLADE GL BY ANYONE OTHER THAN THE FACTORY VOIDS THE WARRANTY. NO UNITS WILL BE ACCEPTED FOR REPAIR WITHOUT FIRST CONTACTING THE FACTORY FOR A RETURN AUTHORIZATION NUMBER.

Precautions and safety notes

To reduce the risk of fire or electric shock, do not expose this unit to rain or operate this unit in a wet environment.

Hazardous voltages exist inside this unit. Always remove the AC power cord before removing the cover. Only remove the cover to access the voltage selector switch or for factory supplied upgrades. Do not attempt repairs on this unit. Refer all servicing to the factory.

This unit may be used with either 120VAC or 240VAC depending on the position of the internal AC selector switch on units manufactured after 7/20/99 or by moving soldered jumpers on units manufactured before that date**. Do not attempt to power this unit with a voltage that does not match the voltage selected on the internal voltage selector switch or jumpers.** Doing so will void the warranty if damage occurs. Contact the factory for more information about voltage selection.

If the unit becomes physically damaged due to dropping or for other reasons, it should be returned to the factory for repair to avoid the risk of fire or shock.

To avoid damage due to overheating this unit should not be exposed to, or operated in, direct sunlight for extended periods of time. **In addition, in warm environments it is suggested that adequate ventilation be provided when the unit is mounted in an effects rack such that there is generous air flow over the surfaces of the unit.**

To avoid damage due to lightning, this unit should be unplugged during an electrical storm.

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20380 Rae Road – Bend, OR 97702 - USA
(541) 318-1877 (541) 318 -8577 (fax)
info@soundsculpture.com www.soundsculpture.com

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Congratulations on your purchase of the Switchblade GL. You now own a member of the most advanced effect switching systems available. The Switchblade GL has a wealth of features and possible configurations that will take time to learn. However, to get you up and running as quickly as possible, it is strongly suggested that you take the time to run the examples shown starting on the next page. They are designed to give you an understanding of the power within the Switchblade GL and cover a number of features. The lesson includes information on how to set up the unit and program 3 presets. To learn more about the Switchblade GL, study the sections describing each menu and how to use them. If you read this entire book you will have a much better understanding of your unit.

HARDWARE SETUP ___ ***3***

CONNECTING AUDIO DEVICES ___ 3
CONNECTING MIDI DEVICES ___ 3
CONNECTING A FOOTSWITCH ___ 3
ADDITIONAL SETUP INFORMATION ___ 4

PROGRAMMING THE SETUP MENUS ___ ***4***

INPUT/OUTPUT DEFINITION MENU PROGRAMMING: ___ 4
THE CONTINUOUS CONTROLLER NUMBER MENU PROGRAMMING: ___ 5
THE INPUT CONFIGURATION MENU PROGRAMMING: ___ 5
THE PRESET SWITCH TIME MENU PROGRAMMING: ___ 5

PROGRAMMING THE PRESETS ___ ***5***

PROGRAM PRESET 1 ___ 5
NAME THE PRESET: ___ 6
PROGRAM THE PATCH AND GAIN: ___ 6
PROGRAM PRESET 2. ___ 6
PROGRAM PRESET 3. ___ 7

GENERAL INFORMATION ABOUT USING THE SWITCHBLADE ___ ***7***

CONTROLLING THE SWITCHBLADE ___ 7
THE PRESET MANAGER ___ 8
THE REMOTE ADJUST FEATURE: ___ 8
DIRECT CONTROL OF CONTROL OUTPUTS: ___ 9
USING MIDI CONTINUOUS CONTROL: ___ 9
USING THE SWITCHBLADE TO CONTROL OTHER MIDI DEVICES: ___ 9

THE MENUS ___ ***10***

THE SETUP MENU GROUP ___ ***10***

THE COPY MENU: (SETUP MENU GROUP) ___ 10
THE INPUT/OUTPUT DEFINITION MENU: (SETUP MENU GROUP) ___ 11
REMOTE REPROGRAMMING OF PRESET GAINS: (REMOTE ADJUST) ___ 11
BACKUP FUNCTIONS: (SETUP MENU GROUP) ___ 12
CONTROL OUTPUT CONFIGURATION MENU: (SETUP MENU GROUP) ___ 12
CONTINUOUS CONTROLLER ASSIGNMENT: (SETUP MENU GROUP) ___ 13
INPUT CONFIGURATION MENU (SETUP MENU GROUP) ___ 13
PRESET SWITCH TIME MENU: (SETUP MENU GROUP) ___ 13

THE PRESET MENU GROUP ___ ***13***

PRESET NAME MENU: (PRESET PROGRAMMING GROUP) ___ 14
THE PATCHING AND GAIN MENU: (PRESET PROGRAMMING GROUP) ___ 14
REVIEW MENU: ___ 15
THE MIDI OUT MENU: (PRESET PROGRAMMING GROUP) ___ 15
THE VU METER MENU (PRESET PROGRAMMING GROUP): ___ 15
THE CONTROL OUTPUT MENU: (PRESET PROGRAMMING GROUP) ___ 15
THE AUTOSWEEP PARAMETERS MENU: (PRESET PROGRAMMING GROUP) ___ 16

PRESET MANAGER MENU GROUP ___ ***16***

SEQUENCER CONTROL (STUDIO AUTOMATION) ___ ***18***

ADDITIONAL HINTS ___ ***21***

QUESTIONS AND ANSWERS ___ ***21***

HARDWARE SETUP

CONNECTING AUDIO DEVICES

1. The Switchblade GL inputs and outputs are balanced 1/4" TRS jacks but may be connected to both balanced or unbalanced equipment at standard guitar levels (-10dBv). In addition you may turn on an input trim for each input individually, under menu control, which will add an additional 6dB of headroom at the input to allow connection of higher level equipment without overloading the input stage. The outputs are of servo design and therefore may be connected to balanced devices (using TRS style plugs) as well as unbalanced devices (using TS plugs) without damage to the unit.

2. The input configuration (regular level (-10dBv nominal) or hi level (-4dBv nominal)) may be selected using the INPUT CONFIGURATION MENU to match your equipment to each input. Refer the Input Configuration Menu section for details of this menu. To determine the proper state to use with your equipment use the following guide:

If you are attaching a piece of gear that operates at a higher pro level **and the device does not have an output level control**, then set the input to the 6dB attenuation mode, identified by CUT in the menu. In most cases pro level gear has level controls so this configuration will rarely be used.

For all other gear including stomp boxes, and both balanced and unbalanced rack gear, set the input to NOR (normal) in the configuration menu. This includes the input for your instrument as well unless you have an instrument that puts out a very high level.

3. When plugging signal processing equipment into the Switchblade, use adjacent inputs and outputs for simplicity. For example, for a stereo processor, plug both inputs into OUT 3 and 4 and both outputs into IN 3 and 4.

4. Set the input levels and output levels on your effects that have such controls to the mid points or set them so the input to output signal ratio is approximately unity gain to start. The input and output levels of the devices will be tweaked later using the built in VU meter to get the best level match.

CONNECTING MIDI DEVICES

1. If you are using a MIDI foot controller to select presets on the Switchblade GL then plug the controller's MIDI OUT into the Switchblade's MIDI IN.

2. Set the MIDI controller to the same MIDI channel as the Switchblade. The Switchblade is factory set to MIDI channel 1. If you wish to use another channel refer to the INPUT/OUTPUT DEFINITION MENU section for details on how to check or change the Switchblade channel.

3. If you are using a MIDI continuous controller, plug the MIDI OUT from the continuous controller to the MIDI IN of the MIDI foot controller. Set the MIDI channel of the continuous controller to the same channel as the Switchblade and foot controller. In addition, the continuous controller has a second parameter that must be set. This is the MIDI Control Change number. Set this to number 7 if you are using the factory setting. Refer to the owners manual that came with your pedal to determine how to do this. Refer to the CONTINUOUS CONTROLLER ASSIGNMENT MENU for more information.

4. If you are using a second continuous controller, plug the MIDI OUT from this controller to the MIDI IN of the first continuous controller. Set this pedals Control Change number to 0 if you are using the factory settings. This controller will also be set to the same MIDI channel as the other controllers.

5. If you are using MIDI effects, connect a MIDI cable from the MIDI OUT on the Switchblade to the MIDI IN of the effect. Connect additional cables as necessary from the MIDI THRU of the effect to the MIDI IN of the next effect until all MIDI effects are strung together. In addition, set each MIDI effect to its own MIDI channel starting with MIDI channel 2, For example set the first effect to MIDI channel 2, next effect to MIDI channel 3 and so on. If you have more than 2 or 3 devices to connect, it is suggested you use a MIDI IN to multiple MIDI OUT expander as each MIDI device in a chain deteriorates MIDI signals and will cause errors if too many devices are chained in series (See Q & A section).

CONNECTING A FOOTSWITCH

IF USING A MOMENTARY (MECHANICAL STYLE) FOOTSWITCH TO SELECT PRESETS, FOLLOW THIS SECTION. YOU WILL NEED TO PROGRAM THE "PRESET MANAGER" DESCRIBED IN THE PRESET MANAGER PROGRAMMING MENU SECTION.

1. Plug a single (mono 1/4" plug) or dual (stereo 1/4" plug) into the "FOOT" jack on the back panel. Be sure the switch is a momentary type and not a push on/push off type.

NOTE: THE SWITCHBLADE AUTOMATICALLY DETECTS THE KIND OF FOOTSWITCH USED DURING POWER UP, SO THE FOOTSWITCH MUST BE PLUGGED IN BEFORE THE UNIT IS POWERED UP.

ADDITIONAL SETUP INFORMATION

1. If possible, plug all effect power cords, amp power cords and Switchblade power cord into a single power strip to avoid ground loop problems. In addition, all power cords attached to the power strip should be bunched together and tie wrapped, and kept away from the audio cables. Also all audio cables should be neatly bunched together and should be only as long as necessary to reach the effects. USE HIGH QUALITY AUDIO CABLES WITH GOOD SHIELDING FOR LOWEST NOISE.

2. Turn everything on. **NOTE:** IT IS SUGGESTED THAT YOUR AMPLIFIERS BE KEPT AT A LOW LEVEL DURING PROGRAMMING SINCE MIXING EFFECTS CAN CAUSE UNEXPECTED VOLUME BUILDUP. (I.E. GET LOUD!)

PROGRAMMING THE SETUP MENUS

NOTE: THE SETUP MENUS MUST BE PROGRAMMED BEFORE PROGRAMMING ANY PRESETS AS MANY OF THE PRESET MENUS DEPEND ON THE SETUP INFORMATION.

1. The green "PLAY" indicator should be on. If it is not, press the MODE switch until it is. This is PLAY MODE, used during ordinary operation.

2. Press the MODE switch once to enter the PROGRAMMING GROUP SELECTION MENU. Press the SELECT switch so the cursor (underscore) is under the word "SETUP". Press the MODE switch TWICE to skip over the "COPY" menu and to move directly to the Input/Output Definition (I/O DEF) Menu.

INPUT/OUTPUT DEFINITION MENU PROGRAMMING:

This menu is used to assign names to all devices connected to the audio inputs and outputs on the Switchblade, to assign MIDI channels to all the MIDI effects connected to the Switchblade, to assign a MIDI channel to the Switchblade and to set up the REMOTE ADJUSTMENT feature.

1. Press the SELECT switch to select the IN XX area. The "XX" number represents the IN jack number on the back panel. Use the DOWN or UP/DOIT switch to scroll to an IN number that you have a device connected to. You must now name this device (i.e. GUITAR, PREAMP, EQ LEFT, etc.).

NOTE: IF USING STEREO EFFECT DEVICES, GIVE EACH OF THE 2 RETURNS FROM THE STEREO EFFECT A DIFFERENT NAME, SUCH AS "EQ LEFT" AND "EQ RIGHT". THE INPUT TO THE EFFECT CAN BE GIVEN A THIRD NAME SUCH AS "EQUALIZR" WHEN PROGRAMMING THE "OUT" JACK DESCRIBED BELOW (OR "EQ LEFT" AND "EQ RIGHT" AGAIN IF THE DEVICE HAS STEREO INPUTS).

Press the SELECT switch to move the cursor to the lower left display corner where the name will start. Press the DOWN or UP/DOIT switch to select characters and the SELECT switch to move to the next character.

3. When done naming this device, repeat steps 1 and 2 again to name all the inputs you have something connected to.

4. After all inputs are named, the display will change to OUT XX where IN XX used to be. Proceed with naming all outputs. (AMP LEFT, PREAMP, etc.). Notice that an additional section "CHXX" or "NOCH" is displayed whenever the OUT XX is displayed. Use this area to select a MIDI channel for the effect with the same name.

In the lower right corner of the display is the REMADJ-> OFF/ON selection. This feature is used for balancing preset levels after everything has been programmed, and can be ignored for now.

NOTE: BE SURE THAT THE MIDI CHANNEL NUMBER YOU SELECT HERE IS THE SAME CHANNEL THAT THE EFFECT IS REALLY ASSIGNED TO. (SEE “CONNECTING MIDI DEVICES ABOVE).

IF A MIDI FOOT CONTROLLER OR CONTINUOUS CONTROLLER IS ATTACHED TO THE SWITCHBLADE: PERFORM STEP 5 BELOW.

5. When done naming all OUT XX jacks, scroll past OUT 16. The effect name area will change to "SWBLADE" and the OUT XX area will change to blanks. Select MIDI channel 1 for the Switchblade for this setup if it is not already set. Of course you may set the Switchblade and controller to other channels, just be sure none of your MIDI effects are set to the same channel.

IF YOU ARE USING A MIDI CONTINUOUS CONTROLLER THEN FOLLOW STEP 6.

THE CONTINUOUS CONTROLLER NUMBER MENU PROGRAMMING:

6. Press the MODE switch TWICE to move to the "CONTROLLER" menu. Press the UP or DOWN switch so the display shows a "down" arrow. Press the SELECT switch so the cursor moves to the bottom row. Press the UP or DOWN switch until the number "007" appears. This number matches the Control Change Number that you set your continuous controller to as suggested earlier. If you have a second continuous controller attached select the “up” arrow and assign a value of 000 to it as suggested earlier.

THE INPUT CONFIGURATION MENU PROGRAMMING:

1. Press the Mode switch until the "INPUT CONFIGURATION" menu is displayed. This menu is used to configure each input to either NOR (normal mode) or CUT (6dB attenuate) configuration. The input should always be set to NOR unless you have a piece of gear connected that has no level controls and puts out a high signal level which might overload the input to the Switchblade. Refer to “CONNECTING AUDIO DEVICES” above to determine the type of equipment you have connected to each input.

2. Press the UP/DOIT or DOWN switch to select the input number that needs to be configured.

3. Press the SELECT switch to move the cursor under the “STATE” area and press the UP/DOIT or DOWN switch to select either NOR or CUT.

4. Repeat steps 2 and 3 for each of the 16 inputs.

THE PRESET SWITCH TIME MENU PROGRAMMING:

1. Press the MODE switch until you get to the "PRESET SWITCH TIME" menu.

2. Press the UP/DOIT switch to change the time to 100 MS. This time is a good compromise between fast switching and smooth preset changes. If you need faster switching time, use 0ms.

3. Press the MODE switch to return back to the PLAY mode. (The green PLAY indicator will illuminate.)

PROGRAMMING THE PRESETS

FOR THIS EXAMPLE, 3 PRESETS WILL BE PROGRAMMED AS FOLLOWS:

PRESET 1 - Single effect (distortion) between instrument and amplifier.
PRESET 2 - Two effects (distortion and delay) mixed in parallel
PRESET 3 - Distortion and direct(bypass) mixed in parallel with continuous control setup to sweep between full clean and full distortion sound.

PROGRAM PRESET 1

Preset 1 will connect a single effect (distortion) between the instrument and the amp. To program this preset, proceed with the following steps.

1. While still in PLAY mode, select preset 1 using the UP/DOIT or DOWN switch while the cursor is under the preset number.

2. Press the MODE switch once to enter the Programming Group Selection Menu. Notice the cursor is already under PRST, ready to enter the preset programming menus. Press the MODE switch again to move to the Preset Naming Menu.

NAME THE PRESET:

1. To clear out the name that may already be displayed for this preset, press the DOWN and UP/DOIT switch together. All characters will be cleared out. Use the SELECT switch and the DOWN and UP/DOIT switch to name this preset "DISTORTION".

PROGRAM THE PATCH AND GAIN:

1. Press the MODE switch to move to the Patching And Gain Menu to connect the patches and adjust the gain levels.

2. If you wish to clear out the entire matrix to start with a "clean" slate, press the DOWN and UP/DOIT switch together. All input to output connections will be removed and all gains will be changed to "OFF". If programming for the first time, the matrix will already be clear.

3. The cursor should be located in the upper left of the display. This is the "SOURCE" area and lists all of the signals presently connected to the IN jacks of the Switchblade. Press the DOWN or UP/DOIT switch until the name of your instrument is showing (i.e. "GUITAR" or "KEYBOARD" etc.). These are the names that you created while in the Setup Menus.

4. Press the SELECT switch so the cursor moves to the upper right side of the display. This is the "DESTINATION" area. Press the DOWN or UP/DOIT switch until the name of your distortion appears (i.e. DISTORT"). This source- destination combination represents a particular patch you wish to connect and apply gain to.

5. Press the SELECT switch so the cursor moves to the lower left side of the display. This is the "GAIN" area (or "START GAIN" area if doing continuous control). Press the DOWN or UP/DOIT switch to change the gain to "0 dB" of the display. This is the gain from the instrument to the input of the distortion effect.

6. Press the SELECT switch again, notice that a second gain number appears on the lower right side. This gain normally tracks the value set in the first gain and can be ignored if you are not setting any continuous control gains. For now just press the SELECT switch one more time to get back to the "SOURCE" area.

7. Now you need to connect the output of the distortion to the amplifier and set its gain as well. To do this, repeat steps 6-8 again, but select "DISTORT" as the source and "AMP" as the destination. Set the gain to 0dB again. The connections you have just made can be summarized in a chart as shown here:

SOURCE	DESTINATION	GAIN
instrument	distortion	0dB
distortion	amplifier	0dB

You can now play your instrument while still in this menu to hear the result of the patch.

REVIEWING THE PATCHES. You can review the patches you just created very easily by **pressing and holding** the SELECT switch while in the patch menu. The display will show the word **REVIEW**. You can now use the UP DOWN switch to scroll through the connections you have made (in this case 2 connections). **This menu is invaluable for double checking your patches after programming or for checking patches in an unknown preset.** To get back to the patch menu simply press the SELECT switch once. Notice that you will return to the same place in the PATCH menu as you were at in the REVIEW menu allowing fast editing if you need to make changes while reviewing. THE MODE SWITCH WILL NOT OPERATE WHILE IN THE REVIEW MENU. Pressing the SELECT switch is the only way to exit the REVIEW menu.

PROGRAM PRESET 2.

1. While in PLAY mode select preset 2 using the UP/DOIT switch. Repeat the above steps to program this preset with the following changes:

2. In the Name Menu, give this preset a different name, such as "DIST + DELAY".

3. In the Patch And Gain Menu, use the SELECT switch and the DOWN or UP/DOIT switches to first select the "source" and "destination" shown in the chart below and to adjust the gains for each of these paths.

SOURCE	DESTINATION	GAIN
instrument	distortion	0dB
instrument	delay	0dB
distortion	amplifier	0dB
delay	amplifier	-12dB

Notice that "0dB" is used a lot as a convenient starting point when making connections between effects or other devices. This keeps everything at unity gain throughout the effect network to avoid an unnecessary cut of signal level. After the basic patch is created then the gains can be "tweaked" to get the best tonal response out of preamps and overdrives and to balance the levels between effects.

4. Press the MODE switch several times to get back to the PLAY MODE.

PROGRAM PRESET 3.

This preset is different from the other 2 presets in that the continuous control feature of the Switchblade will be used to gradually change the path of the signal from a direct signal to a signal going through the distortion. With this preset you may use a MIDI continuous controller to change the sound from a direct clean sound to a full distortion sound depending on the position of the continuous controller. IF YOU ARE NOT USING A CONTINUOUS CONTROLLER THEN YOU MAY SKIP THIS EXAMPLE.

1. Name the preset as described above as "SWEEP DIST" or some other appropriate name.

2. Follow the chart below to program the patch. Notice that in this chart there are two gain areas called START GAIN and END GAIN. These 2 gains represent the extremes of the continuous controller. When the controller is all the way up then the START GAIN is the gain that is set in the paths. When the controller is all the way down then the STOP GAIN is the gain that is set. If the controller is set to a mid point then the gain is somewhere between the START GAIN and the END GAIN. Whenever the END GAIN is set to a different value than the START GAIN, it remains on the display even after the cursor is moved to another location. In addition, when the cursor is moved from the STOP gain area it goes to a 5th position. This 5th position is used to select which of the 2 controllers will be assigned to this particular patch. The 2 controllers are the "up" controller and the "down" controller. For these examples, you are only using the "down" controller, so select the downward arrow.

SOURCE	DEST	START GAIN	END GAIN	CONTROLLER
instrument	distortion	0dB	"blank"	----
distortion	amp	OFF	0dB	"down"
instrument	amp	0dB	OFF	"down"

3. You can test the sound of the continuous control while still in this menu by moving the continuous controller pedal. Notice the "down" arrow position changes when you move the pedal.

THIS CONCLUDES THE EXAMPLES SECTION. TO FIND OUT MORE ABOUT PLAY MODE, THE OTHER MENUS, AND FOR A QUICK GUIDE ON HOW TO USE THEM, READ ON.

GENERAL INFORMATION ABOUT USING THE SWITCHBLADE

CONTROLLING THE SWITCHBLADE

The Switchblade can be controlled using any or all of the following:

1. **Front Panel** controls on the Switchblade allow the user to scroll through menus using the MODE switch, choose items within menus using the SELECT switch, and change selected items using the UP/DOIT or DOWN switches. In addition, presets may be scrolled through by pressing the UP or DOWN switches while in play mode with the cursor under the preset number or may be randomly selected using the PRESET MANAGER (see below).

2. **Footswitch** control is available by attaching a single or dual momentary footswitch to the “foot” jack on the back panel and the type of footswitch used (momentary on or momentary off) is automatically detected during “power up”. Using this feature the user can scroll through presets or banks of presets, and can also use it with the SWEEP function (see the Autosweep Parameters menu) to “fire” sweeps using the presets.

3. **MIDI** control is probably the most common method of control and gives the Switchblade user an array of options. A MIDI controller can be used to select presets, a MIDI continuous controller can be used for continuous control within presets, and presets on MIDI devices attached to the Switchblade can be selected using the Switchblades ability to transmit Program Change commands when presets on the Switchblade are selected.

4. **Computer** control (i.e. Studio Automation) is probably the most advanced method of controlling the Switchblade GL. Using the MIDI System Exclusive format, the user can create and remove patches and assign Controller values to patches. Graphic faders available with many sequencer packages can then be used to vary the gains of individual or group patches.

THE PRESET MANAGER

The Preset Manager is a preset storage area consisting of 20 banks with 10 empty locations call "items" in each bank. Any number of presets - up to a maximum of 10 - can be loaded into a bank, in any order. Even the same preset can be loaded into different areas in the bank. For example, a bank might have preset 12, 27, 12 and 50 loaded in that order. A second bank might only have 2 presets loaded, such as 22, and 33.

The Preset Manager is used to take advantage of the "foot" jack on the back panel of the Switchblade. This jack accepts a single or dual momentary mechanical type footswitch. If a single switch is used, then each time the switch is pressed, the "item" location increments by one. When the last preset in the bank is reached, the first item in the bank is loaded again next time the switch is pressed. For example, if only 2 presets are loaded into a bank, each preset will be alternately loaded each time the switch is pressed.

If a dual footswitch is used, then the second switch will increment to the next bank. Only those banks that have presets loaded into them are called up.

The preset manager can be used simultaneously with a MIDI controller. The MIDI controller will always bypass the preset manager and call presets up directly, The footswitch on the other hand always goes through the preset manager to find the presets to load.

For more information on how to use the Preset Manager see the Preset Manager Menu in the Programming Group.

THE REMOTE ADJUST FEATURE:

This feature allows the user to re-program the levels of certain selected outputs of the current preset while in “PLAY” mode using a simple footswitch. It allows you to match the overall levels between presets without having to re-program each preset using the programming mode. These adjustments are permanently written into the user memory and are therefore retained even after power down. When used as recommended, this feature will not change the “mix” of the preset, but rather only its final output level with respect to other presets.

1. With power removed from the Switchblade, plug a dual momentary footswitch into the stereo footswitch jack on the back panel and power up again. **NOTE:** THE FOOTSWITCH MUST BE PLUGGED IN BEFORE POWERING UP THE SWITCHBLADE AS IT AUTOMATICALLY DETECTS THE FOOTSWITCH TYPE ON POWER UP.

2. Using a setup menu, the user tells the Switchblade which outputs are connected as final outputs. For a single amp setup only one would be picked; for a 2 amplifier setup, 2 outputs would be selected, and so on (see Remote Adjust Setup). Presets are programmed as usual, and the Preset Manager is turned off.

3. While in “play” mode, the user scrolls through the presets using either a MIDI footpedal or the front panel and compares output levels of each preset with respect to other presets. The user then selects a preset that sounds louder or softer than the others.

4. The level of the chosen outputs is increased or decreased by pressing on the momentary footswitch. The footswitch connected to the “tip” of the footswitch jack will increase the level while the one connected to the “ring” will decrease the level. Each time the footswitch is pressed, the level changes by 3dB.

NOTE: SINCE THIS FEATURE PERMANENTLY RE-PROGRAMS THE CURRENT PRESET, IT SHOULD BE USED ONLY TO FINE TUNE OVERALL LEVELS BETWEEN PRESETS AS PART OF THE PRESET PROGRAMMING PROCESS AND SHOULD NOT BE USED TO ARBITRARILY CHANGE LEVELS DURING A PERFORMANCE; THE CONTINUOUS CONTROL FEATURE SHOULD BE USED INSTEAD.

For more information on Remote Adjust, please see the (REMOTE ADJUST) section.

DIRECT CONTROL OF CONTROL OUTPUTS:

The Switchblade GL has 4 jacks on the back panel that are each connected to relays that may be switched on or off under preset control. These 4 outputs are used to simulate mechanical footswitches that are used to turn on or off the overdrive and reverb channels of amplifiers or to control effects devices that have a footswitch input. Each preset can be programmed to set the state of the relays and the relays will respond as the presets change.

Under special circumstances it may be desirable to turn on or off a control output directly without changing a preset. This can be done using MIDI Control Change commands for use where “Instant Access” switches are used. When a new preset is selected, the preset will once again set the states of the relays. The values are shown here.

RELAY	STATE	CONTROL CHANGE NUMBER	CONTROL CHANGE VALUE
1	OFF	113	0
1	ON	113	127
2	OFF	114	0
2	ON	114	127
3	OFF	115	0
3	ON	115	127
4	OFF	116	0
4	ON	116	127

USING MIDI CONTINUOUS CONTROL:

1. Be sure all channels are programmed correctly using your SETUP menu. Be sure your MIDI controller and continuous controller are set to the same channel.

2. The Switchblade can respond to two separate continuous controllers. Using your CONTINUOUS CONTROLLER ASSIGNMENT (SETUP MENU GROUP), be sure to assign the UP or DOWN switch to the corresponding controller. Also be sure to set the controller number to the appropriate controller to assure ease in controlling patches.

3. Use the PATCHING AND GAIN MENU (PRESET PROGRAMMING GROUP) to set the gain ranges if the patch is to have continuous control and, if using two controllers, to determine which controller it will be assigned to.

Note: TO ASSIGN A PATCH TO THE INTERNAL AUTOSWEEP, THE PATCH MUST BE ASSIGNED TO THE "UP" CONTROLLER, IF A PATCH IS ASSIGNED TO THE "UP" CONTROLLER, IT IS SWEPT BY THE AUTOSWEEP CIRCUIT IF THE AUTOSWEEP IS TURNED ON (AUTOSWEEP PARAMETERS MENU IN THE PRESET GROUP). IF THE AUTOSWEEP IS TURNED OFF THEN THE "UP" PATCH IS CONTROLLED BY THE EXTERNAL CONTROLLER INSTEAD.

For example, if you want a preset to be swept both by an external controller and by the autosweep circuit, assign the patches to be swept by the autosweep circuit to the "up" symbol and the patches to be controlled by the external controller to the "down" symbol and then turn on the autosweep. Likewise, if you want the preset to be controlled by 2 external controllers, then do the same thing only shut the autosweep (for this preset) off.

With everything hooked up correctly, you should now be able to go into play mode and have continuous control over selected patches with a controller indication coming up on the digital readout.

For more information on continuous control, please see the CONTINUOUS CONTROLLER ASSIGNMENT MENU (SETUP MENU GROUP).

USING THE SWITCHBLADE TO CONTROL OTHER MIDI DEVICES:

The Switchblade can be used to transmit a burst of Program Change Commands over separate channels to select presets on MIDI devices connected to the Switchblade. This is useful if you have a MIDI foot controller that is only capable of transmitting a single Program Change Command or if you are not using a MIDI foot controller but just using the Preset Manager (footswitch) or using the front panel to select presets. To use this feature:

Use the MIDI OUT MENU to create a burst of one or more program change commands to be sent over the MIDI OUT port to change the presets on MIDI devices connected to the Switchblade. Whenever this preset is selected from PLAY MODE, this burst will be sent to the effects on their corresponding channels.

1. Be sure that one or more channel numbers were properly assigned to effect names using the INPUT/OUTPUT DEVICE MENU IN THE SETUP GROUP.

2. Clear all preloaded changes and assign the program change numbers to effects using the MIDI OUT MENU (PRESET PROGRAMMING GROUP). **Note:** ONLY THOSE EFFECTS THAT WERE GIVEN CHANNEL NUMBERS WILL SHOW UP IN THE EFFECT NAME AREA.

Now whenever a preset on the Switchblade is selected, all attached MIDI devices will go to their appropriate presets.

For more information on the programming change commands, see THE MIDI OUT MENU (PRESET PROGRAMMING GROUP).

IMPORTANT NOTE: Firmware revisions lower than 6.21 always re-transmits a program number when moving from preset to preset even if the program number is the same between presets. For firmware version 6.21 the Switchblade WILL NOT re-transmit a Program Change command if it just came from a preset that was programmed to transmit the same program number. This is to prevent a MIDI device from having to re-load it's program unnecessarily if the same program number in the device is selected when going from Switchblade preset to Switchblade preset. There is a potential issue with this method in that if the Switchblade is first powered up before your connected MIDI devices, or if you manually change the program number on your MIDI device from it's front panel, the Switchblade may not re-transmit the program when you change Switchblade presets. To avoid this problem, always have your MIDI devices powered up and ready to receive MIDI commands before powering up the Switchblade and do not manually change the programs on your MIDI devices. Or, if you do, just go to a "reserve" preset on the Switchblade that is programmed with a program burst that forces all your devices to go to a preset you never use, then jump back to the Switchblade preset you want to play through. This will force the Switchblade to transmit the new Program Change numbers since they differ from the "reserve" preset. For users with the Smart Insert feature (revisions greater than 6.21) this re-transmit feature is user selectable from the re-transmit menu.

THE MENUS

If the MODE switch is pressed from the PLAY MODE, the Programming Group Selection Menu is displayed showing the names of the 3 programming groups. These are the Preset Programming Group (PRSET), the Setup Programming Group (SETUP) and the Preset Manager Menu (PRSTMNGR). Use the SELECT switch to choose the desired group and then press the MODE switch to move to the first menu in that group. Use the MODE switch to move from menu to menu. The next part describes the SETUP group.

THE SETUP MENU GROUP

THE COPY MENU: (SETUP MENU GROUP)

The first menu in the Setup Menu Group is the Copy Menu. Use this menu to copy an entire preset to any other preset location. Everything in the preset is copied over, including the name, the patches and gain settings, MIDI output burst, control output states, and the autosweep parameters.

NOTE: COPYING TO ANOTHER PRESET WILL ERASE THAT PRESET'S OLD INFORMATION.

To use this menu:

1. Use the SELECT switch to move the cursor under the preset name on the top row of the display. This is the source preset. Press DOWN or UP/DOIT to find the preset you wish to copy from.

2. Press SELECT to move the cursor to the number on the bottom row. This is the destination preset number. Again use the DOWN or UP/DOIT switch to select the preset number that you wish to copy to.

3. Press SELECT to move the cursor under the DOIT area. Press the UP/DOIT switch to perform the copy operation. A "WAIT" message is displayed while the copy is in progress.

THE INPUT/OUTPUT DEFINITION MENU: (SETUP MENU GROUP)

This menu is used to create names for all devices connected to the IN and OUT ports on the back panel. In addition, if a device is a MIDI controlled device, this menu is used to assign a MIDI channel to that device, and assign a MIDI channel to the Switchblade itself. This menu is also used to assign particular outputs for the REMOTE ADJUST feature used to balance levels between presets. (see REMOTE REPROGRAMMING OF PRESET GAINS below.

To use this menu:

1. Use the SELECT switch to move the cursor under the IN 01 number. Determine which IN jack on the back panel the first device is connected to and use the UP/DOIT switch to scroll to that number. For example, if a guitar is connected to IN 1 then IN 01 should be showing on the display.

2. Press the SELECT switch to move the cursor to the lower left corner of the display and use the DOWN or UP/DOIT switch and the SELECT switch to create a name for the device attached to this particular IN number (such as "GUITAR").

3. Repeat steps 1 and 2 to name all devices connected to the IN jacks. If you are using stereo effects then name each output from the effect a different name such as "EQ LEFT" and "EQ RIGHT".

4. When all IN jacks have been assigned, then begin naming each OUT jack the same way. The "IN xx" label will change to "OUT 01" if the UP/DOIT SWITCH is used to scroll past "IN 16". For 1-in, 2-out stereo effects, the input to the effect can be given a different name than the outputs. For example, the 2 outputs of the EQ device might be named "EQ LEFT" and "EQ RIGHT" but the input might just be named "EQ". If the device has 2 inputs and 2 outputs you may give the left in and out the same "EQ LEFT" name and the same for the right in and out.

5. In addition to giving a name to each used OUT jack, if any MIDI devices are connected to the Switchblade you can assign a MIDI channel for this device as well. To do this, be sure the name of the MIDI device is showing (such as "EQ". Move the cursor under the NOCH (no channel) label and press UP/DOIT to scroll to the desired channel number for this effect. BE SURE THAT THE EFFECT ITSELF IS SET TO RECEIVE MIDI INFORMATION ON THE SAME CHANNEL THAT YOU ASSIGN HERE. The Switchblade automatically determines if a channel has already been used for another device and will only display the available channels.

6. Furthermore, if you are controlling the Switchblade from either a MIDI controller or MIDI continuous controller then the Switchblade also has to be assigned a channel on which to respond. To do this, use the UP/DOIT switch to scroll past "OUT 16". The OUT 16 label will change to "-----" and the word "SWBLADE" will appear as the effect name. Move the cursor under the channel area and scroll to the desired channel using the DOWN or UP/DOIT switch. If some channels have already been used for other devices then you will not be allowed to set the Switchblade to the channels that have already been used.

REMOTE REPROGRAMMING OF PRESET GAINS: (REMOTE ADJUST)

How to use the Remote Adjust feature:

1. Press the MODE switch once to get the Programming group selection menu and this time move the cursor under “SETUP”. Press the MODE switch twice to get to the “I/O DEF” menu.

2. With the cursor under “IN 01”, press the UP switch until “OUT 01” appears. “REMADJ->“ (remote adjustment) will appear to show if this output is a selected output. If “ON” is displayed then this output will be adjusted, otherwise it won’t. Press SELECT until the cursor is under this area and press the UP or DOWN switch to select or deselect this output. Only select those outputs that are the final outputs (i.e. go to amplifiers). Go through all 16 outputs and turn them on or off as appropriate.

3. When done with all 16 “OUT” numbers, press the MODE switch to get back to the “PLAY” mode.

4. You are now ready to adjust the levels. Select a preset using the MIDI footswitch or front panel controls. If the level is too high or too low, adjust it by stepping on the footswitch. Repeat for all presets that need adjusting.

5. When finished, turn the Preset Manager back on so accidental re-programming doesn’t occur.

The remote Adjust routine has a special “self limiting” feature built in that prevents the “mix” of several connections going to the final output from changing with respect to each other. In other words, if 3 connections go to the output and the gains of each connection are -12dB, -6dB, and -3dB, then the output can be increased until the connection with the highest gain (-3dB)

reaches the highest possible gain (0dB). At that point further increases are ignored since the mix would then begin to change. Likewise, the output can be decreased until the connection with the lowest gain (-9dB) reaches the lowest possible gain
(-48dB). This self limiting action insures that regardless of how far an output is adjusted, it can always be returned to the original program just by stepping on the opposite switch.

The Remote Adjust routine does not change any connections that are programmed with continuous control (i.e. a connection that has both a “start” gain and an “end” gain), even if the connection is connected to a “selected” output.

If any backup dumps have been performed with an older version PROM, each dump will have to be loaded, adjusted and resaved again since the “REMADJ->“ area in the saved files will be in a random state. The procedure for doing this is as follows. 1. Load the switchblade with the saved file using the BACKUP FUNCTIONS menu. 2. Go into the I/O DEF menu and change the state of the REMADJ-> area for all 16 “OUT” numbers. Resave the adjusted file and verify. Perform this procedure for all backup files.

BACKUP FUNCTIONS: (SETUP MENU GROUP)

This menu is used to save all preset, setup, and preset manager programs to either a standalone sequencer, a sys-ex dump device, or a computer based sequencer. To use this menu:

1. Be sure that a MIDI cable is connected from the MIDI OUT on the Switchblade to the MIDI in on the sequencer, and another from the MIDI IN on the Switchblade to the MIDI OUT on the sequencer. Set the sequencer filters to transmit and receive SYSTEM EXCLUSIVE (SYS-EX) information. All other filters (POLY, PITCH, NOTES etc) can be set to off. Set the internal clock active on the sequencer and the tempo to maximum. Turn off the lead in function. If the length is not automatic, set the length to 20 measures or so.

2. To save all preset data, move the cursor under "SAVE", start the sequencer to record, and press UP/DOIT. NOTE: BE SURE TO START THE SEQUENCER RECORDING BEFORE PRESSING UP/DOIT.

3. After the SAVE IN PROGRESS message goes back to BACKUP FUNCTIONS (about 10 seconds), then you will want to verify the information for and reset the sequencer to the first measure. Press the UP/DOIT switch so the message VERIFY IN PROGRESS is displayed, then press the play button on the sequencer. NOTE: BE SURE TO START THE SEQUENCER PLAYBACK AFTER THE UP/DOIT SWITCH IS PRESSED. If the verify is successful the display will go back to BACKUP FUNCTIONS. If it was not successful then an error message will be displayed.

4. To restore program information from a sequencer to the Switchblade, select "RESTORE". Reset the sequencer to the first measure. Press the UP/DOIT switch so the message "LOAD IN PROGRESS" is displayed, then press the play button on the sequencer. NOTE: BE SURE TO PRESS THE UP/DOIT BEFORE STARTING THE SEQUENCER. When the load is complete, the display will return to "BACKUP FUNCTIONS". If an error occurred during load an error message will be displayed.

CONTROL OUTPUT CONFIGURATION MENU: (SETUP MENU GROUP)

The control output ports on the back of the switchblade are connected to 4 relays through 4 jacks. These ports can be used to take the place of either the push on/push off types of switches or a momentary push on/release off type of switch that normally connect to most amplifiers and some effect devices that have a "footswitch" input. The Switchblade control ports can be configured as either type of switch through this menu. In most cases, amplifiers like to see a "steady state" type of control signal such as on or off. This is identified as an "S" in this menu. Some effect devices and amplifiers prefer to see a "pulse" on the line, which would be similar to a momentary switch. This is identified as a "P" in this menu.

To use this menu:

1. First move the cursor under the number of the control output you want to configure. I.e. "1" is for control output #1 and so on.
2. To configure a control output to look like a "push on/push off" type of switch, press the UP/DOIT switch so the selected output number changes to the letter "S" for "Steady state".

3. To configure a control output to look like a momentary "push on/release off" type of switch, press the UP/DOIT switch so the selected output number changes to the letter "P" for "Pulse".

NOTICE THAT THIS MENU ONLY CONFIGURES THE CONTROL PORTS TO THE TYPE OF SWITCH YOU WANT TO SIMULATE BUT DOES NOT ACTIVATE THEM. THE ACTIVATION OR DEACTIVATION OF THESE OUTPUTS IS DONE DURING PRESET PROGRAMMING.

CONTINUOUS CONTROLLER ASSIGNMENT: (SETUP MENU GROUP)

The Switchblade can respond to 2 separate continuous controllers. In order for the Switchblade to identify which controller is which, each controller must be set to its own "identifying" number. This number is technically called the "Controller Number". Since both controllers are transmitting over the same MIDI channel, this is how the Switchblade knows which controller is sending data. This menu is used to set the 2 Controller Numbers that have been programmed into the continuous controllers themselves and to assign symbols to these controllers. By assigning symbols to the controllers, the process of assigning a particular patch to a particular controller is simplified during preset programming. In addition, these symbols show up during play mode to show the user which controller is being swept.

To set the controller numbers:

1. Press the UP or DOWN switch to select the desired symbol. (either up or down). If you are only using one continuous controller it is recommended that you select the down arrow, as the up arrow can also be used by the autosweep and is explained in the AUTOSWEEP PARAMETERS MENU section.

2. Press SELECT to move the cursor, and press UP or DOWN to select the controller number to be assigned to this symbol. This controller number must match the controller number that was programmed into one of the controllers itself.

3. If you are using 2 continuous controllers, then repeat steps 1 and 2 for the other symbol BOTH EXTERNAL CONTROLLERS MUST BE SET TO THE SAME MIDI CHANNEL THAT YOUR MAIN MIDI PEDAL IS SET TO (IF YOU ARE USING ONE) AND THIS CHANNEL MUST MATCH THE MIDI CHANNEL THAT THE SWITCHBLADE IS SET TO (SEE "THE EFFECT CONFIGURATION MENU" SECTION FOR SETTING THE SWITCHBLADE MIDI CHANNEL).

INPUT CONFIGURATION MENU (SETUP MENU GROUP)

The Switchblade GL affords the user with the option of attenuating the input channels individually by 6dB in cases where the equipment you are connecting has an unadjustable high output level. In most all cases the input should remain at NOR which is used for the majority of gear. In the case of equipment that has a higher output level and no way to adjust that level from the device itself, you can turn on a 6dB attenuation on the input This cuts the input by 6dB and gives you an additional 6dB of headroom before input clipping.

To use this menu:

1. Using either the UP/DOIT or DOWN switches, select an input on the Switchblade.

2. Using the SELECT switch, move to the “STATE” selection and set the state of the input for either NOR (normal use) or CUT (to cut the input by 6dB) using either the UP/DOIT or the DOWN switches.

PRESET SWITCH TIME MENU: (SETUP MENU GROUP)

This menu is used only to control the switching time of moving from preset to preset. To switch instantly from preset to preset, set the time to 0ms. A setting of 0ms may not always be appropriate especially if changing presets while an input audio signal is still present either from the instrument or from residual signals on delays and reverbs. Changing presets with a 0ms time can cause the signals to be "spliced" when adding or subtracting effects. To eliminate this problem, set the time to 50ms-300ms. This is enough time to eliminate splicing. Longer times (400ms-1000ms) are usually used for special effects where it is desirable to have the sound slowly "mutate" from one sound to another without actually hearing when one preset ends and another begins.

1. To change the time, use the DOWN or UP/DOIT switches.

This is the last setup menu. To return to the PLAY MODE press the mode switch.

THE PRESET MENU GROUP

Use this group to program all of the parameters of a particular preset.

NOTE: THE PRESET TO BE PROGRAMMED MUST FIRST BE SELECTED WHILE STILL IN THE PLAY MODE BEFORE MOVING ON TO THE PROGRAMMING GROUP SELECTION MENU!

The preset menu group is entered from the Programming Group Selection Menu by pressing the SELECT switch to move the cursor under "PRSET".

NOTE: IF YOU WISH TO COMPLETELY CLEAR OUT THIS PRESET BEFORE PROGRAMMING, YOU MAY DO SO AT THIS TIME BY PRESSING BOTH THE DOWN AND UP/DOIT SWITCH TOGETHER. THE CURSOR MUST BE UNDER THE WORD "PRSET" FOR THE CLEAR FUNCTION TO OPERATE.

Press the MODE switch to move to the first menu in the Preset Programming Group.

PRESET NAME MENU: (PRESET PROGRAMMING GROUP)

Use this menu to give the preset a name of up to 12 characters.

1. If you wish to blank out the entire name, you may press the DOWN and UP/DOIT switch together. No other preset parameter is affected.

2. Use the DOWN or UP/DOIT switch to change the characters and use the SELECT switch to move to the next character location.

THE PATCHING AND GAIN MENU: (PRESET PROGRAMMING GROUP)

Use this menu to create the patch network between all devices and to set the gain levels of each patch. Also use this menu to set the gain range if a patch is to have continuous control capability and, if you are using the Switchblade with 2 continuous controllers, to determine which of the controllers the patch will be assigned to.

To use this menu:
1. If you wish to clear out all of the patches to start from scratch without affecting any other parameters of this preset, press the DOWN and UP/DOIT switches together. All patches will be opened, and all gains will be set to OFF.

2. To create a patch, use the SELECT switch to move the cursor to the upper left area of the display. This is the "SOURCE" area. Use the DOWN or UP/DOIT switch to scroll to the name of the instrument or effect that will be the source of the audio signal you wish to patch.

3. Press the SELECT switch to move to the upper right area of the display. This is the "DESTINATION" area. Use the DOWN or UP/DOIT SWITCH to scroll to the name of the amp or effect that the audio signal will be patched to.

4. Press the SELECT switch to move the cursor to the lower left of the display. This is the gain area used to turn on and set the level of the patch. Use the DOWN or UP/DOIT switch to adjust the level.

5. If this patch is only to have a fixed gain level (not continuous control) then the cursor may now be moved back up to the source or destination area to begin selection of the next patch. If this patch is to have a continuous control range, then move the cursor over to the lower right area of the display. A second gain number appears that normally tracks the first gain value. Press the DOWN or UP/DOIT switch to set the second gain value different from the first (either higher or lower including OFF). These two gain values represent the range of gain that this patch will be set to depending on the position of a continuous controller.

6. If a gain range has been set (continuous control), a up or down symbol will also appear in the lower display representing which of 2 continuous controllers this particular patch is assigned to and also shows the current value of the controller in question by its position in the display. You may test the patch at this time by playing and moving the continuous controller pedal to achieve the desired sound.

7. Continue to select source and destination pairs and setting the gain for each pair until the entire patch network has been wired up. The whole patch can be cleared out at any time to start over by pressing the DOWN and UP/DOIT switch together.

REVIEW MENU:

A convenience menu has been added to allow quick review of all the patches and gains that are programmed into the matrix. The menu appears the same as the patching and gain menu with the exception that the word "REVIEW" appears in the sweep area of the display. In addition only the UP and DOWN switch have any affect in this menu.

To enter this menu, press and HOLD the SELECT switch while in the Matrix Programming menu. The "REVIEW" word will appear on the bottom row. The UP switch can now be pressed to scroll through all the patches that are connected. Notice that all the outputs for the input that is showing will be displayed and then the next input will appear and all the outputs for that input will show and so on. The DOWN switch can be used to back up to the previously shown connection.

To return to the programming menu, simply press the SELECT switch again. The patch that was shown in the review menu at the time the SELECT switch is pressed will be shown in the patching and gain menu.

THE MIDI OUT MENU: (PRESET PROGRAMMING GROUP)

NOTE: THIS MENU ONLY APPEARS IF ONE OR MORE CHANNEL NUMBERS WERE ASSIGNED TO EFFECT NAMES USING THE EFFECT CONFIGURATION MENU IN THE SETUP GROUP.

Use this menu to create a burst of one or more program change commands to be sent over the MIDI OUT port to change the presets on MIDI devices connected to the Switchblade. Whenever this preset is selected from PLAY MODE, this burst will be sent to the effects on their corresponding channel.

1. To clear out the MIDI out burst (set all effect program change numbers to "OFF"), press the DOWN and UP/DOIT switch together. This only clears out the burst and does not affect any other preset parameter.

2. Use the SELECT switch to move the cursor under the effect name area on the top line of the display. Use the DOWN or UP/DOIT switch to scroll to the MIDI effect that you want to send a program change number to.

NOTE: ONLY THOSE EFFECTS THAT WERE GIVEN CHANNEL NUMBERS WILL SHOW UP IN THE EFFECT NAME AREA.

3. Move the cursor to the program change number using the SELECT switch. Use the DOWN or UP/DOIT switch to scroll to the desired program change number to be sent to this effect. Continue to add as many program change numbers to this burst by scrolling to the effect and setting the program change number. If you do not want to send a program change number to a particular effect, scroll to that effect and then scroll the numbers down until "OFF" appears.

THE VU METER MENU (PRESET PROGRAMMING GROUP):

The VU meter is used to read the signal levels applied to any of the 16 inputs. This menu is useful for optimizing the signal levels between devices attached to the Switchblade and to prevent clipping on any input. The VU meter has a graph reading from -32dB to 0dB. On this scale, 0dB indicates the maximum input level before the input clips and is equal to +4dBv (4.5V p/p) or if the input is set to CUT then the maximum input level is 10dBv (9V p/p). Adjust your input levels so the VU centers around -6 to -12. This will give you 6 to 12 dB of headroom before clipping occurs.

1. The number of the input the meter is reading is located in the bottom left-hand corner. To change this number, to monitor different inputs, press either the UP/DOIT, or the DOWN switch.

THE CONTROL OUTPUT MENU: (PRESET PROGRAMMING GROUP)

Use this menu to activate or deactivate each of the 4 control outputs for this preset. When an output is activated, the state of the device the control output is connected to will change, such as the reverb on the amp turning on or the overdrive channel being selected.

NOTE: THE OUTPUT TYPE (PULSE OR STEADY STATE) MUST BE SELECTED IN THE CONTROL OUTPUT CONFIGURATION MENU (SETUP PROGRAMMING GROUP) TO ASSURE COMPATIBILITY WITH THE DEVICE BEING CONTROLLED.

1. To activate a particular control output, move the cursor under the output number to be activated or deactivated and use the DOWN or UP/DOIT switch to change the state. A "+" means the control output is turned on (relay activated).

After a preset is selected and the state of the relays has conformed to the settings in this menu, the relays can be controlled within the preset by using reserved Control Change numbers. See the section “Direct Control of Control Outputs” for details.

THE AUTOSWEEP PARAMETERS MENU: (PRESET PROGRAMMING GROUP)

The continuous control sweep can be controlled either by an external MIDI continuous controller or by an internal LFO (low frequency oscillator). Use this menu to determine which one is selected for this preset. If the internal LFO is chosen then three types of sweeps can be selected as shown in the chart.

OFF
The continuous control is controlled by an external MIDI continuous controller. The position of the controller determines the position of the sweep.

SMOOTH SWEEP
This is a simple LFO function. The sweep moves back and forth between the extremes of the sweep range. The sweep speed can be set from 250ms per cycle to over 10 seconds per cycle.

MULTI PAN
This is a more specialized sweep. It is similar to the smooth sweep in that it sweeps smoothly from one extreme to the other except that there are 4 LFO's operating simultaneously. The speed of the first LFO is set by the sweep speed value from 250ms to over 10 seconds. The second LFO is synchronous to the first except it sweeps at half its speed, the third LFO sweeps at one third and the last at one fourth (from 1 sec to over 40 seconds). In addition each of the LFO's is assigned to its own input. LFO 1 to IN 1, LFO 2 to IN 2, LFO 3 to IN 3 and LFO 4 to IN 4. The next 4 IN's receive the 4 LFO's again and so on.

The MULTI PAN sweep is very useful for panning individual effects across a stereo image independently of other effects. For example, a guitar plugged into IN 1 and distributed to both OUT 1 and OUT 3 will pan between the two outputs if the start to end gain on one patch is set for increasing gain and the other patch set for decreasing gain. Now if IN 1 is also patched to an effect (lets say OUT 2) at 0dB and the return from the effect (IN 2) is also distributed to both OUT 1 and OUT 3 with opposing gainslopes, the signal from the effect will pan between both OUT 1 and OUT 3 as well but it will sweep at 1/2 the rate since it is on input 2. Likewise, any effect returning on IN 3, and on IN 4 will have different pan rates again.

ONE SHOT SWEEP:

The third sweep type is a single sweep that begins when the preset is selected, sweeps at the rate set in the display, and stops sweeping when the end is reached. The preset must be selected again either from itself or from another preset to start the one shot again.

The sweep may be "fired" over and over with the momentary footswitch by programming the same preset into a single bank of the Preset Manager. For example in bank 2, insert the preset into item 1 and item 2 both and set item 2 as the "last item". Each time the footswitch is pressed the item number will bounce back and forth from item 1 to item 2 and the Sweep will be reset each time but the preset number will not change. The same thing can be accomplished by pressing the same switch on a MIDI foot controller to select the same preset over and over.

1. To program this menu, move the cursor to the lower left of the display, and press the DOWN or UP/DOIT switch to select OFF if this preset is to be used with an external MIDI continuous controller, or one of the three sweep types if using the internal LFO's.

2. Move the cursor to the time value and press the DOWN or UP/DOIT switch to select a time from 250ms to 12.95 seconds or to over 18 seconds if the One Shot sweep is selected.

This is the last menu in the Preset Programming Group. Press the MODE switch to return to the PLAY MODE.

PRESET MANAGER MENU GROUP

From the PLAY MODE, press the MODE switch to get to the Programming Group Selection Menu and move the cursor under "PRSTMNGR". Press the MODE switch to enter the Preset Manager Menu, which is the only menu in the Preset Manager Menu Group.

The Preset Manager is used to take advantage of the "foot" jack on the back panel of the Switchblade. This jack accepts a single or dual momentary mechanical type footswitch. If a single switch is used, then each time the switch is pressed, the "item" location increments by one. When the last preset in the bank is reached, the first item in the bank is loaded again next time the switch is pressed. For example, if only 2 presets are loaded into a bank, each preset will be alternately loaded each time the switch is pressed.

If a dual footswitch is used, then the second switch will increment to the next bank. Only those banks that have presets loaded into them are called up.
The preset manager can be used simultaneously with a MIDI controller. The MIDI controller will always bypass the preset manager and call presets up directly, The footswitch on the other hand always goes through the preset manager to find the presets to load.

To use the Preset Manager:

1. The preset manager can be turned on or off. If turned off, then the footswitch automatically becomes a method of activating the REMOTE ADJUST feature (see REMOTE ADJUST section). To turn off the Preset Manager, Press the SELECT switch to move the cursor under the "BANK" value and press the DOWN switch until the display changes to PR MNGR/OFF.

2. If the Preset Manager is off and you wish to turn it on, press the UP/DOIT switch. If the Preset Manager is turned on then the REMOTE ADJUST feature is disabled and the footswitch may be used to call up presets through the Preset Manager.

3. The Preset Manager menu allows for 3 types of clearing operations:

* If the cursor is under the "BANK" value, pressing the DOWN and UP/DOIT switches together will clear out the entire Preset Manager (that is, all presets from all banks) and reset the Bank number and Item number to 1.

* If the cursor is under the "ITEM" value, pressing the DOWN and UP/DOIT switch together will only clear out the Bank that is presently shown.

* If the cursor is under the "PRST" selection, pressing the DOWN and UP/DOIT switch together will either reset the preset number to the first preset for this item only or else it will remove the preset entirely from the selected item depending of if the item shown is the last item in the bank that has a preset loaded into it or not.

4. To load or change presets in the Preset Manager, move the cursor under the bank number and scroll to the bank number that you wish to load or change. NOTE: YOU WILL NOT BE ABLE TO SCROLL PAST A BANK NUMBER THAT DOES NOT HAVE ANY PRESETS AT ALL LOADED INTO IT. LIKEWISE, YOU CANNOT ERASE ALL THE PRESETS FROM A BANK IF THERE IS A BANK AFTER IT THAT STILL HAS PRESETS LOADED INTO IT. This guarantees that there will never be an empty bank in between banks that have presets loaded into them. You will always be able to tell if you are at the last bank loaded if an asterisk (*) appears before the bank number.

5. When you have found the bank you want to load or change, move the cursor under the item number and scroll to the item that you wish AN ITEM THAT DOES NOT HAVE A PRESET LOADED INTO IT. YOU ALSO WILL NOT BE ABLE TO REMOVE A PRESET FROM AN ITEM UNLESS IT IS THE LAST ITEM IN A BANK THAT HAS A PRESET LOADED. This guarantees that presets are loaded into consecutive items and that there is never an empty item between two loaded items. You will always be able to tell if you are at the last item loaded if an asterisk (*) appears before the item number.

6. When you are at the item you wish to load or change, move the cursor under "PRST" and scroll to the preset you wish to load into that bank/item combination.

7. When done loading all banks and items, press the mode switch to go back to the PLAY MODE, all changes are automatically saved.

SEQUENCER CONTROL (STUDIO AUTOMATION)

The Switchblade can be controlled directly using System Exclusive information sent out either by your favorite sequencer that supports Sys-Ex dumps or by a MIDI pedal that can be programmed to send out Sys-Ex bursts. A Sys-Ex data list can be created in your sequencer using the sequencer System Exclusive editing screen and inserted into your event list at the appropriate time to create an instant patch on the fly. The Switchblade only responds to a Sys-Ex data stream when it is in the PLAY mode or REMOTE mode. When a valid Sys-Ex file is received, the Switchblade will automatically enter a "remote" mode where the display will read "REMOTE:DATABYTES xxx" and stay there until a Exit Remote command is received as described below. "xxx" is the number of data bytes received from the most recent valid Sys-Ex file and is shown for convenience. If there is an invalid value in the Sys-Ex file being transmitted, the display will show "REMOTE: ERROR AT xxx" where xxx indicates the byte number in the file where the invalid value occurs. The lower row of the display will show the current state of the Anti-zippering feature. When first entering remote for play mode, the Anti-zippering is in the active state. This feature may be turned off or on with a command for special purposes.

The format for the Sys-Ex data is as follows (all values in hex)

Byte#	Value	Description
1	F0	MIDI System Exclusive Command (required)
2	00 01 18	3 byte ID number (required)
3	2x	Unit identification number. (see below)
4	(function)	Function number (determines type of action as described below)
.	(data)	Additional data as required by the function used
.	(function)	Another Function number
.	(data)	Additional data
.	F7	MIDI End of System Exclusive Command (required)

The value of the unit identification number is determined by the Switchblade MIDI channel number as set in the Input/Output Definition (I/O DEF) menu in the Setup Menu group. Set the lower nybble of the number to the MIDI channel indicated minus 1. The upper nybble is always set to 2 . In other words this value is set at 20 for MIDI channel 1 or 2F for MIDI channel 16. If you have more than one Switchblade connected to the computer, then each Switchblade must be set to a unique MIDI channel and only the Switchblade whose channel number matches this identification number will respond.

The functions available are as follows. Note that some require additional data to complete the function and some functions are used alone. Several functions can be listed in a single Sys-Ex data stream.

01 CLEAR MATRIX: No additional byte are required. Clears all input to output patches to allow for new patches to be created from scratch. Actual clearing occurs in memory only and is not transferred to the audio section until an End Of Exclusive is received. If the CLEAR MATRIX command is used alone in a Sys-Ex file then all input to output connections are cleared and the outputs will be muted. If the CLEAR MATRIX command is used in the same file and ahead of any ENTER PATCH commands, the audio section changes directly from the current patches to the new patches upon receipt of EOX (End of System Exclusive) without interruption of the audio signals. Generally, it is a good idea to always place this command at the start of any Sys-Ex file that is used to create new patches. This way you may transmit files at random without the problem of trying to remember if you forgot to delete a connection before adding the new one.

02 ENTER PATCH: 3 additional bytes are required. Allows a single input to output patch to be created and assigns a control change number to that patch for real time gain control with a graphic or hardware MIDI fader. Up to 32 connection can be created, each responding to a different fader. Connections may also be assigned to the same fader for "group" control. As many of these commands as are necessary may be placed in the same Sys-Ex file up to the maximum of 32. If a controller number from 0-31 is assigned to the patch, the Switchblade translates the incoming 7 bit MIDI controller value to an 8 bit logarithmic (audio taper) curve for smooth control over volume. If a number from 32-63 is assigned then a modified linear curve is used instead which lends itself to panning (see command 05). Both a log and linear number can be assigned to the same connection, giving you control over panning and levels simultaneously. The 3 bytes that are required are the input number (1-16) the output number (1-16) and the controller number (0-63). Each patch that is created must be preceded by the Enter Patch function number and the 3 additional bytes. Note that only the first 64 controller numbers are allowed in this command out of the possible 128 numbers available. If you wish to assign both a log and linear controller to the same connection, the command must be listed twice. For example, to assign controller 00 to an input 1-output 1 connection and also assign controller 32 to the same connection, the data would be as follows: 02 00 00 00 (for controller 0) and 02 00 00 20 (to assign controller 32 to the same connection). Refer to the charts below to determine the hex values that need to be input in the file for the input, output and controller numbers.

INPUT/OUTPUT NUMBER	HEX VALUE NUMBER	INPUT/OUTPUT NUMBER	HEX VALUE NUMBER
1	00	9	08
2	01	10	09
3	02	11	0A
4	03	12	0B
5	04	13	0C
6	05	14	0D
7	06	15	0E
8	07	16	0F

CTRL NUM	HEX VALUE	CTRL NUM	HEX VALUE	CTRL NUM	HEX VALUE	CTRL NUM	HEX VALUE
0	00	16	10	32	20	48	30
1	01	17	11	33	21	49	31
2	02	18	12	34	22	50	32
3	03	19	13	35	23	51	33
4	04	20	14	36	24	52	34
5	05	21	15	37	25	53	35
6	06	22	16	38	26	54	36
7	07	23	17	39	27	55	37
8	08	24	18	40	28	56	38
9	09	25	19	41	29	57	39
10	0A	26	1A	42	2A	58	3A
11	0B	27	1B	43	2B	59	3B
12	0C	28	1C	44	2C	60	3C
13	0D	29	1D	45	2D	61	3D
14	0E	30	1E	46	2E	62	3E
15	0F	31	1F	47	2F	63	3F

03 DELETE PATCH: 2 additional bytes are required. Allows a single input to output patch that may already be in the memory to be removed. This is useful if you wish to remove a connection without having to recreate a whole network from scratch. The 2 bytes that are required are the input number (1-16) and the output number (1-16) that identify the patch to be removed. Each patch that is removed must be preceded by the Delete Patch function number and the 2 additional bytes. Refer to the chart above to determine the hex values that are used in the file for the input and output numbers. If 2 controllers are assigned to the same connection (see ENTER PATCH), then this command removes the connection for both controllers. If you plan on using a library of Sys-Ex to randomly change patches, it is recommended that you use the CLEAR MATRIX function followed by the ENTER PATCH functions in the same file instead of selectively removing patches using this command. This way you can randomly move from one file to the other without having to remember what connections needed to be removed. Also, there is no audio advantage to using one method over the other as they are both glitch free.

04 EXIT REMOTE: 1 additional byte is required. This function is used to exit the Sys-Ex direct control operation and jump directly to the preset identified by the additional byte. The additional byte must be in the range of 00-124 (for presets 1-125) or 00-74 (presets 1-75) for Switchblades with 75 presets. Exit occurs immediately upon receipt of the preset byte. Note that the value placed in the Sys-Ex file is 1 less than the preset desired. For example, to jump to preset 1 the value is 00 and to jump to preset 125 the value is 124 (7C Hex). This command must be used in its own Sys-Ex file.

05 ENTER PATCH WITH REVERSE SLOPE: This command is the same as command 02 (ENTER PATCH) except assigns a reverse linear curve to the connection. Use this command in conjunction with the ENTER PATCH command when you wish to "cross fade" or pan from one connection to another with a single controller. As an example, if you wish to connect input 1 to both outputs 1 and 2 and have a volume fader (i.e. controller 0) change both levels simultaneously (following a log curve) and also have a pan controller (i.e. controller 32) cross fade between the two connections and follow a linear curve, the Sys-Ex file would look like this: (all values in hex)

01 Clear Matrix
02 00 00 00 Enter patch input 1 to output 1 controller 0 (volume)
02 00 01 00 Enter patch input 1 to output 2 controller 0 (volume)
02 00 00 20 Enter patch input 1 to output 1 (again) controller 32 (pan)
05 00 01 20 Enter patch with reverse slope input 1 to output 2 (again) controller 32 (pan)

You may expand this as you wish to pan and level multiple inputs to the same outputs or the same inputs to multiple outputs.

06 ANTI-ZIPPERING DISABLE COMMAND: This command is only used if a network contains a large number of connections assigned to controllers and many or all controllers are moving simultaneously. This may be the case if using the

Switchblade for 3D multimedia and fast panning and 3D motion of the audio signals are occurring. If the activity is high enough and the Anti- Zippering feature is turned on the audio may appear to move in larger than normal steps from one image position to another. If this is objectionable then execute this command and the motion will smooth up at the expense of zipper artifacts which may or may not be objectionable depending on the audio source. . This command must be executed in it's own Sys-Ex file. The status of the Anti-zippering feature is displayed in the LCD when in remote mode.

07 ANTI-ZIPPERING ACTIVATE COMMAND: This command activates the Anti- zippering feature. This feature is always activated whenever entering Remote mode from the Play (non remote) mode. This command must be executed in it's own Sys-Ex file. The status of the Anti- zippering feature is displayed in the LCD when in remote mode. It is recommended that this feature remain activated except under the conditions described above as it is highly effective in removing zippering and crackling noise created when using MIDI faders.

0D CONTROL OUTPUT ACTIVATE/DEACTIVATE COMMAND: This command is used to directly set the state of each of the 4 control output relays in real time. This command must be executed in it's own sys-ex file. 1 additional byte is required. This byte has a binary format of 0000xxxx where the 4 lower bits of the byte indicate the state of the 4 relays. If the bit is set the relay is closed and if the bit is cleared it is open. Bit 0 is controls relay 1, bit 1 controls relay 2 and so on. The upper 4 bits are set to 0.

An example of a data file is shown here. This file will clear the matrix then create a patch from input 1 to output 1 and assign this connection to controller #0 then create a connection from input 2 to output 5 and assign it to controller #1.

Data	Description
F0	Sys-Ex command
00 01 18	3 byte ID
20	Unit identification number if Switchblade is set at MIDI channel 1
01	Function (clear the matrix)
02	Function (create a patch)
00	first of 3 required bytes for this function (Input number 1)
00	Output number 1
00	Controller number to be assigned to this patch
02	Function (create a second patch)
01	Input number 2
04	Output number 5
01	Controller number to be assigned to this 2nd patch
F7	EOX (End Of Exclusive)

To exit remote and go back to the play mode to preset #17, the file would look like this.

Data	Description
F0	Sys-Ex command
00 01 18	3 byte ID
20	Unit identification number if Switchblade is set at MIDI channel 1
04	Exit remote command
16	Preset number 17
F7	EOX (End of Exclusive)

Note that normally the Exit Remote command will be in a file all by itself since it cancels any patching operations that might be listed and just goes back to normal preset operations.

USES FOR DIRECT CONTROL: The direct control feature has limitations as well as advantages over using the Switchblade under preset control. The main advantage is the fact that up to 64 controllers can be assigned to allow individual control of the levels and panning of each patch using graphic faders and panners. This is useful for automated mixdowns. In addition the direct programming allows the Switchblade to be operated from a remote location when none of the loaded presets will do. The disadvantages are that some of the features that are available under preset control are not available with remote control. The Autosweep is disabled in remote mode. The "scaleable fader" feature of presets is also unavailable in remote since all patches are controlled independently although some sequencers have their own scaleable fader features. You may do "group fading" in remote however since each patch can be assigned to the same controller number.

ADDITIONAL HINTS

1. It is a good idea to leave all devices hooked up to the same inputs and outputs once you have started creating presets. If you move a device to a different input or output, even if you change that information in the setup menu, a preset created earlier will still have the old input and output connected to the patch. The only way around this is to erase the matrix while in the Patch and Gain menu and program the matrix again (after making the necessary name changes in the setup menu).

2. Whenever programming patches for the first time, it is a good idea to set the patch levels to 0dB to start, then listen to the sound and adjust the balance of effect devices by changing the gain levels returning from effects first and then levels going to effects second. This keeps levels going through effects to the maximum levels and attenuates the outputs instead reducing overall noise. It is sometimes desirable to reduce the inputs to distortion devices and boost the outputs instead to reduce distortion levels and change distortion tones, but be aware this method can increase noise levels. A different approach to changing distortion drive is to parallel a direct signal across a distortion and then change the balance between the distortion and the direct signal. It's quieter but the result will be different. Both methods are worth trying.

3. Experiment with chaining effects in different orders as the result can be dramatically different. For example a distortion first and an equalizer second sounds dramatically different than an equalizer first and distortion second. Since both methods can be loaded into 2 different presets it is easy to do an A-B comparison to find the best one for you.

QUESTIONS AND ANSWERS

Q. I have 2 controllers hooked up to the Switchblade but neither of them seems to sweep the gains.

A. Check the Controller Programming menu in the Setup Programming Group. The Control Change numbers assigned to your controllers must match the Control Change numbers actually being transmitted by your controllers. In addition check that the Channel that your controllers are transmitting on matches the channel number that the Switchblade is set to. To set the Switchblade channel, go to the I/O DEF menu in the setup group and scroll past all the IN numbers and past all the OUT numbers until the word SWBLADE appears in the bottom row, then move the cursor to the CHxx area and select the desired channel.

Q. I have a preset with a patch assigned to the UP controller but my controller wont change the sweep. Instead the Autosweep seems to be controlling it.

A. The Autosweep for this preset is turned on. Go to the Autosweep menu and turn the Autosweep to "OFF". The UP controller is now automatically assigned to the external controller.

Q. I only have one external controller. Should I assign it to the UP controller or the DOWN controller.

A. It is recommended that you assign patches to the down controller. The reason for this is if you choose to add an autosweep patch to a preset that already has externally controlled patches, this can be done easily by adding the up controller to these new patches and turning on the autosweep.

Q. I have several MIDI devices connected via MIDI cables in a chain (i.e. Switchblade MIDI OUT to device 1 IN, device 1 THRU to device 2 IN and so on). The first 2 MIDI devices respond correctly when the Switchblade sends out a program change burst but the last several devices in the chain respond erratically or not at all.

A. As MIDI data goes through a device, the quality of the MIDI signal degrades due to the slew introduced by each device in the chain. After going through 2 or 3 such devices, the data is so distorted the last several devices in the chain can't recognize the data anymore so respond erratically. Selecting cables that have very low capacitance helps but not by much. A better solution is to obtain a MIDI distribution box that will buffer the MIDI signal and distribute it to all MIDI devices in parallel.

Q. I would like to completely clear out the entire memory and rebuild my presets and global settings from scratch. Is there an easy way to do this.

A. Yes, if you hold down the MODE switch while powering up the unit, then the entire memory clears out. This includes all setup information, preset manager, input/output names and so on so only use when you have the time to completely rebuild your setup information and presets.