AKAI professional



S6000



S5000

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WELCOME

The S5000 and S6000 represent the next generation of Akai's already industry standard samplers with brand new technology, a unique and innovative new user interface and new functionality. Some of it's key features are:

- Unique removable panel allows you to place the S6000 functionality away from the rack and into your work area.
- 128-voice polyphony on the S6000 [1] and 64-voice polyphony (expandable to 128) on the S5000.
- Expandable to 256Mbytes using SIMMs.
- 16 outputs configurable as 8 x stereo pairs or 16 individual mono outs (S5000 has 8 outputs expandable to 16).
- Optional ADAT™ digital audio interface giving 16 digital outputs
- 320 x 240 backlit LCD.
- 44.1kHz/48kHz sampling frequencies.
- 18-bit stereo ADCs with 64 x oversampling 5th order Delta Sigma
- 20-bit DACs with 128 x oversampling Delta Sigma with 8 x digital filter on all outputs.
- SPDIF or AES/EBU digital I/0 on balanced jacks or optical.
- EB20 4-channel 20-bit multi-effects processor (optional on S5000).
- PS2 QWERTY keyboard input for easy naming.
- 2 x MIDI IN/OUT/THRU for 32-channel multitimbral operation.
- 2 x SCSI ports for easy connection to disk drives.
- Wordclock input allows you to easily integrate the S5000 and S6000 into an all-digital environment.
- Flash ROM programmable operating system.
- .WAV sample format allows access to a huge range of sounds from PCs or the Internet.
- DOS disk format allows easy connection of the sampler's disk drive to PCs.
- Icon based operating system and GUI (graphical user interface).
- Virtual Sample function allows you to play long samples direct from disk within a program for easy integration of disk recordings in a multi timbral environment.

1 Some S6000 configurations in the USA may differ. Please consult your dealer for information.

- 26 powerful resonant filter types.
- 2 x Low Frequency Oscillators (LFOs) each offering 9 control waveforms.
- 2 x hardware ADSR envelope generators allow ultra fast and accurate shaping of sounds.
- A multi-stage auxiliary envelope can be used to create more complex envelope shapes.
- Assignable Program Modulation allows you to route the LFOs, envelope generators, MIDI controllers, etc., to up to 17 different destinations - you can even route controllers to controllers!
- Stereo phase coherent timestretch sample processing.
- New off-line stereo pitch shift and BPM matching sample editing algorithms.
- 3-band offline digital EQ.
- New QUICKLOAD functions allow you to get sounds into the sampler quickly and easily.
- Icon based DISK system makes navigation simple. Sounds are stored in folders and folder can contain further sub-folders for efficient organisation of sound library.
- Responds to channel or polyphonic aftertouch.
- Compatible with S1000 and S3000 series samplers[2]

And much, much more....

2 Due to the radical new developments in the S5000 and S6000, some old sound library may need 'tweaking'.

USER INTERFACE

Perhaps the most physically obvious feature of the S6000 is its large LCD and 16 soft keys giving rise to a unique new user interface.

Using what we at Akai affectionately call “Touch and Tweak”, parameter access is usually just one button press away - simply touch the key alongside the parameter you wish to change and tweak its value with the DATA wheel! Not only does this make operation fast, simple and intuitive but in most circumstances, completely eliminates the need for awkward cursor movement. It also has the directness of a touch screen but with the reliability and tactile feedback of physical switches.

The user interface also makes much use of graphics and icons and pop-up windows and prompts are used throughout making the user experience more like that of a Mac™ or Windows™ computer.

ABOUT THIS MANUAL

This operator’s manual has been written to allow you to get the best out of your new sampler. Please take the time to read it to gain a full understanding of its features, functions and operations.

You will note that both the S5000 and the S6000 are described in this manual. In most respects, the two samplers are functionally identical except that the S6000 comes with the full complement of options[3] already installed and has the extra USER KEYS. By producing just one manual, we can make a small contribution to the environment by saving paper and also, of course, it saves on printing costs allowing us to bring you the new samplers at the best possible price.

All references will be to the S6000 except where specified.

3 Except for the ADAT™ digital interface board

S6000 FRONT PANEL



MAIN PANEL

POWER	Turns power on and off to the S6000.
FLOPPY DISK	This accepts 3.5” floppy disks. It may be used to load sound library but may also be used to boot operating systems.
DISK OPTION SLOT	This allows you to install a 3.5” removable hard disk such as Zip, Jaz, Syquest, etc.. Please consult your dealer or Akai distributor for details of compatible drives. If you plan to install a drive here, this should be done by an Akai approved engineer.
MAIN VOLUME	This sets the level of the main L/R outputs (outputs 1/2). Outputs 3/4~15/16 are not affected by this control.
PHONES LEVEL	This sets the level of the main L/R outputs (outputs 1/2) on the headphone output. The level of the headphone output is not affected by the MAIN VOLUME setting.
PHONES	This allows you to insert a pair of stereo headphones to monitor the main L/R output (outputs 1/2).

NOTE: *Sounds assigned to outputs 3/4 - 15/16 will not be heard at the headphone output.*

L/MONO IN	This accepts a 1/4-inch mono jack plug and is used when recording in mono. This overrides the rear panel equivalent input.
RIGHT IN	This accepts a 1/4 inch mono jack plug and, together with the L/MONO IN jack, is used for recording stereo. This overrides the rear panel equivalent input.

REMOVABLE PANEL

ASCII KEYBOARD — This will accept a PS2 QWERTY keyboard which can be used for naming.

Underneath the LCD are the sampler's operating modes.

MULTI — This is where you play programs either singly, layered or multi-timbrally.

FX — This is where you select and edit the effects you want to use in the currently selected MULTI.

EDIT SAMPLE — This is where you edit samples, the raw sound data used in programs.

EDIT PROGRAM — This is where you edit programs, mapping samples out across the keyboard range as appropriate. Programs are the basic sounds used in a MULTI.

RECORD — This is where you record your own samples. These are subsequently edited in EDIT SAMPLE and then mapped out across the keyboard in EDIT PROGRAM.

UTILITIES — This is where you can set certain parameters that affect the S6000 as a whole.

SAVE — Here, you may save the data in memory to a storage device such as floppy or hard disk.

LOAD — This is used to load data into the sampler's memory.

These keys illuminate when selected to indicate which mode you are in. Furthermore, they flash upon reception of MIDI note-on and MIDI note-off.

F1-F16 — Function keys down either side of the LCD give direct access to parameters. Their actual function varies according to the selected page.

DATA WHEEL — This is used to enter data.

CURSOR </> KEYS — These are used to move the cursor left or right in parameter fields. This is particularly useful when editing parameters with long numeric values such as samples.

These keys are also used in conjunction with the DATA wheel for naming.

NUMERIC KEYPAD — These are used to enter numeric data.

WINDOW — This is used to open the 'window' function.

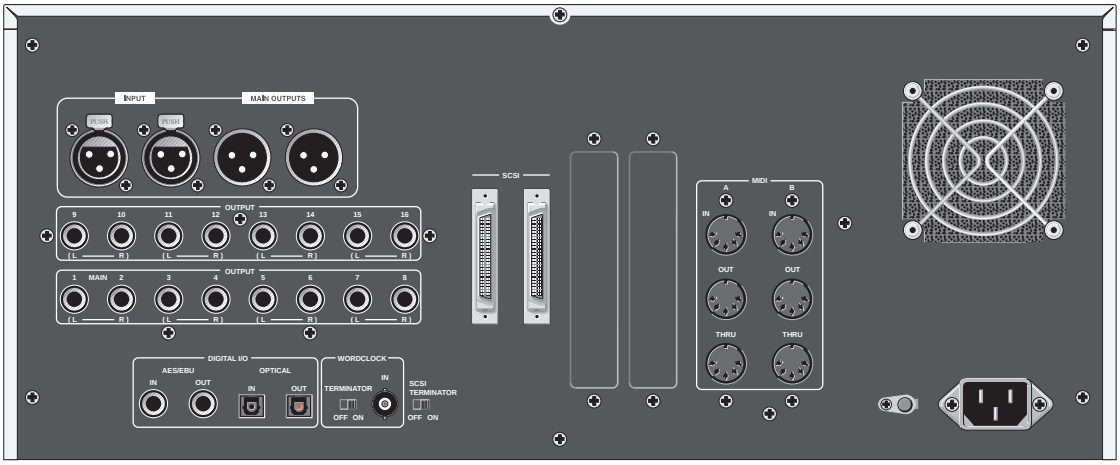
UNDO — This has no function in Version 1.00 of the operating system.

EXIT — This takes you out of the currently selected function and back to the screen you were in previously.

ENT/PLAY — This allows you to audition the currently selected sound.

MARK/JUMP	These allow you to mark a page, go to another page and then jump back and forth between them.
USER KEYS	These allow you to assign the pages and functions you use most often for quick, convenient access. For example, if you find yourself always going to the FILTER, AMPLITUDE ENVELOPE and REVERB 1 pages, these may be assigned to each of the USER KEYS.
DISPLAY CONTRAST	This 'thumbwheel' control, found on the top/rear of the panel sets the viewing angle for the LCD. A screen saver function in UTILITIES allows you to turn the backlight off at timed intervals to help preserve the LCD.

S6000 REAR PANEL



OUTPUTS 1-16

These are the S6000's outputs. They can be used as 8 x stereo pairs or as 16 individual outputs or any combination of the two (e.g. you could have stereo sounds appearing at outputs 1/2 and 3/4 with, say, bass appearing at output 5 and kick drum, snare drum and hi-hat appearing at outputs 6, 7 and 8 respectively).

Output 1/2 is regarded as the 'main' stereo output for the S6000.

All outputs are polyphonic.

DIGITAL I/O

This offers two balanced jacks for AES/EBU digital audio in and out (this can be switched to SPDIF in the UTILITIES mode if you prefer). An optical i/o is also provided.

Either digital input can be used to record digitally and both outputs carry a stereo mix of the main L/R outputs (outputs 1/2). Sounds assigned to outputs 3-8 (or 3-16 if the optional output expander is installed) do not appear at the digital outputs.

WORDCLOCK

This BNC connector is used to synchronise the sampler to a studio's 'house sync'. This would be used in a predominantly digital studio to ensure that all digital devices (mixer, hard disk recorder, effects, etc.) are running at a common sampling frequency.

The terminator switch should be ON when the S6000 is the last digital device in the wordclock chain. Otherwise, it should be OFF. Failure to observe the correct switching of wordclock termination may result in unpredictable results.

SCSI

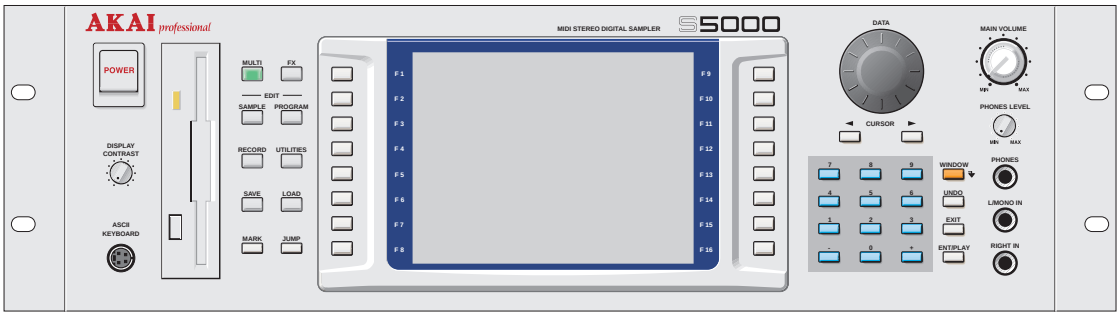
Two 50-pin half-pitch SCSI connectors are provided. One is simply a 'thru' of the other and is used when connecting the S6000 to a SCSI chain.

SCSI TERMINATOR

This should be switched ON when the S6000 is the last device in a SCSI chain. If the S6000 sits somewhere in the middle of a SCSI chain, it should be switched off. Failure to observe the correct switching of SCSI termination may result in unpredictable results.

OPTION SLOTS	These are provided to allow future expansion. One such board is the optional ADAT digital I/O which offers 16 digital outputs, ideal for interfacing with suitably equipped digital mixing consoles. The ADAT I/O also allows you to record from a digital source equipped with an ADAT output. Other option boards are yet to be finalised at the time of writing this operator's manual.
MIDI IN/OUT/THRU	Two completely separate MIDI busses A and B are provided offering 32-channel operation (1-16A and 1-16B). It is possible to drive external modules from the MIDI SONG FILE PLAYER via the 2 x MIDI OUTs. Each MIDI THRU passes on the data received at their respective MIDI inputs.
MAINS INPUT	This should be connected to a suitable mains outlet using the supplied cable.
GROUND	This can be used to reduce ground loops by connecting it to a common earthing point.

S5000 FRONT PANEL

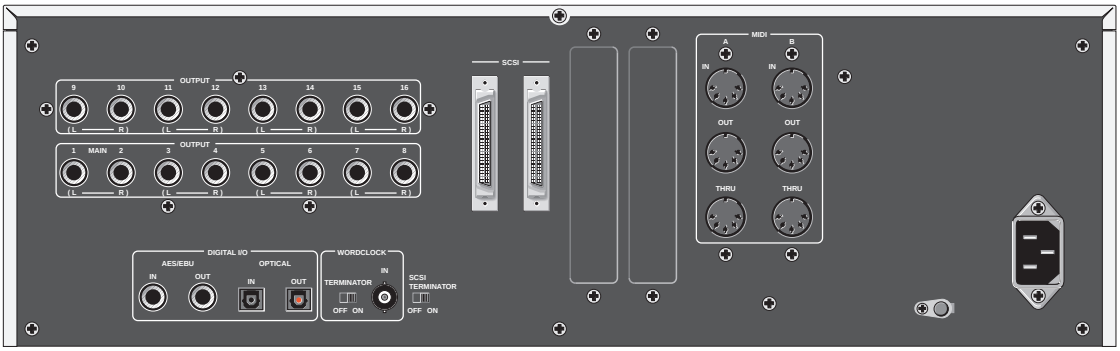


Although laid out differently to accommodate the ergonomics of the S5000's 3U panel, the keys and controls on the S5000 are almost identical to the S6000's except that the S5000 omits the USER KEYS.

Another difference is that the S5000 does not have rear panel analogue audio inputs so the ones found on the front of the S5000 are the main analogue record inputs.

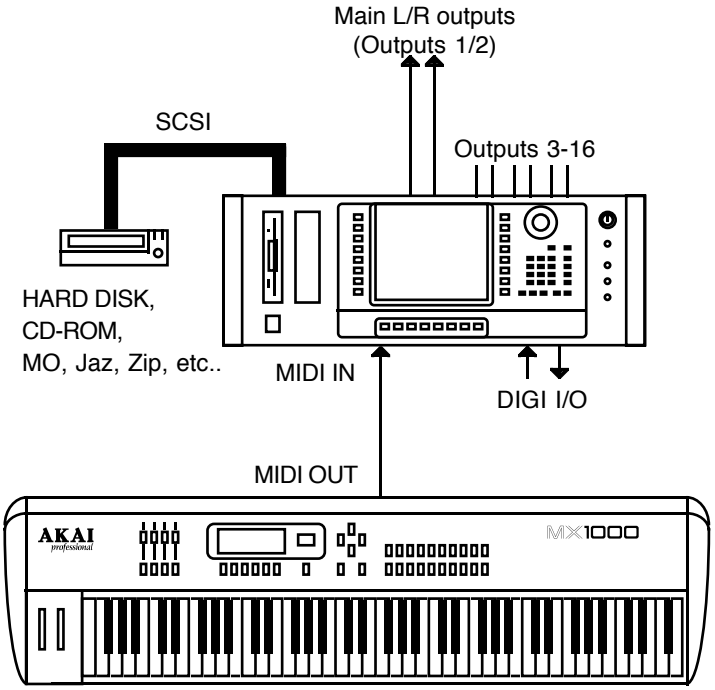
It is also not possible to install an optional removable drive on the S5000's front panel.

S5000 REAR PANEL



Again, the S5000's rear panel is almost identical except that there are no balanced XLR inputs or outputs and outputs 9-16 are optional.

CONNECTING THE S6000



Connect the MIDI output of your MIDI controller (in this example, an Akai MX1000 master keyboard) to MIDI IN A of the S6000. Connect outputs 1/2 to a stereo amplifier, a stereo input channel on a mixer (or to two mono channels of a mixer remembering to pan each channel hard left and right to take full advantage of the S6000's stereo outputs). Outputs 3-8 (or 3-16 if the optional output expander is installed) should be connected to channels of your mixer.

The digital i/o can be connected to any similarly equipped digital audio device such as DAT, recordable CD, MiniDisk or the channels of a digital mixer.

The above diagram shows a fairly simple setup. When used with a sequencer, assuming it has two or more MIDI outputs, connect one to MIDI IN A and the other to MIDI IN B. In this way, you can achieve 32-channel multi-timbral sequencing.

Another option may be to connect one output from your sequencer to MIDI IN A and the output of your MIDI keyboard to MIDI IN B. This way, you can have some sounds being sequenced whilst you play certain other sounds from the keyboard. This might be a good setup for live applications where the sequencer provides the backing tracks and you play live over the top of that.

There are many permutations and no doubt you will find your own according to your set-up and/or application.

MOUNTING THE S6000

If you plan to rack mount the S6000, try to leave some 'breathing space' around it to prevent overheating. It is recommended you leave 1U of rack space above and below the sampler.

If you are placing the sampler on a table, make sure that the table is sturdy and that the sampler is not positioned precariously.

If you are using the S6000 with a hard disk device of any kind, the disk drive MUST be mounted horizontally. If the disk drive is at an angle, even a slight one, you may have unreliability problems and even data corruption.

If you are planning to rack mount the hard disk with the sampler, it is recommended you use the 'padded' type of rack mount adapter available from most manufacturers of rack and flight cases especially if you are likely to be travelling a lot with the set-up. The padding will help protect the disk drive's delicate head mechanism against shock and excessive vibration.

It goes without saying that the S6000 and the disk drive are delicate pieces of precision electronics and they don't take kindly to being thrown around however sturdy your flight case might be!

SWITCHING THE S6000 ON

Before turning on the sampler, it's a good idea to turn its volume down or to turn the volume down on the amplifier or the mixer channels as the power up 'thump', although very slight, could damage sensitive speakers, especially if the amp is turned up loud (this is good practice when turning the S6000 off as well).

Now turn on the S6000. You will see the following LCD screen as it boots up:



The icons appearing at the bottom of the screen indicate what hardware is installed. Those items *NOT* installed will be shown with a 'X' through them.

The S6000 then scans its SCSI buss to see what storage devices are connected and after about 5 seconds, you will see something like this screen:



Connected drives will be shown (in the above example, the floppy drive is present as is a CD-ROM drive, a hard disk and a removable drive of some form).

Your S6000 is now ready to use. Press any of the mode keys to continue.

You can check that the S6000 is receiving MIDI data by looking at the front panel - the selected mode's key will flash on and off whenever a note-on/off is received.

KEY CONVENTIONS

The following are the different types of keys and parameters:

This is a parameter down the left of the screen.



This is a parameter down the right of the screen.



To select them, simply touch the key to their left or right.

When a parameter is selected, it becomes highlighted:



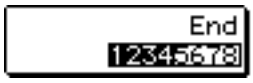
The parameter is immediately available for editing and the whole range of the parameter (0-100) can be set in about three complete turns of the DATA wheel.

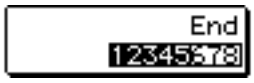
However, if you wish to make larger changes to the value more quickly, you can use the CURSOR </> keys to move the cursor to the 'tens' or 'hundreds' field:

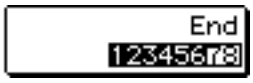




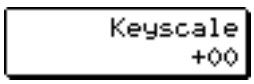
Whilst this not may save a lot of time with two or three digit numbers, moving the cursor around the parameter is useful when the value is a long number such as when editing samples:







On 'signed' fields such as shown below:



The numeric keypad's +/- keys can be used to quickly change the sign from + to - or *vice versa*.

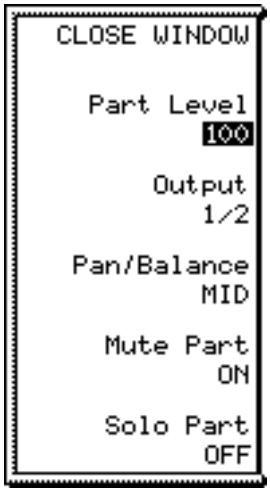
Other parameter conventions are:



The downward pointing arrow indicates that the parameter has a WINDOW function.

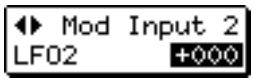
When you land on the parameter for the first time, the parameter is selected and is immediately available for editing as described above. However, pressing the WINDOW key (or pressing the selected parameter's key again - i.e. 'double clicking' on it) pops up a window revealing further 'sub-functions' associated with the selected parameter. In this way, screens are clear and uncluttered with only the most commonly used functions immediately available but with further functionality hidden away by way of the WINDOW function.

For example, the PART LEVEL window looks like this:



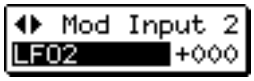
The parameters shown in the window may be edited in much the same way simply by touching the key alongside them and tweaking the DATA wheel. The window may be closed by pressing CLOSE WINDOW.

Another type of parameter is this:



This is a modulation input. When you land on this type of parameter for the first time, the modulation depth is selected and is immediately available for editing as described above.

However, pressing the key again selects the modulation source:



You may select another modulation source using the DATA wheel. This is common for all such parameters displaying the ◀▶ indicator.

The various function key types are shown below:



This is a typical ‘go to page’ key characterised by the border within the key.



This is a typical ‘do it’ key and usually generates a YES/NO/CANCEL type prompt.



This is a function ‘toggle’ ON/OFF key. The √ indicates ON. X indicates the function is switched OFF.



This highlighted key is a ‘selected function’ or ‘radio’ key. The key (i.e. the function) will highlight when selected.



This is a typical ‘scroll up’ key. This is used to move up through a list.



This is a typical ‘scroll down’ key. This is used to move down through a list.



This is a typical ‘select up’ key. This is used to move up through a list *and* select the currently highlighted item.



This is a typical ‘select down’ key. This is used to move down through a list *and* select the currently highlighted item.

SELECT and SCROLL UP/DOWN keys are ‘context sensitive’ in that when you are at the top of a list, the ‘up’ arrow isn’t shown and at the bottom of a list, the ‘down’ arrow isn’t shown.

They are also ‘repeater’ keys in that if you press and hold them, you will scroll through the list automatically without having to press them each time.

POP-UP WINDOWS

Throughout the user interface, you will encounter various 'pop-up' windows and prompts. These override the current page's functions (which become 'greyed out' in the background) and use further function keys to decide the outcome. There are 'alert' and 'warning' prompts. For example...

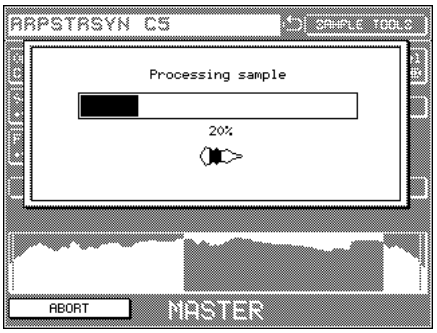




And there are 'dialogue' prompts:



Progress bars are also used throughout the user interface to indicate status. For example, during off-line sample editing functions or during record (in fact, any process that takes time), you would see these progress displays....





Some progress displays (such as the sample processing window above) also show animated icons as a further indicator of activity.

All off-line processing screens have an ABORT key so that you can cancel the process at any time if you want. Also, all off-line processing displays end with this screen:



This allows you to audition the new processed version and the original so that you can compare the two. You are also offered the opportunity to keep the new one and discard the original or keep the original and discard the new one or you can choose to keep both.

The recording progress display ends with this screen:

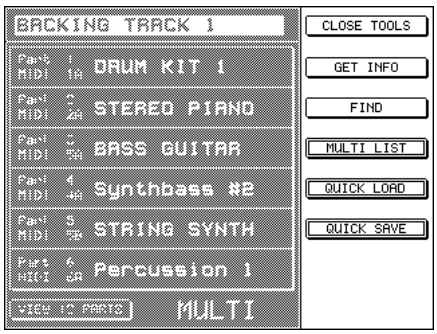


Here you may audition the recording you have just made and, if you are happy with it, you can keep it otherwise you can discard it and try again.

TOOLS MENUS

In most of the pages, you will find a 'tools' key on F9 that offers a drop down menu with further functionality.

For example, in MULTI mode with a part selected, you have a PART TOOLS menu. Pressing this would cause this drop down menu to appear:



In all cases, you will see that there is a certain consistency.

- F9 is always CLOSE TOOLS.
- F10 is always GET INFO and will show details of the selected item.
- F12 will always take you to a list of the selected item type (multi, program, sample).
- F13 is always QUICKLOAD which allows you to quickly load items relevant to the selected mode (i.e. load multis, programs, samples).
- F14 is always QUICKSAVE which allows you to quickly save items relevant to the selected mode (i.e. save multis, programs samples).
- F15 and F16's functions change according to context.

NOTE: *The LOAD and SAVE modes differ slightly in this respect. Please refer to those sections for more details.*

We will see these tools menus in each modes' respective sections.

NUMERIC KEYPAD

This is used to enter numeric data as an alternative to the DATA wheel. It can also be used to enter numbers into a name.

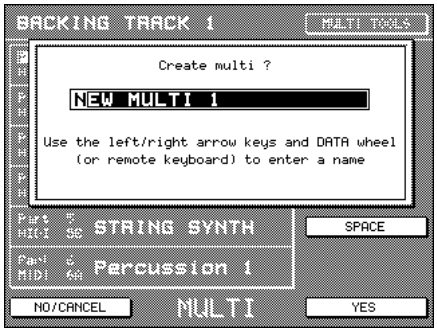
CURSOR KEYS

Whilst cursor movement is kept to a minimum with the unique 'touch and tweak' user interface, there are times when you need to move a cursor, particularly in long numeric fields such as sample start and end times, loop parameters, etc.. These keys allow you to move the cursor around numeric parameters.

NAMING

Naming is also done by way of a pop-up prompt. Naming is done when copying and/or creating a new item (i.e. a multi, program or sample) and when creating a new sample through any of the off-line DSP functions such as timestretch, EQ, etc.. You may also name samples at the time of recording.

A typical naming prompt looks like this:



This pops up when creating a new multi. Pretty much the same pop-up would be seen when creating or copying a program and/or sample.

An autonaming process is used throughout the operating system and you may be happy to stick with the autonamed version of the name. However, if you do choose to rename the item, use the CURSOR </> keys to move the cursor around the name field and use the DATA wheel to select the letter, symbol or number. The full range of upper case and lower case characters are available to you as are all the commonly used symbols (!, @, £, $, %, ^, &, *, (,), +, -, _, =, {, }, [,], |, \, /, <, >, ?).

A name can consist of up to 20 characters.

Of course, a much easier and quicker way to enter a name is to connect a standard PS2 QWERTY keyboard to the ASCII KEYBOARD input on the front panel and type a name in from that. Use the keyboard's cursor left/right keys to move around the name and press RETURN to finish the name (or ESC to cancel the process).

MARK/JUMP KEYS

The MARK and JUMP keys can be used to make navigation around the screens much easier and faster.

For example, imagine you were constantly toggling between MULTI MODE and the ENVELOPE 1 page in EDIT PROGRAM. Whilst this is only two or three keypresses, it can be made instant by first going to the ENVELOPE 1 page and pressing MARK, then going back to MULTI. Now, pressing JUMP will take you straight back to ENVELOPE 1 and pressing JUMP again would return you immediately to MULTI. And so on. In this way, you can 'toggle' between two pages with a single key press.

The MARK and JUMP keys can be used to switch between any two pages in any mode.

USER KEYS (S6000 ONLY)

These allow you to assign the pages and functions you use most often for quick, convenient access. For example, if you find yourself always going to the FILTER, AMPLITUDE ENVELOPE and REVERB 1 pages, these may be assigned to each of the USER KEYS.

S6000 STRUCTURE

Before we go on to look at the sampler's various operating modes, it would be a good idea to have a basic understanding of how sounds are made up on the S6000.

The raw audio data used in any sound is a SAMPLE. This is denoted by this icon:

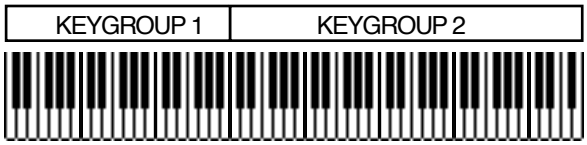
Samples may be extensively edited in the S6000 using a variety of different editing tools and functions such as TRIM, LOOP, NORMALISE, FADE UP/DOWN and DSP processes such as TIMESTRETCH, PITCH SHIFT, BPM MATCH and DIGITAL EQ.

Samples are then assigned to PROGRAMS denoted by this icon:

Programs are made up of keygroups and each keygroup can contain up to four stereo samples. Keygroups allow you to map out a collection of samples across the keyboard range (a technique known as 'multi-sampling'). A keygroup has its own keyspan and a program can contain as many as 99 keygroups mapped out across the keyboard range as you want or, at the other extreme, can have just one keygroup spanning the entire keyboard range. Some typical examples would be as follows:



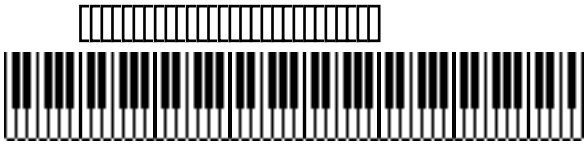
A simple program with one keygroup covering the entire keyboard range



A program with two keygroups - a typical keysplit



A typical multi-sample program with each keygroup covering an octave range



A typical drums program with a collection of keygroups each assigned to their own notes.

As well as mapping samples/keygroups across the keyboard range, programs also allow you to apply envelope shaping, filtering, LFO modulation (vibrato, etc.) and much more and such is the flexibility of the program's sound shaping functions that the S6000 can be used as a very powerful synthesiser as well.

Each keygroup has four ZONES where samples may be layered on top of each other and/or switched between using velocity.

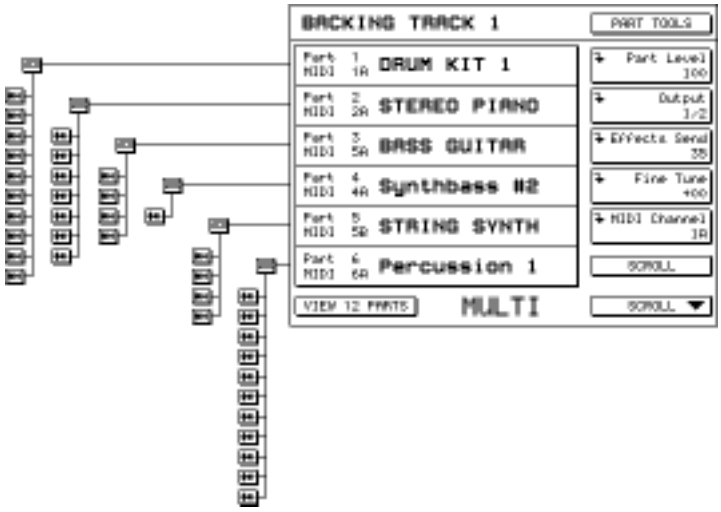
Different programs may share samples (for example, you could use the same kick and snare drum in a variety of different drum programs).

Once you have one or more programs in memory, these are then assigned to a MULTI where they can be played either singly or in combination with other programs. The multi mode allows 32 programs to be played simultaneously.

In the MULTI mode, the individual programs that go to make up a multi may be mixed, tuned, routed to individual outputs and/or the internal effects processor (if installed on the S5000).

Up to 128 multis may reside in memory at any one time, each one containing a different combination of programs. Different multis may share programs (for example, several multis may use the same drum program or piano sound, whatever).

The overall structure of a multi, therefore, might look something like this:



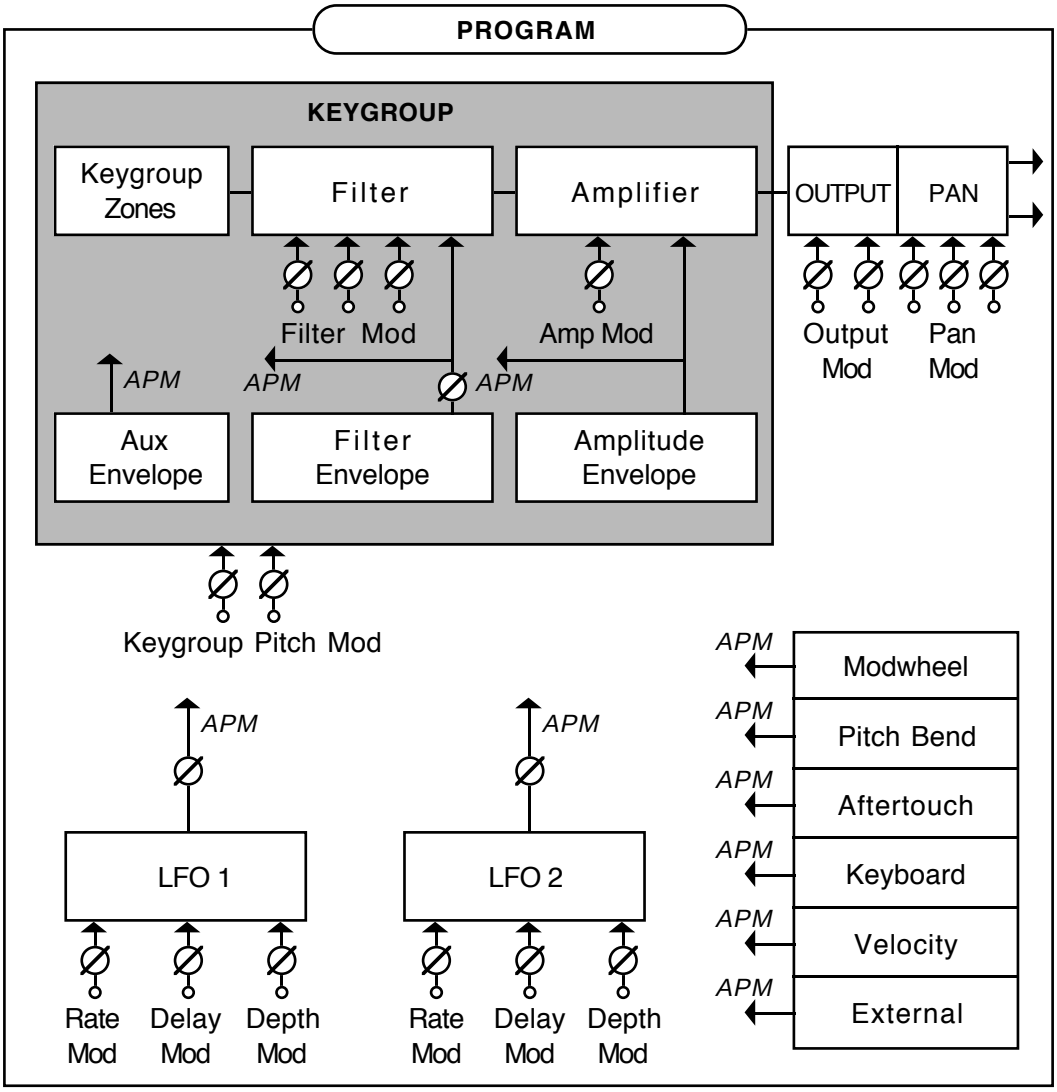
DRUM KIT 1 (Multi Part 1) has ten keygroups/samples, each assigned to their own separate notes whilst the program GRAND PIANO (Multi Part 2) has seven keygroups/samples mapped out across the keyboard range, one sample per octave. BASS GUITAR (Multi Part 3) has four keygroups/samples whilst SYNTHBASS #2 (Multi Part 4 has just one. STRING SYNTH (Multi Part 5) has four keygroups/samples mapped out across C1-C6 whilst PERCUSSION 1 (Multi Part 6) , like DRUM KIT 1 has a lot of keygroups/samples, each assigned to their own note. In this example, each sound is being played on its own MIDI channel and shows a typical multi-timbral setup. The same, of course, would be true of other parts (7-32).

There are no hard and fast rules about how samples are assigned to keygroups (and hence programs) and likewise, there are no rules on how programs are assigned to a multi - each situation will vary according to the sound and the application.

Multis, samples and programs are saved to disk and can be subsequently loaded back into memory at any time.

VOICE ARCHITECTURE

A single voice on the S6000 is not unlike any typical synthesiser and a simplified block diagram of one voice looks something like this:



Whereas on a synthesiser, you have oscillators with preset waveforms (or preset samples contained in Read Only Memory - ROM) which you cannot change, the S6000 allows you to assign any sample you want to any of the four keygroup zones for an almost unlimited range of sounds. These are then mixed, tuned and fed through a multi-mode resonant filter and then through an amplifier. The keygroups are then mixed and fed through a final output section that controls overall level and pan/balance.

The keygroup, filter, keygroup amplifier and final output section all have modulation inputs and the filter and amplifier have their own dedicated ADSR envelope generator.

Two Low Frequency Oscillators (LFOs) and a multi-stage auxiliary envelope are also available and using the S6000's Assignable Program Modulation (APM) function, these can be freely assigned to pitch, filter, amplitude, LFO 1 and LFO 2 where their control signals may be mixed and inverted for a wide range of effects. The filter envelope and amplitude envelope can also be used in the APM matrix.

MIDI controllers such as modwheel, pitchbend, aftertouch, velocity and a user definable external MIDI controller may also be freely routed to any of the pitch, filter, amplitude and/or LFO modulation inputs.

Each of the 64 voices on the S6000 is identical.

ASSIGNABLE PROGRAM MODULATION (APM)

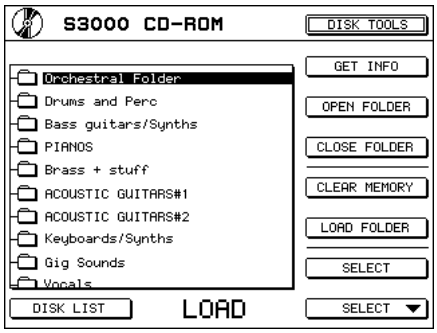
Assignable Program Modulation is a concept that was introduced by Akai in 1993 with the release of the S3000 series samplers and subsequently in the S2000 and S3000XL range and now, of course, in the S6000 and S6000.

Basically, APM allows you to route any of the controllers (128 MIDI controllers, LFO1, LFO2 and envelopes) to pitch, filter, amplitude and panning - even back to the LFOs themselves. This flexibility of modulation routing allows you to use your sampler as an extremely powerful synthesiser as well.

However, these techniques are not limited to synth sounds - you could, for example, use aftertouch routed to the filter to introduce swells and growls on brass samples or you could use velocity to control detune to create a more ensemble sound in a layered strings sound. The modwheel could be used to control the rate of amplitude, panning and/or pitch modulation to recreate a rotary speaker effect on an organ sound or the auxiliary envelope could be used to control the feedback element in a heavy metal guitar sound. The possibilities are enormous.

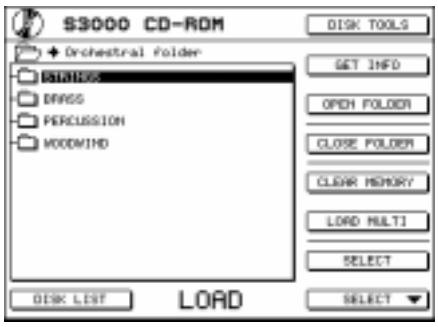
LOAD

Probably the first thing you will want to do after booting up your sampler is to load some sounds. When you press LOAD, you will see something like this screen:



Here, you see a list of folders (or 'directories'). These contain sounds or can contain further sub-folders containing more sounds, etc.. Folders are selected using the SELECT keys on F15/F16 or via the DATA wheel. Once you have selected a folder, if you know what's in it, you can load its entire contents into memory by pressing F14 - LOAD FOLDER.

Folders are opened using F11- OPEN FOLDER. If the folder contains sub-folders, you will see something like this:

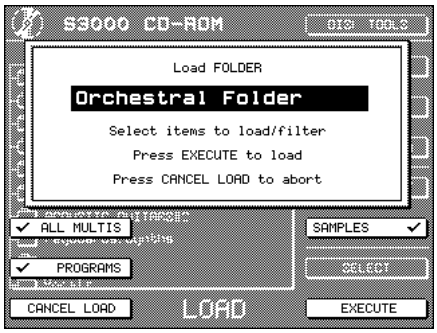


Here, there are nested folders within the selected folder. The operation described above applies equally to loading and opening sub-folders .

NOTE: *These sub-folders could equally contain further sub-folders. For example, the WOODWIND folder could contain further sub-folders FLUTE, CLARINET, OBOE, BASSOON and PICCOLO. The same process applies to all nested sub-folders.*

LOAD FOLDER

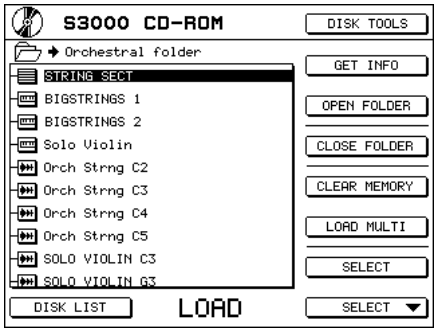
When you press LOAD FOLDER, you will see this pop-up prompt window:



The 'check boxes' on F6, F7 and F14 allow you to disable certain items from loading. For example, you may just wish to load only the programs and samples from a folder in which case, you could disable the loading of multis by pressing F6.

You should press EXECUTE or CANCEL LOAD as appropriate.

Back in the main LOAD page, if a folder contains actual sounds, pressing OPEN FOLDER may show something like this:



Here we see actual 'sounds' - multis, programs and samples. The icons are:

 Multi

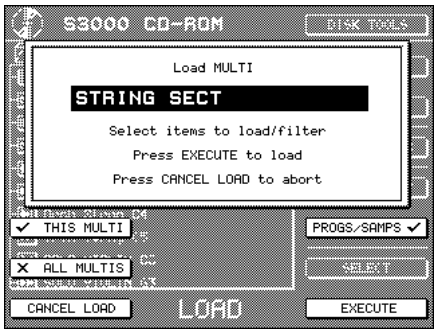
 Program

 Sample

You will note that the LOAD key on F14 is 'context sensitive' and as you select different items, so the label changes on F14. With the cursor on a multi, F14 is labelled LOAD MULTI. Move the cursor to a program and the key is labelled LOAD PROGRAM. Move the cursor to a sample and the key is labelled LOAD SAMPLE. In this way, the type of load you wish to perform is automatically taken care of.

LOADING MULTIS

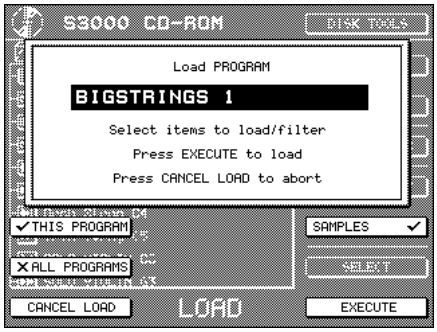
It is possible to load a multi complete with all the programs and samples associated with it. Simply select a multi and press LOAD MULTI. You will receive this pop-up prompt window:



Again, a series of 'check boxes' appear and you can, if you wish, select all multis in the current folder if you wish and/or you may choose to load the multi(s) with or without the associated programs and samples.

LOADING PROGRAMS

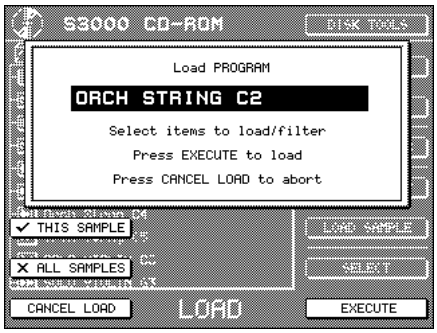
When a program is selected, F14 changes to LOAD PROGRAM and if you press this, you will receive this pop-up prompt window:



You may choose to load just the selected program or all programs in the current folder. You may also choose whether or not to load the samples associated with the program(s).

LOADING SAMPLES

When a sample is selected, F14 changes to LOAD SAMPLE and if you press this, you will receive this pop-up prompt window:

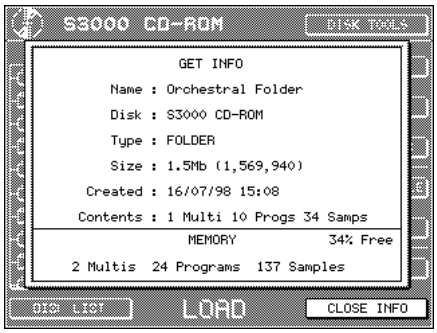


Using the check boxes, you may choose to load just the selected sample or all the samples in the current folder.

Whichever load type is used, you will see the program and sample names appear in a pop-up as they are loaded and you can use F8 to cancel the load process if you wish.

GET INFO

In the LOAD page you can use the GET INFO key to find out more about a selected item be it a folder, multi, program, whatever. Pressing GET INFO will show this screen:



You can see what it is, where it is, how big it is and, if it's a folder, what it contains. Press CLOSE INFO to close the window.

OPEN/CLOSE FOLDER

These keys allow you to open and close folders.

In the event of you trying to open or close an item on disk that is not a folder, you will receive the following prompt:



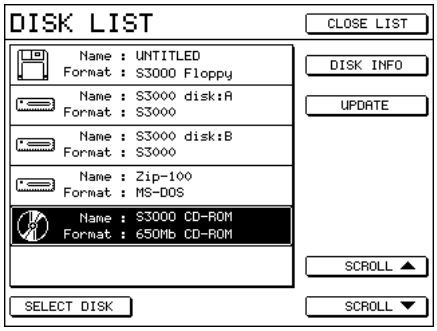
AUDITION SAMPLE

The AUDITION SAMPLE key in the main LOAD page allows you to audition a sample to check it prior to loading. This function is only available when a sample is selected (you cannot audition programs or multis).

NOTE: *When you press AUDITION SAMPLE, there will be a small delay as the sample is found on disk and played out.*

SELECTING DISKS

If you have more than one disk drive attached, you may select the one you want to load from using the DISK LIST. This is accessed by pressing F8 in the main LOAD page and you will something like this screen:



Disks and their partitions are shown as 'virtual' drives giving you direct access not only to the drives themselves but also to their partitions thus making access to sounds very quick.

The disk you want to use is selected simply by touching the key to its left (or using the SCROLL KEYS on F15/16) and pressing SELECT DISK (F8). This will select the disk and automatically return you to the LOAD page where you will see its contents.

If you have removable disks of any kind and change the disk whilst in the DISK LIST page, use UPDATE on F11 to refresh the list.

If you need to find out about the selected disk, use GET INFO (this is described on the next page).

If you do not wish to select another disk, simply press CLOSE LIST (F9).

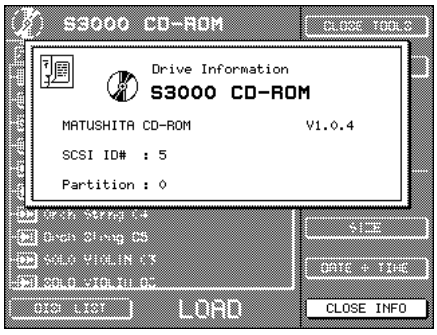
DISK TOOLS

Back in the main LOAD page, there are other functions you may use. The DISK TOOLS drop down menu on F9 shows this:



DISK INFO

This will display a pop-up giving information on the currently selected drive. For example:



VIEW ITEMS

These keys allow you to view file sizes or the date and time they were saved in the file list. To keep clutter on the screen to a minimum however, you may prefer to view NAME ONLY.

MULTI

Once you have some sounds in memory, you will want to play them. This is done in the MULTI mode.

Programs may be played singly or in combination and the MULTI mode has 32 'parts' - slots into which up to 32 programs may be assigned and typically, this is used to sequence several sounds multi-timbrally by setting each part to be on a different MIDI channel.

However, you don't *have* to use the multi mode multi-timbrally - you can assign just one program to it if you want and just play that from your keyboard or whatever. In a similar way, it is also possible to assign several programs to a multi and set them to the same MIDI channel so that you can layer two or more programs on top of each other for a rich, expansive (expensive?) sound. Furthermore, you may set low and high keyboard ranges for each part so that sophisticated keyboard splits may be created.

Each part may be routed to one of the four effects channels and you have a total of four effects that can be applied to the parts in the multi[4]. More than one part may be routed to any one of the effects channels so that parts may share effects and each part has its own effects send level. Effects settings are stored with each multi so that as you select different multis, so the correct effects are recalled.

However, you may prefer to use your sampler with external effects processors using a mixing console. To accommodate this, each part may be routed to the individual outputs. By doing this, each part may have its own mixer channel where it can be EQ'd, mixed, panned and effected using your favourite outboard effects processors. The individual outputs may be configured as stereo pairs and/or as individual mono outputs.

Of course, a combination of these is possible and some parts may be on unique MIDI channels whilst others share the same channels for layering and/or key splits. Some parts may be routed to the internal effects processor in the S6000 whilst others are sent out via the individual outputs for processing on the mixing console.

As you can see, the MULTI mode is very flexible.

Furthermore, you may load up 128 multis into memory allowing you to switch from one setup of sounds to another very quickly.

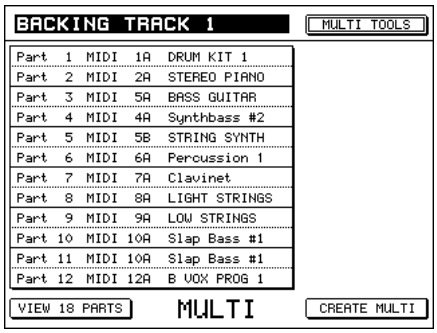
4 On the S5000, the EB20 is optional.

Assuming you have loaded a multi and its associated programs, pressing MULTI will show something like this:

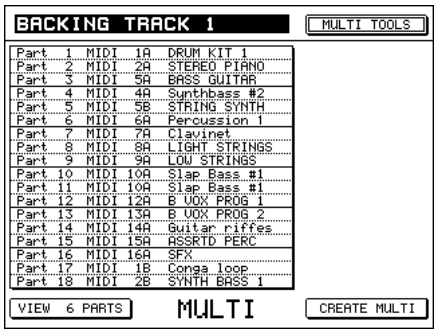


If you have more than one multi loaded, they are selected using F1 and the DATA wheel (or can be selected in the MULTI LIST).

Down the left hand side in a large, easily read font are the programs assigned to the first six parts. However, you may select to view more parts if you wish by pressing VIEW 12 PARTS (F8):



Or you may view 18 parts:



And you may revert back to 6 parts.

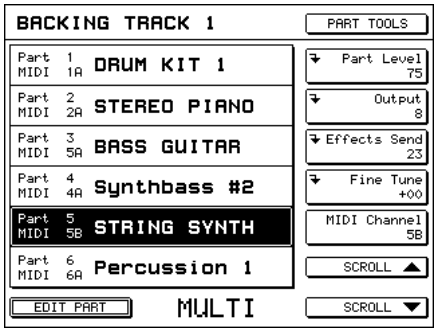
SELECTING PARTS

Parts are selected for editing simply by pressing one of the function keys F2-F7 alongside it. For example, pressing F2 would select Part 1 - DRUM KIT 1:



Its parameters appear down the right hand side of the screen where you may set level, output assign, FX send level, etc..

Pressing F6 would select STRING SYNTH:



In this way, parts can be selected very quickly and easily.

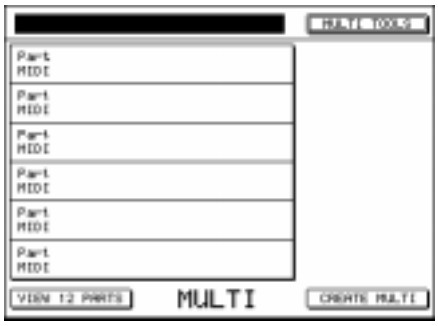
NOTE: *When viewing 12 parts, the function keys select the parts in pairs. Press the function key once to select the first part of the pair, then again to select the second.*

When viewing 18 parts, the function keys select the parts in 'threes'. Press the function key to select the first of the three parts, again to select the second and again to select the third.

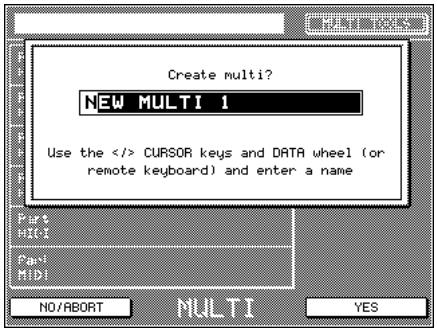
Parts can also be selected using the SCROLL UP/DOWN keys found on F15 and F16. These allow you to scroll up and down the list of 32 parts. Once you have scrolled up or down to parts that are 'off-screen', they can selected in the usual way simply by touching the key to their left.

CREATING A MULTI

If you have just switched the S6000 on (or you loaded only programs and samples in the LOAD mode) and no multis are loaded, pressing MULTI will show this screen:



To create a multi, you must first press CREATE MULTI (F16). You will receive this prompt:



A default name is provided by the S6000's autoname function. You can use this name (simply press YES - F16) or you may enter a name of your choosing either from the front panel using the cursor </> keys in conjunction with the DATA wheel or, more conveniently, using an external QWERTY keyboard. Once you have entered a name of your choice (for example, BACKING TRACK 1), pressing YES (F16) will create the new multi:

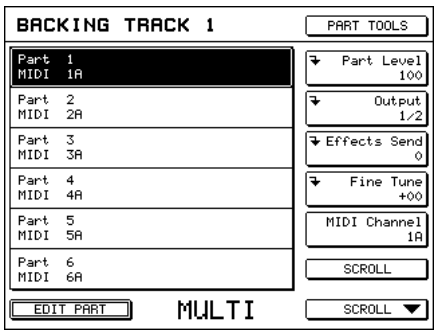


The new multi is initialised and Parts 1-16 are assigned to MIDI channels 1A-16A and Parts 17-32 are assigned to MIDI channels 1B-16B. You may now fill those parts with sounds to play. There are several ways to do this.

ASSIGNING SOUNDS IN MEMORY TO PARTS

If you already have some programs loaded into memory, these may be assigned to parts very quickly and easily.

First, touch the key to the left of the part you wish to assign the sound to - e.g. Part 1:



Now simply rotate the DATA wheel to scroll through the programs that are in memory until the one you wish to assign to the part is selected.

It could be that you only want to play the one sound in isolation and so this may be all you need to do. However, to add more sounds to the multi, simply select another part and repeat the process. And so on.

In this way, it is possible to build a multi up very quickly and easily. It also allows you to edit a multi very easily enabling you to assign different sounds to the parts at any time.

NOTE: *You may 'cancel' a part's program assignment at any time by turning the DATA wheel fully counter clockwise (it may take a few turns depending on how many programs are in memory). Fully CCW, the part is effectively 'emptied' with no program assigned to it. This is a useful way of initialising a part in the even of a mistake.*

EDITING PARTS

Once you have one or more programs assigned to parts, you may want to edit them.

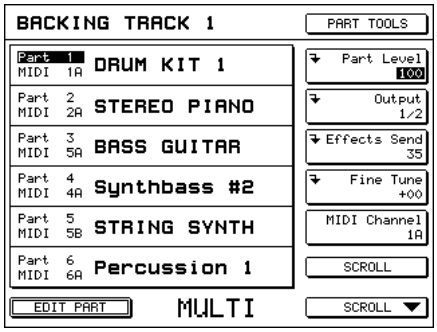
MULTI mode allows you to edit parameters such as part level, pan/balance, output assignment, tuning, effects send, MIDI channel, etc.. We will use the following multi as our example:



Let's imagine we want to edit Part 1. First select Part 1 by pressing the key to its left. It will become highlighted:



As you can see, down the right hand side of the screen are the most commonly used parameters you may want to edit. These are selected and edited simply by touching the key to its right and turning the DATA wheel. For example, to set the part's level, simply press PART LEVEL (F10):



The parameter highlights and is immediately available for editing.

Other parameters are selected and edited in exactly the same way. The parameters are:

PART LEVEL	Sets the level of the selected part.
OUTPUT	Allows you to route the selected part to any pair of outputs or individual output. The range is 1/2~15/16 in pairs and then 1, 2, 3...~16 as individual mono outputs.

NOTE: *On the S5000, unless the optional output expander is installed, the range is 1/2 ~ 7/86 in pairs and then 1, 2, 3,...~8 individual outputs. You may install the optional output expander to have 16 outputs.*

EFFECTS SEND	This sets the effects send level of the part.

NOTE: *On the S5000, the EB20 effects processor needs to be installed.*

FINE TUNE	This allows you to tune the part +/-50 'cents' or +/-1 semitone.
MIDI CHANNEL	This allows you to set the selected part's MIDI channel. You may set 1-16A and 1-16B.

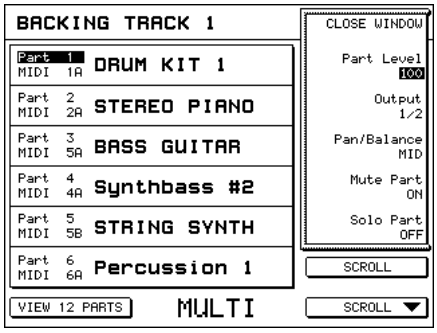
Those, then, are the key parameters for the parts. To edit them, simply select the part you want to edit, then select the parameter and turn the DATA wheel.

WINDOW FUNCTIONS

There are times when you will want access to further functions. These are available using the WINDOW function.

Any part parameters have the 'window' icon (🡻) in them indicating that further functions are available and these can be accessed by pressing the yellow WINDOW key. The window functions are as follows.

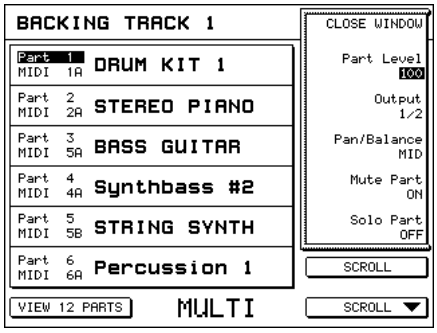
PART LEVEL WINDOW



The parameters are:

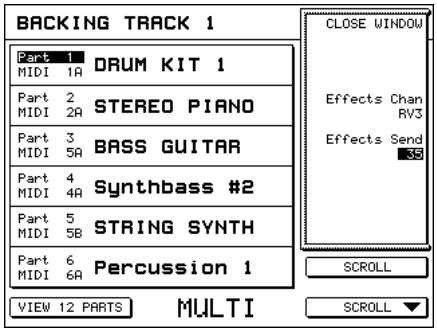
PART LEVEL	A duplication of the main PART LEVEL parameter.
OUTPUT	This is a duplication of the main OUTPUT parameter described on the previous page and is included here for convenience.
PAN/BALANCE	This allows you set the pan position of mono programs or the stereo balance of stereo programs. If an individual output is select (e.g. 1, 2, 3, 4, etc.), this parameter has no effect.
MUTE PART	This allows you to mute a part without having to disrupt mix settings.
SOLO PART	This will mute all other parts so that you may hear the selected part in isolation.

OUTPUT WINDOW



This is actually identical to the PART WINDOW. Please see above for a description of the parameters.

EFFECTS SEND WINDOW



The parameters are:

EFFECTS CHANNEL — You may select OFF, FX 1, FX 2 (the two multiFX channels), RV3 or RV4 (the two reverb only channels).

EFFECTS SEND — This is a duplication of the main EFFECTS SEND parameter.

NOTE: *On the S5000, even if the EB20 is not installed, you still have access to these parameters even though they have no function.*

FINE TUNE WINDOW



FINE TUNE — This is a duplication of the main FINE TUNE function.

TRANSPOSE — This allows you to tune the part in semi-tone steps.

NOTE: *You will note that the TRANSPOSE parameter is not a pitch shift function but a MIDI transpose function - this overcomes the problem of playing back samples out of their range. What this function does is introduce an offset so that with a +12 setting, if you play C3 on the keyboard, this is offset to play the samples on C4 - it is not playing the samples on C3 an octave higher and hence introducing transposition distortion of any kind.*

LOW NOTE/HIGH NOTE — This sets the low and notes for a part allowing you to create keysplits. To create a keysplit, you would normally assign two programs to two parts, assign them to the same MIDI channel and then set an appropriate keysplit (i.e. Part 1: C0-B2 and Part 2: C3-G8).

All windows are closed either by pressing CLOSE WINDOW (F9) or by pressing the WINDOW key again.

EDIT PART

Whilst it is possible to edit level, pan, effects send, tuning and other 'superficial' program parameters within a part, sometimes you need to delve further into a sound. Maybe a string part's attack is too slow and it's not sitting well in the track or maybe its release is too long causing it to 'blur' the part. Maybe a piano is too bright or a synth bass has too much (or not enough) resonance. This level of editing is done at the program level.

However, in cases like this, you may need to hear the other parts playing as you adjust program parameters - in the example of the string attack, you will want to hear the track playing so as to adjust the attack time in context until the part is sitting correctly in the track.

This is done using EDIT PART.

This is slightly different to EDIT PROGRAM in that all editing is done *within the context of the current multi*. You could use EDIT PROGRAM if you wanted to but the program would be heard in isolation and out of context making adjustment potentially difficult.

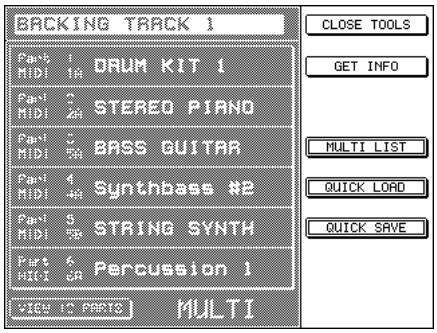
To edit a part at the program level, first select the part you want to edit and press EDIT PART (F8). You will be taken to a variation of the EDIT PROGRAM screens where you may edit the sound at the program level. Functionally, EDIT PART and EDIT PROGRAM are almost identical except for the following points:

- In EDIT PART, you hear and edit the program in the context of the current multi (in EDIT PROGRAM you hear it in isolation and out of context).
- In EDIT PART, you cannot select another program for editing (in EDIT PROGRAM, any program can be selected and edited).

Please see the section EDIT PROGRAM for more details on program editing.

MULTI TOOLS

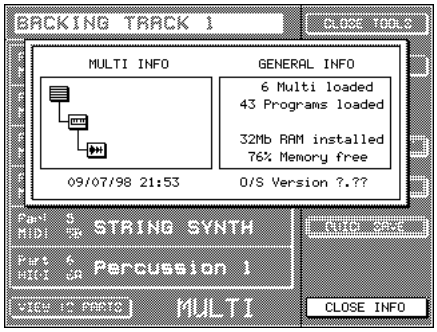
With the cursor on the multi name (i.e. press F1), pressing MULTI TOOLS on F9 shows this:



The functions are:

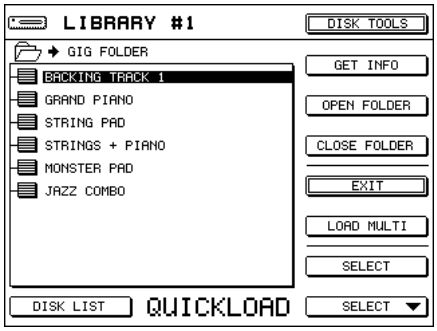
GET INFO

Shows how many multis and programs are currently in memory and how memory is used/available. The current operating system version number is also shown as the time and date.



QUICKLOAD

In the MULTI TOOLS menu or in MULTI LIST, QUICKLOAD allows you to load multis quickly and easily. Pressing QUICKLOAD would show something like this:



This is showing you the multis in a folder called “GIG FOLDER” which is on a removable hard disk called “LIBRARY #1”. You may close the currently active folder and open a new one and you may also select another disk to load from using DISK LIST on F8.

In QUICKLOAD, you only see the items that are appropriate to load and so, in this case, you only see multis. To load them, simply select them and press LOAD MULTI. You will receive this prompt:



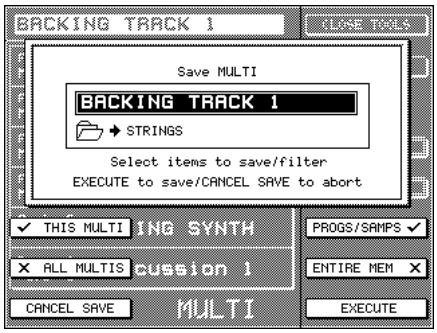
Using the ‘checkboxes’ on F6 and F7, you may select whether you want to load just the selected multi or all the multis in the current folder. You may also select whether you want to load the programs and samples associated with the multi(s). The default for this is ‘checked’ however, you may override this if you want to load an empty multi to maybe use as a template for a new one.

The multis will be stored in memory in the order in which they are loaded. If ALL MULTIS is selected as the load option, the multis will be loaded in the order in which they appear on disk.

If you change your mind, press CANCEL LOAD to abort and press EXIT to leave QUICKLOAD.

QUICKSAVE

Pressing QUICKSAVE will show this screen:



The currently active multi is selected to save. You see its name and the folder it will be saved to. You also have the option to save all the multis in memory if you prefer (or just the currently selected one) with or without the associated programs and samples. You may also use this opportunity to save the entire contents of memory.

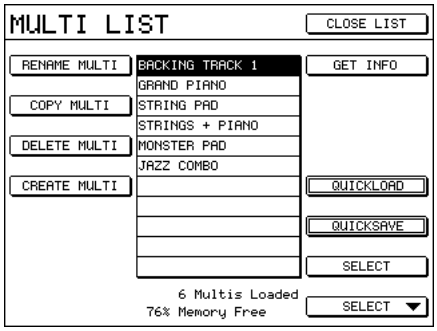
The defaults are sensibly chosen to save just the selected multi and all its programs and samples (though to save time, if you are happy that the programs and samples or ok and haven't been edited or changed in any way, you can disable PROGS/SAMPS and just save the multi which will be very quick).

Press EXECUTE to save; CANCEL SAVE to abort.

NOTE: *The folder the multi(s) will be saved to is shown. If this is not the right one, you should press CANCEL SAVE and use the actual SAVE function to navigate your way to the folder where you want the multi to be saved. The 'full' SAVE function is described in a separate chapter.*

MULTI LIST

Once you have some multis loaded, you may view them in MULTI LIST:

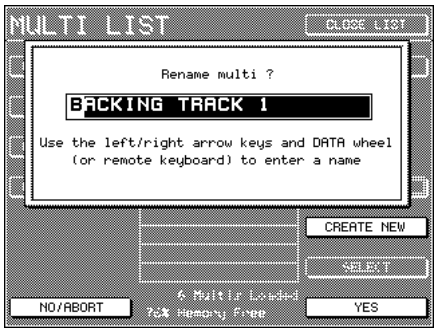


The currently active multi is highlighted.

You may select multis to play from this page. Simply scroll down to the multi you want using F15/F16 and either press CLOSE LIST or press the main MULTI mode key. The multi you have highlighted in the MULTI LIST page will become the currently active multi.

You may also rename, copy, delete, create and renumber multis in this page.

RENAME MULTI Pressing RENAME will pop-up this prompt:



You may enter a new name in the usual manner using the cursor </> keys and the DATA wheel or more conveniently from an external QWERTY keyboard.

COPY MULTI

Pressing COPY MULTI will pop-up this prompt:



The multi is given a default 'autoname' but you may enter a new name if you prefer in the normal way.

DELETE MULTI

Pressing DELETE MULTI will pop-up this prompt:



DELETE will delete the selected multi *and* the programs and samples associated with it (you have the option of disabling the deletion of the multi's associated programs and their associated samples using the check boxes on F14 and F16).

CREATE MULTI

This allows you to create multis. The function is identical to CREATE MULTI in the main multi page.

The GET INFO, QUICKLOAD and QUICKSAVE keys duplicate those found in the MULTI TOOLS menu.

PART TOOLS MENU

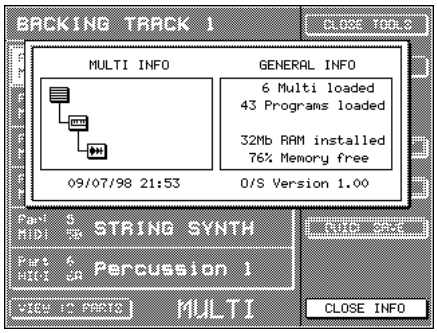
When a part is selected, F9 is labelled PART TOOLS and, like MULTI TOOLS, it is a drop down menu which offers further functionality. Pressing it displays this:



The functions are

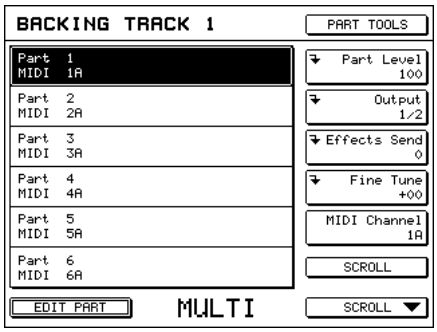
GET INFO

This displays information about the current status of the sampler:

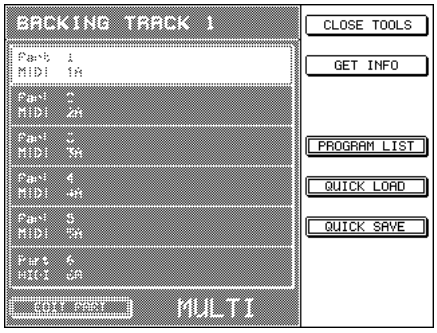


QUICKLOAD

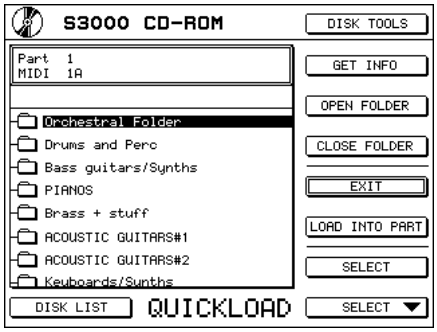
This is another way to assign programs to parts and QUICKLOAD allows you to load sounds from disk directly into parts. First, select the part you want to load into (for example - Part 1):



The part is highlighted. Pressing PART TOOLS on F9 will show this drop down menu:

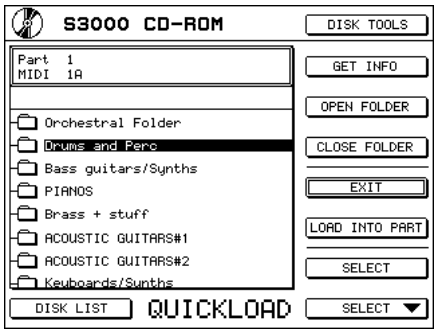


Pressing QUICKLOAD will show something like this screen:

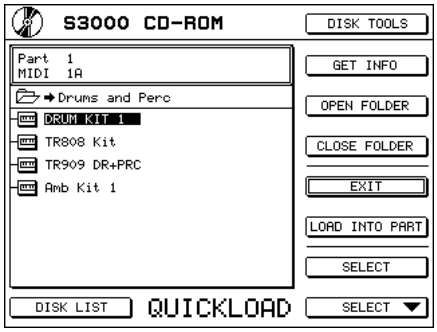


Here you are taken to a variation of the main LOAD mode. In this example, we are in the 'root directory' of a CD-ROM called S3000 CD-ROM where you can see the various folders or directories on the disk.

Let's imagine we want to load in some drums to Part 1. First, press SELECT DOWN (F16) to select the 'DRUMS AND PERC' folder:



Now press OPEN FOLDER (F12). You might see something like this:



The QUICKLOAD screen is much like the normal load page except that, because you cannot load samples or multis into a part, you only see the programs in the selected folder.

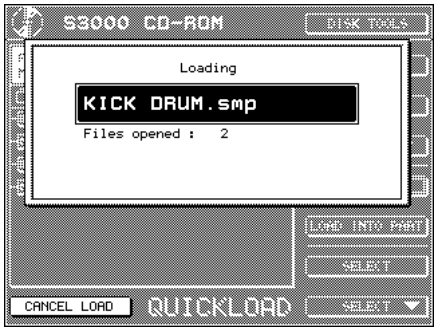
Let's say you want to load the selected program, DRUM KIT 1, into Part 1 - press LOAD INTO PART (F14). You will receive this prompt:



If you change your mind, press F8 - CANCEL LOAD but, assuming you wish to proceed, press EXECUTE.

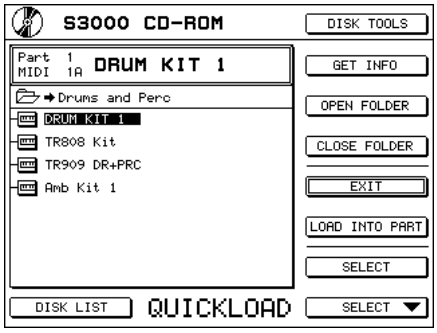
As the program and its samples are being loaded, you will see a progress display:



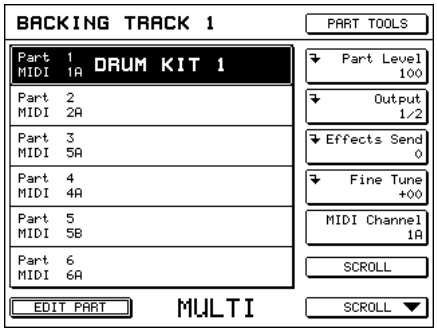


You will see the program and its associated samples being loaded in turn.

At the end of the load process, you will see this screen display:

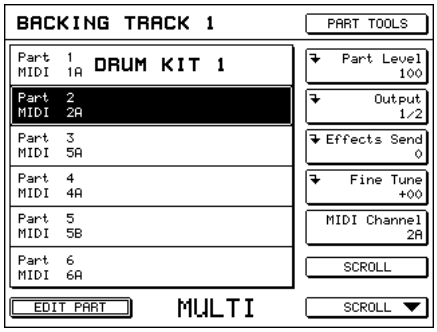


As you can see, the program DRUM KIT 1 is now loaded into Part 1. If you return to the main MULTI page (either by pressing EXIT - F13 - followed by CLOSE TOOLS or more directly by pressing the MULTI mode key), you would see this:

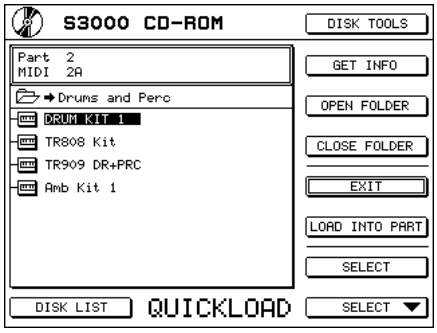


It could be that you only want to play one sound so this may be all you need to do.

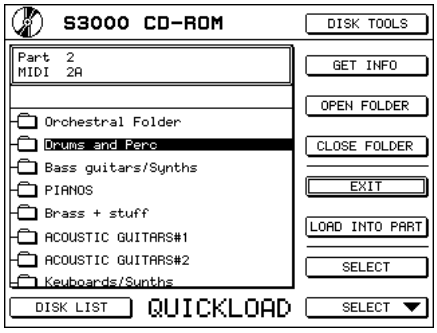
However, if you want to build up more parts into your multi, you can repeat the above procedure. First select the next part you want to assign a sound to, press PART TOOLS and QUICKLOAD. For example, to add a sound to Part 2, first select Part 2:



Now press PART TOOLS followed by QUICKLOAD:

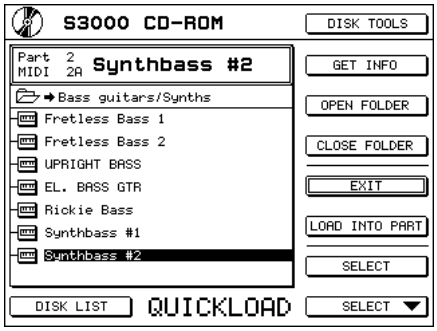


Of course, in this example, we're back in the DRUMS AND PERC folder so, to select another sound from another folder, first press CLOSE FOLDER (F12):



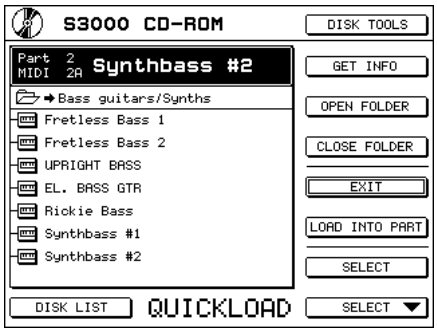
You will be taken back to the root directories where you may select and open other folders and select sounds to load into Part 2 in much the same way as described above. To load the sound, press F14 - you will receive the usual prompts and progress windows. Once the program (and its samples) has been loaded, its name will be shown in the 'part field' of the QUICKLOAD page. You may return to the main MULTI page.

However, one feature of QUICKLOAD is that you do not necessarily have to return to the main MULTI page to select another part to load into. By pressing F2 when in the QUICKLOAD page, you may select another part. For example, let's imagine you loaded a bass into Part 2. You would see something like this screen after the QUICKLOAD:



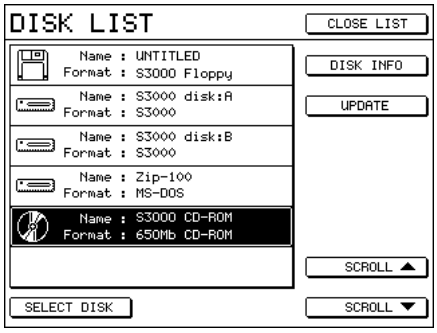
You may immediately audition the sound by sending MIDI data on the appropriate MIDI channel (in this case, set your keyboard/sequencer/whatever to MIDI channel 2 to audition the sound). If it is not the right sound, you may load another sound into the selected part (for example, if SYNTHBASS #2 is not the bass sound you want, simply select another and press LOAD INTO PART again - this will replace the original sound with the new one).

However, assuming you're happy with the sound you have loaded, you may now want to load something into Part 3. Simply press F2 - it will become highlighted thus:



You may now select Part 3 (or another part) using the DATA wheel. To move the cursor back to the list of programs to load (or folders to open), press SELECT DOWN (F16) to return you to the list then proceed as described above. This process can be repeated until you have loaded all the sounds (programs) you want into the various parts. In this way, you can build up complex multis quickly and easily without having to leave QUICKLOAD. When you have loaded all the parts you want, you can return to the main MULTI page.

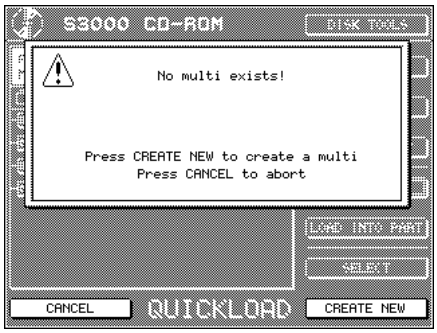
When using QUICKLOAD, it could be that sounds you want are contained on another disk, To select another disk, press DISK LIST (F8). You will see something like this screen display:



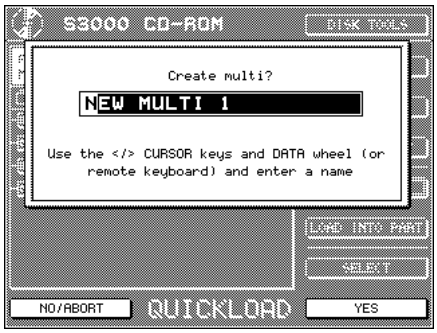
The disk you want to use is selected simply by touching the key to its left and pressing SELECT DISK (F8). This will select the disk and automatically return you to the QUICKLOAD page where you will see its contents. You may proceed as above to load sounds into the selected part.

NOTE REGARDING QUICKLOAD:

It is possible to use QUICK LOAD even if you have not created a multi first. In the blank multi page, select the part you wish to QUICKLOAD into. Now press PART TOOLS followed by QUICKLOAD. Select the sound you want to load and press LOAD INTO PART. Because you have not yet created the multi, you will receive this prompt first:



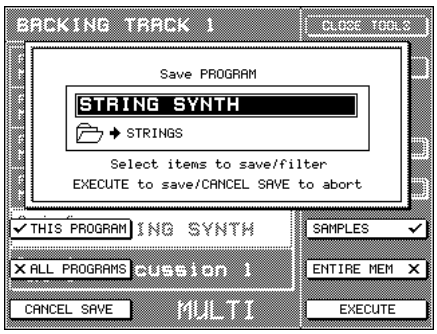
Pressing CREATE NEW will pop-up the name prompt:



You should create the multi after which you can proceed with QUICKLOAD as described .

QUICKSAVE

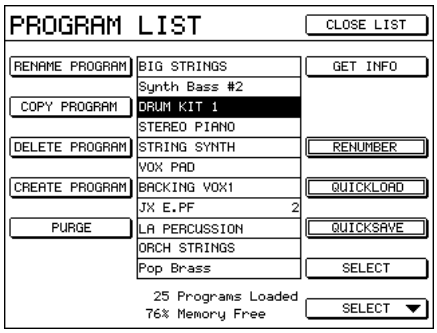
This will pop-up this prompt:



You may select to save just the selected program and its associated samples, all programs (with or without the samples) or the entire memory. The procedure is identical to the multi QUICKSAVE described earlier.

PROGRAM LIST

This takes you to a page where you may see the programs currently loaded into memory:



This is not unlike MULTI LIST and you may rename, copy, delete and create programs.

RENAME PROGRAM This pops up a prompt and you may rename the program.

COPY PROGRAM This pops up a prompt and you may copy the selected program. You may use the name automatically generated by the copy process or you may enter your own.

DELETE PROGRAM You may delete the selected program.

CREATE PROGRAM You may create a new program.

PURGE PROGRAMS This useful function deletes all programs and samples not currently being used by any multis that may be loaded (these programs are referred to as ‘orphans’). This allows you clear out any redundant programs and samples in order to make more memory available.

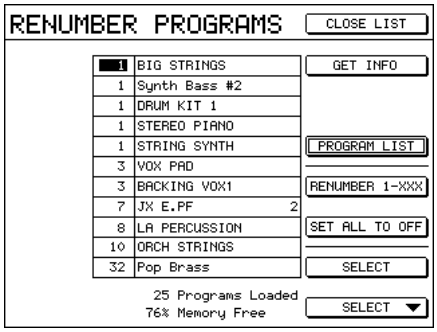


Whilst the PURGE function is useful for clearing redundant programs and their samples from memory, it could be that you have programs ‘outside’ the multis that are selected via program change within the parts. Be careful with your use of PURGE as you may accidentally delete these.

The GET INFO, QUICKLOAD and QUICKSAVE keys duplicate those found in the MULTI TOOLS menu.

RENUMBER

This takes you to a new page where you may change the MIDI program number of the programs. Pressing RENUMBER will show something like this screen:



Programs may be given a number 1-128 or OFF.

MIDI program numbers are used in order to select programs within a part remotely via MIDI. For example, you may have a stereo acoustic piano sound in Part 2/MIDI channel 2 that you want to use in the verses of a song but which you want to change to an electric piano sound in the chorus. By issuing an appropriate MIDI program change command on channel 2, you can achieve this and the two will swap over when you want them to. For example, if STEREO PIANO is MIDI program number #5 and ELECTRIC PIANO is MIDI program #12 - by issuing program change commands #5 and #12 on MIDI channel 2 at the appropriate moments in the song, you can switch between these sounds.

However, a problem exists when you load these sounds into memory in that, for example, the STEREO PIANO sound you loaded could have MIDI program number #1 and the ELECTRIC PIANO sound could be program #6 (or they could be both program #1 or whatever depending on where they were loaded from). In other words, in order for them to be selected correctly via MIDI program change, you need to renumber them to the correct MIDI program numbers.

However, another potential problem exists. You may renumber the stereo piano and electric piano correctly but may find that other programs with these numbers exist in memory. To prevent a conflict in these circumstances, other programs may need to be renumbered.

There is another problem too! The range of MIDI program numbers is 1-128. However, it is possible to load many more programs than this into the S6000's memory and, theoretically, you may have hundreds of programs loaded. However, there may only be a handful of programs you need to change within a multi using MIDI program change.

The RENUMBER screen allows you to renumber those programs that will be required to be changed via MIDI program change whilst switching those that don't to ignore such changes.

To renumber a program (or programs), move the cursor to the program you want to renumber and use the DATA wheel to set the appropriate number (or switch it to OFF).

Pressing RENUMBER 1-XXX will renumber all programs sequentially 1-128 (or whatever the upper limit is of the number of programs in memory). The programs will be renumbered in the order in which they appear in the list. If there are more than 128 programs in memory, any above will 128 will be renumbered 128.

When you press RENUMBER 1-XXX, you will receive a prompt asking you to confirm that you wish to proceed. Respond accordingly.

Pressing SET ALL TO OFF will (not surprisingly!) turn all programs numbers off. This way, you can clear all program numbers so that it is easier and clearer to renumber just those that will be affected by MIDI program change.

When you press SET ALL TO OFF, you will receive a prompt asking you to confirm that you wish to proceed. Respond accordingly.

KNOWN PROBLEMS WITH MIDI PROGRAM CHANGE

This scheme is far from foolproof and there are some problems associated with program change. Some are unique to samplers whilst others are common to all sound modules. These are listed here:

- If two programs share the same program number and you select that program number via a MIDI program change command, the first program found will be selected.
- If several parts share the same MIDI channel and a program change command is sent on that channel, all parts will select the one sound which will appear in all four parts.
- If a program is renumbered (perhaps because another program has that program number), you will need to change the program change number on the sequencer.
- If SAVE MULTI+PROGS+SAMPS is used, programs 'outside' the multi that are intended for remote selection via MIDI will not be saved and so it will be necessary to save these separately (or to load them in separately next time you load the multi).

SELECTING MULTIS REMOTELY VIA MIDI

It is possible to use MIDI program change to select multis remotely via MIDI.

Multis are numbered according to the order they appear in memory. For example, if you had five multis in memory thus:

MULTI 1
BACKING TRACK 1
STRING ENSEMBLE
JAZZ SPLIT
BIG LAYER

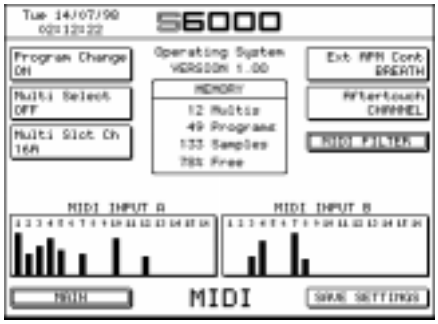
They would be numbered 1-5 respectively:

1 MULTI 1
2 BACKING TRACK 1
3 STRING ENSEMBLE
4 JAZZ SPLIT
5 BIG LAYER

Etc..

Thus, sending MIDI program #3 would select STRING ENSEMBLE.

The MIDI channel for receiving program change commands for multis is specified in the UTILITIES mode in the MIDI page:



First it is necessary to enable remote selection of multis by switching MULTI SELECT (F3) to ON and then selecting the MIDI channel you want the multi select MIDI program change commands to be received on. Once set, any MIDI program change commands received on that channel will be cause the appropriate multi to be selected.

NOTE: *The MIDI channel designated for receiving MIDI program change commands for remote multi selection cannot be used for selecting programs via MIDI program change commands. Therefore, be sure to set a MIDI channel that you know won't be required for selecting programs.*

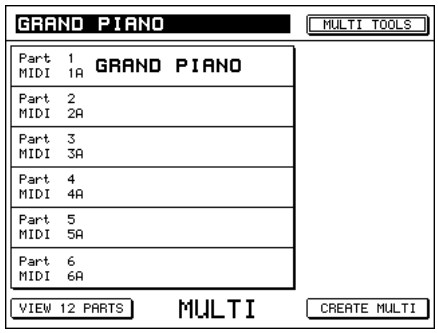
USING MULTIS

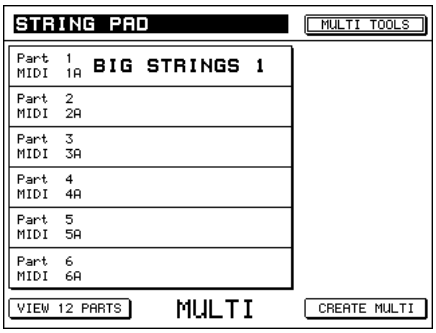
As mentioned, it is possible to have up to 128 multis in memory at any one time. Each multi may contain as many as 32 programs or as little as one and each multi may contain a different combination of programs.

Basically, the MULTI mode is basically the S6000's 'play' mode and is where you can play programs singly or in combination and is designed to be flexible enough to cover a wide range of applications. Whereas on most synthesisers, sound modules, samplers, etc., you have various playback modes (single, multi, combi, performance, whatever), the S6000 has just one versatile and consistent play mode to cover all applications.

USING MULTI MODE TO PLAY SINGLE PROGRAMS

A multi may contain just one program:

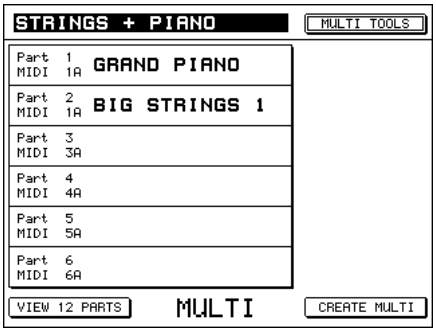


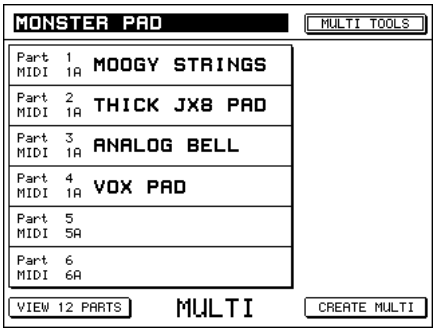


The MULTI mode can be used to play single programs simply by assigning just one program to a part. In this way (especially with 128 multis available), the S6000 can be used a simple playback module for playing single sounds.

USING MULTI MODE TO PLAY LAYERED PROGRAMS

An extension of 'single' playback - by assigning several programs to a multi with each part set to the same MIDI channel, you may play layered programs:

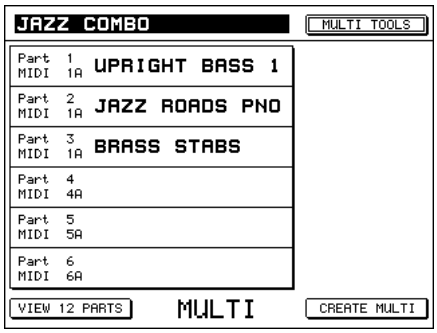




Here, several sounds are played simultaneously for greater texture. Don't forget that each of the layers may be mixed, panned, tuned/detuned, routed to separate outputs and/or the internal effects for even greater flexibility.

USING MULTI MODE TO PLAY KEYSPLITS

Using the LOW NOTE/HIGH NOTE function in the FINE TUNE 'window', you may set key splits:

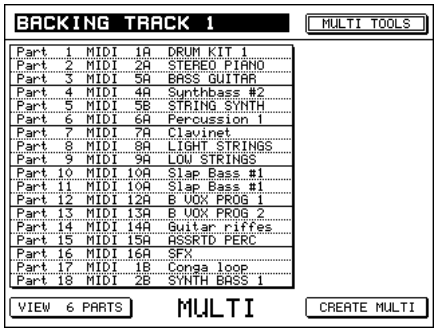


In this example, UPRIGHT BASS could be set to cover C1-B2 with JAZZ ROADS PNO set to cover C3-E5 with a handful of BRASS STABS on F5-C6. The same technique could be used in a string section setup to have cellos in the bottom octaves and violas/violins in the top octaves.

Again, each 'element' in the keysplit may be routed to separate outputs and/or the optional effects for greater flexibility.

USING MULTI MODE MULTI-TIMBRALLY

Multi mode can also be used to play up to 32 sounds simultaneously on 32 MIDI channels:



Here you can see each part has its own MIDI channel (VIEW 18 PARTS is shown here to make the example clearer).

Each sound may be mixed and panned and routed to different outputs (either as pairs or to individual outputs). They may also be tuned and transposed and if the optional EB20 is installed, may be routed to any one of the four effects channels.

However, when using the S6000 in this way, certain parts may be set to the same MIDI channel so that some parts will be layered (for example, in the above screen shot, Parts 10 and 11 both play SLAP BASS #1, presumably detuned for a rich, chorus bass sound) whilst other parts just play single programs. You could also use keysplits within such a multi.

PLAYING LIVE OVER A SEQUENCED BACKING TRACK

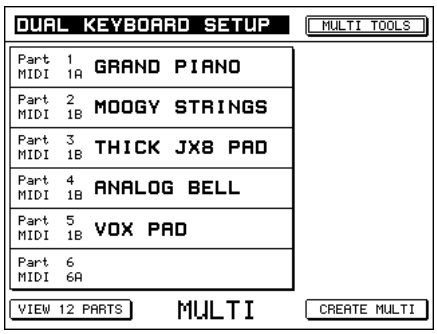
As well as 32-channel multi-timbral operation, the two MIDI inputs also allow you to play one or more sounds 'live' from a keyboard or other MIDI controller through one MIDI input whilst the other input is fed by a sequencer to provide a 16-channel multi-timbral backing track. Such a multi may look something like this:



In this example, the GRAND PIANO is the part you would play live through MIDI input A whilst the other parts are sequenced via MIDI input B.

USING THE S6000 AS TWO SAMPLERS

Sometimes (especially in live situations), it is useful to have two keyboards on stage. This allows you to play two sounds simultaneously and/or allows you to quickly switch between sounds without having to mess around with program changes. By connecting one keyboard to MIDI input A and the other to MIDI input B, you may effectively use your S6000 as two samplers! For example:



In this example, one keyboard would play the GRAND PIANO sound whilst the other plays the huge layered pad combination. In such a situation, you might benefit from a weighted keyboard to play the grand piano sound and a synth action keyboard for other sounds.

Don't forget that to further enhance the S6000's capabilities in this application, the sounds played by each keyboard could be routed to their own sets of outputs.

A further variation on this would be to have two musicians playing the S6000 simultaneously. For example, you could be vamping away on piano, clav - whatever - whilst the band's drummer triggers drum and percussion sounds from MIDI pads!

These are just a handful of examples of the flexibility of the S6000's MULTI mode. No doubt you will find your own applications.

NOTES FOR EXISTING AKAI SAMPLER USERS.

The S6000's MULTI mode replaces all other playback modes of Akai's previous samplers.

Previously, on the S1000, S1000 and S3000, S3200, multi-timbral operation, layers and keysplits were achieved by renumbering several programs to the same program number and then setting MIDI channels, levels, etc., for each program accordingly. This had the advantage that whilst being a bit cumbersome to use, it did allow you to have up to 128 multi-timbral setups loaded simultaneously and these could be selected from the front panel or via MIDI program change very quickly and easily. This way of working was good for live work, because, with some pre-production work, you could program your entire live set and have all the sounds for each song loaded into memory (notwithstanding the old samplers' memory limits, of course) and ready for action with a turn of the DATA wheel or by sending out a MIDI program change command from your keyboard to recall either a single sound, a set of layered or keysplit sounds or an entire multi-timbral setup.

Then, in the S2000 and XL range, Akai introduced the MULTI mode. This had the advantage of being quick and easy to use plus had the benefit that you could use MIDI program change on specific MIDI channels to change sounds within individual parts. However, having only one multi in memory at any one time restricted the MULTI mode's ability to be used live. Furthermore, there was a limit of 16 parts (and 16 MIDI channels).

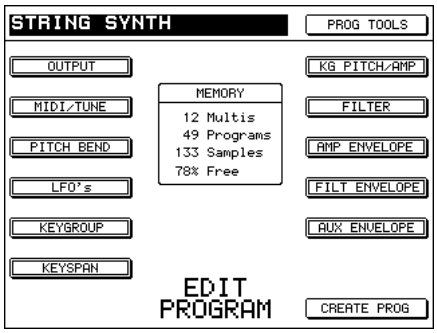
The S6000's new MULTI mode embraces the benefits of both ways or working (as well as overcoming each one's restrictions!) and offers the best of all worlds as well as many improvements and advantages:

- *It is quick and easy to use.*
- *Up to 32 programs can be played simultaneously without the need for awkward renumbering.*
- *Single program playback, layered programs, keysplits and multi-timbral operation can all be achieved within one convenient and consistent user interface.*
- *32-channel multi-timbral operation.*
- *Up to 128 multis may be loaded into memory at any one time and can be selected from the front panel or via MIDI program change thus allowing you to switch between single program playback, layered sounds, keysplits and/or multi-timbral operation quickly and conveniently (much like the 'old' Akai SINGLE mode, in fact!).*
- *The programs in each part may be changed via MIDI program change on specific MIDI channels.*

Akai's designers are well aware that for some 'die-hard' Akai users who may be used to using the 'old' Akai way of working, the new regime may require some adaptation but it is felt that the overwhelming benefits the new MULTI mode offers outweigh the temporary inconvenience of 'converting' to this new method of operation.

EDIT PROGRAM

Pressing EDIT PROGRAM will show this screen:

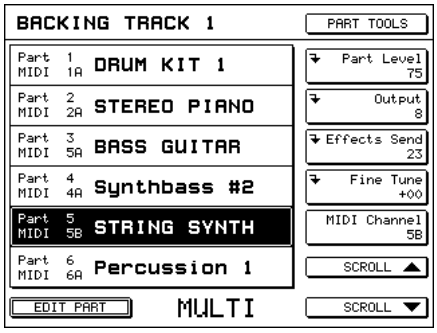


This is 'main' EDIT PROGRAM page where you may select whatever it is you want to work on. Pressing any of the keys takes you directly to that 'section'. We will look at these in turn.

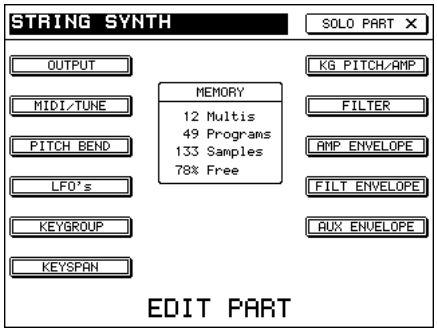
The program you wish to edit is selected by pressing F1 and turning the DATA wheel.

EDIT PART

It is also possible to edit a program within the context of a multi by pressing EDIT PART (F8) in the multi mode. First select a part to edit - you will see something like this:



Then press EDIT PART. You will see this screen:



As you can see, the 'entry pages' for EDIT PROGRAM and EDIT PART are essentially very similar except...

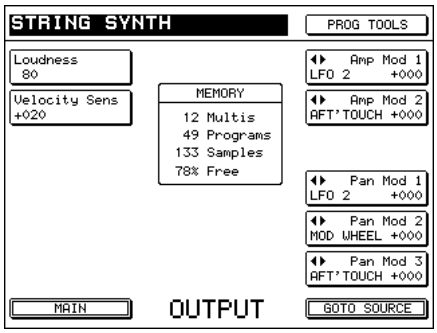
- In EDIT PART, you hear the selected program within the context of the selected multi (in EDIT PROGRAM, you hear it in isolation).
- In EDIT PART, you cannot select other programs to edit via F1 (in EDIT PROGRAM, you can select *any* program to edit).
- In EDIT PART, PROG TOOLS is replaced by SOLO PART. This allows you to solo the selected sound so that you may hear it in isolation if you need to. You may toggle between SOLO on and off very quickly simply by pressing F9.
- You cannot create a new program in EDIT PART (in EDIT PROGRAM, F16 allows you to create a new program if you want to build up a program from scratch).
- In EDIT PART, the program in the selected part is automatically selected for editing (if you press EDIT PROGRAM, the correct program may not necessarily be selected and you will have to select the program separately).

EDIT PROGRAM, therefore, is where you can edit and create *any* program whilst EDIT PART is where you edit a particular program within the context of the currently selected multi.

NOTE: *If a program is shared between multis (i.e. in this example, if STRING SYNTH is assigned to other multis), if you edit it using EDIT PART, those edits will be reflected in any other multi the program may be used.*

OUTPUT

Pressing this key (F2) will take you to the main OUTPUT page:



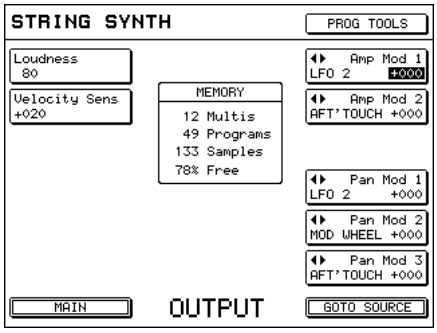
This page sets parameters that affect the final output level and pan position of the program. The parameters are:

LOUDNESS — This sets the basic working level of the program. 100 is maximum. For some degree of velocity sensitivity, this should be set to less than 100 (a value of 80 is about 'average' but this may be varied (in conjunction with the VELOCITY SENSITIVITY parameter) according to your playing technique.

VELOCITY SENS — This sets the amount of effect velocity will have over the overall output level of the program. +030 is about average but you may set this to any value you like according to your playing technique. You may also invert this for special effects where harder velocity makes loudness *quieter*!

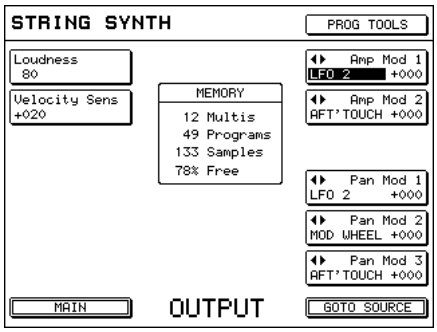
AMP MOD 1/2 — These two parameters allow you to set the level for the controllers assigned to these inputs. It is also possible assign any of the sampler's controllers (MIDI controllers, LFOs, envelopes, etc.) to the two amplitude modulation inputs.

To set the modulation amount, simply touch the key to the right of the parameter you want to adjust and use the DATA wheel to set the value. The controller is selected by 'double' clicking the key alongside the parameter. For example, pressing it once will show this:



Here, you may set the modulation level.

Pressing the key again will move the cursor to the controller field and will show this:



Here you may use the DATA wheel to scroll through the various controllers.

This principle applies to all modulation inputs throughout EDIT PROGRAM - press once to set level, press again to select the controller. This type of operation is signified by the icon ◀▶ in the corner of the parameter field.

To do the same for the other AMP MOD input, repeat the above.

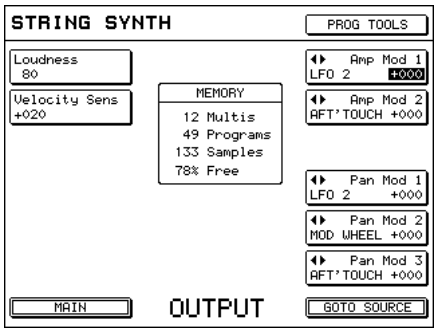
PAN MOD 1/2/3

The same as AMP MOD except that these parameters allow you to create 'autopan' effects. The most common of these would be to assign a slow LFO to one of the PAN MOD inputs so that the sound moves backwards and forwards across the stereo image. However, you could use velocity or aftertouch or you could use an envelope so that the sound pans with every note.

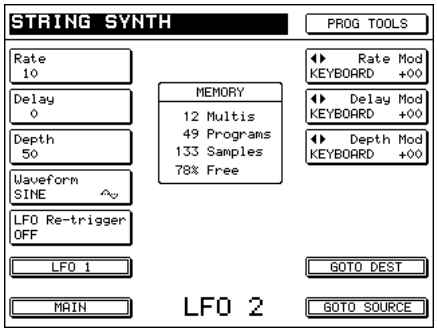
Operation is identical to the AMP MOD inputs - press once to set level, press again to select the controller.

GOTO SOURCE

When the cursor is on either mod input field (controller or level) of any of the modulation inputs - for example:



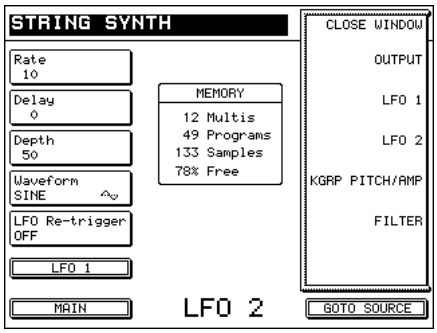
Pressing GOTO SOURCE will take you directly to that controllers page. In the above example, you would go straight to LFO2:



Here, you may tweak and edit the LFO 2 parameters.

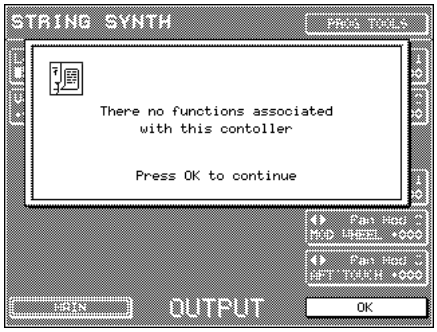
GOTO DEST

Pressing GOTO DEST in this page will pop up this window:



You may return to the OUTPUT page (or any other destination) immediately.

If the cursor is not on a modulation input (for example, if the LOUDNESS parameter is selected) and you press GOTO SOURCE, you will receive this pop-up dialogue prompt:



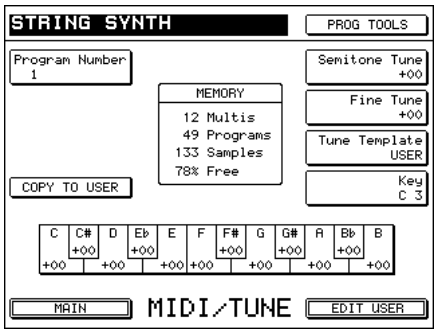
Similarly, if the mod source is one of the MIDI controllers (pitchbend, modwheel, keyboard, etc. - in other words, a controller that has no parameters associated with it), you will receive the same prompt.

NOTE: *The GOTO SOURCE/DEST operation is common for all mod input functions in all pages that have them.*

MAIN — This key takes you back to the main EDIT PROGRAM page.

MIDI/TUNE

Pressing MIDI/TUNE in the main EDIT PROGRAM page will show this screen:



The parameters are:

PROGRAM NUMBER — Sets the MIDI program number for the selected program. This allows you to select programs remotely via MIDI within a part in a multi.

SEMITONE TUNE — Allows you to tune the program in semitones.

FINE TUNE — Allows you to fine tune the program.

TUNE TEMPLATE — This allows you select from a variety of different tuning templates such as EVEN-TEMPERED, ORCHESTRAL, WERKMEISTER, etc..

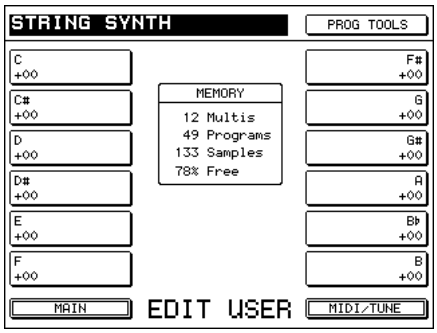
You may also set your own tuning template by selecting USER which you may freely edit in the EDIT USER page.

KEY — Sets the key signature for the tuning template. The normal Western EQUAL TEMPERAMENT allows you play in any key you like (which is why it was developed!) but the other tunings can only be used in certain key signatures. So, for example, if you want to use the WERKMEISTER tuning on a piano sound and the piece you want play is D#, select D# in the KEY parameter.

COPY TO USER — This key allows you to copy one of the preset templates to the USER template so that you may edit it. To edit one of the templates, first select it in the TUNE TEMPLATE field and press COPY TO USER. Now select USER as the TUNE TEMPLATE. You may now use EDIT USER to modify it.

EDIT USER

Pressing EDIT USER shows this screen:

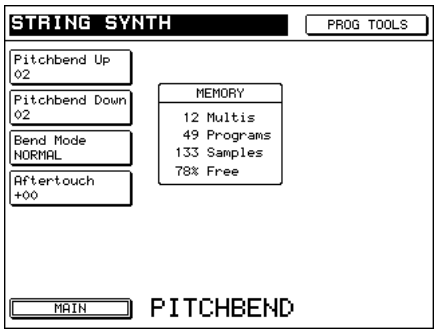


Here you may tune each semitone. To return to the MIDI/TUNE page, press F16. To return to the main EDIT PROGRAM page, press MAIN (F8).

If you edit the tuning of each semitone in this page, you will see the changes in the graphic representation of the keyboard in the MIDI/TUNE page.

PITCHBEND

here you may set pitchbend and other related parameter. Pressing PITCHBEND in the main EDIT PROGRAM page will show this:



The parameters are:

PITCHBEND UP — This sets the limit for pitchbend up - the range is 24 semitones

PITCHBEND DOWN — This sets the limit for pitchbend down - the range is 24 semitones.

BEND MODE — You may select NORMAL or HELD.

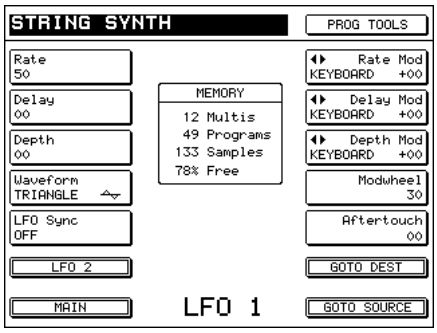
NORMAL is the common type of pitchbend where all notes are bent as you move the pitchbend wheel/lever regardless of whether you are actually holding any notes down (i.e. they may be fading through their release stage).

By selecting the HELD mode of pitchbend, ONLY THE KEY(S) YOU ARE CURRENTLY HOLDING DOWN WILL BEND and all those notes you are not playing but which may be fading through their release stage will remain unchanged. If you release your finger from the key with the pitchbend up (or down), as the note dies away, if you let the pitchbend return to zero, that last note's pitch will not change. If you release just one note of a chord with pitchbend up or down, if you let the wheel or lever settle at zero, only the notes you are holding will bend.

AFTERTOUCH — As well as using the pitchbend wheel or lever, you may also use aftertouch to bend notes. The range is -12 to +12. You may only bend up or down depending on the selection made - unlike the bend wheel/lever, you cannot pitchbend both ways.

LFOS

Pressing LFOs shows something like this screen:



The parameters are:

RATE — Sets the speed of the LFO. The range is very slow (at a setting of 0, it takes over a minute to complete a full cycle) to very fast (around 100Hz). An average vibrato rate setting is around 45.

DELAY — This sets the time it takes for the modulation to fade in.

DEPTH — Sets the initial depth of the modulation. This should be set to a value if you want LFO1 modulation permanently on the sound (if you only want to introduce vibrato or other modulation effects via the modwheel however, this parameter should be set to 0 and the MODWHEEL parameter - see below - should be set to a suitable value).

WAVEFORM — Nine modulation waveforms are available. These are

SINE



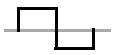
A smooth waveform suitable for vibrato. Also useful for slow, smooth panning and filter sweeps.

TRIANGLE



Another waveform suitable for vibrato and slow sweep effects.

SQUARE



A ‘bi-polar’ square wave that moves above and below the note you are playing.

SQUARE +



This square wave only moves above the note you are playing. It is suitable for trills and octave jumps, etc..

SQUARE - 

This square wave only moves down from the note you are playing.

SAW BI 

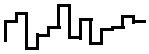
A 'bi-polar' rising sawtooth wave that moves above and below the note you are playing.

SAW UP 

This sawtooth rises up to the note you are playing.

SAW DOWN 

This sawtooth falls down from the note you are playing.

RANDOM 

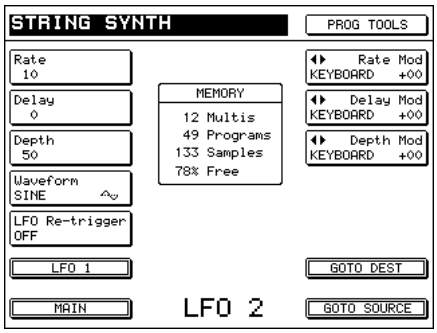
Gives out completely random control signals.

LFO SYNC	When set to ON, all 128 LFOs (one per voice) run together at the same rate. When switched to OFF, they each run at a slightly different speed to create a more 'ensemble' effect on sounds such as strings, brass, pads, etc..
RATE MOD	You may modulate LFO 1's rate with this parameter and here you may select a controller and set the amount of rate modulation - press the key once to set the mod amount; press again to select the controller.
DELAY MOD	You may modulate the delay time. Press once to set the amount of delay modulation; press again to select the controller.
DEPTH MOD	You may modulate the LFO's output level here. The same principle applies - press once to set the depth mod amount; press again to select the controller.
MODWHEEL	Sets the amount of modulation that will be introduced by the modwheel.
AFTER TOUCH	This allows you to introduce vibrato using aftertouch.
GOTO DEST	This pops up a list of destinations the LFO may be assigned to for quick and easy access to their pages.
GOTO SOURCE	When any of the mod input parameters are selected, pressing this key will take you directly to the controller's page.

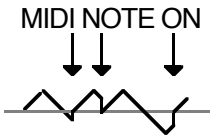
NOTE: *If a mod parameter is not selected, you will receive a dialogue prompt advising you of this. Similarly, if the mod source is one of the MIDI controllers, you will receive the same pop-up prompt.*

LFO 2

LFO 1 gives you access the LFO 2 via F7. Pressing this will show this screen:

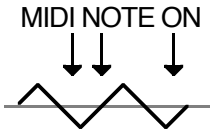


Functionally, the two LFOs are almost identical except for LFO RE-TRIGGER. Here, you can set whether or not LFO2 will re-trigger with every new note-on or not. With RETRIGGER set to ON, each note you play will reset the cycle of the selected waveform to its leading edge. For example, with the triangle wave selected, you would get this result:



This is useful for certain types of modulation effects where you want the effect to start at the same point in the modulation waveform for every note you play. For example, if you are using the square wave, you may want it to always start on the rising edge with each note you play. The same may apply for the sawtooth and random waveforms.

However, there are occasions when you want the LFO to be free running in the background. For example, on filter or panning sweeps where you want the effect to be gradual as you play, you will want to switch RETRIGGER to OFF to get this result:

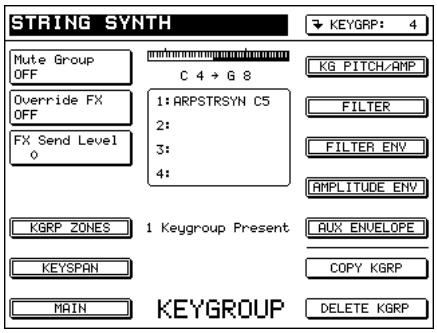


Here, the modulation waveform will ignore incoming note-on messages and will be rising and falling giving you a gradual sweep through whatever it is applied to. This is particularly useful when triangle is selected and applied to the filter(s) as you can re-create the old filter sweep effects of analogue synths.

You will also note that the MOD WHEEL and AFTERTOUCH parameters are not included. However, if you wish to control the output level of LFO2 using these controllers, assign them to the DEPTH MOD input on F12.

KEYGROUP

So far we have seen functions that affect the program as a whole. The KEYGROUP pages allow access to edit the individual keygroups. Pressing KEYGROUP shows this screen display:

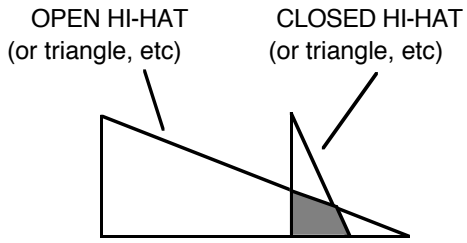


The parameters are:

MUTE GROUP — This allows you to group several keygroups together so that they are essentially monophonic. The main reason for this is for drums where sometimes you want a sample to stop playing when another is played.

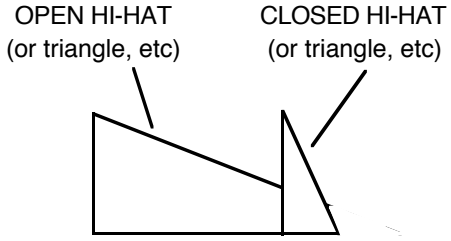
For example, you would want a closed hi-hat to stop an open hi-hat. To do this, simply assign all the relevant keygroups to the same Mute Group. For example, if all your hi-hats are in keygroups 3-6, assign those keygroups to, say, Mute Group 1. All other keygroups will be unaffected but all those in mute group 1 will be mutually exclusive - that is, if one is sounding when another is played, it will be cut.

For example:



OPEN AND CLOSED HI-HAT WITH MUTE GROUP OFF

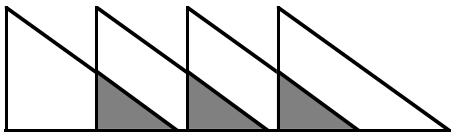
Here, you can see that the open hi-hat continues to play even though the closed hi-hat is triggered.



OPEN AND CLOSED HI-HAT WITH MUTE GROUP ON

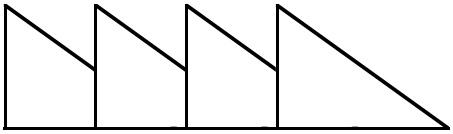
In this example, however, the open hi-hat is shut off by the closed hi-hat thereby creating a more natural effect.

This function may also be used to emulate the characteristics of older drum machines. On these early drum machines, whilst they offered maybe 8 voice polyphony, each individual drum sound was sometimes monophonic. This only became apparent when you tried to perform a snare roll or something similar. Instead of the snare's natural decay being allowed to sound, the next hit would cut the previous one dead resulting in a rather unnatural staccato effect. Of course, at the time, this was undesirable but the dictates of musical fashion now say that this effect is quite popular in some music styles!! By assigning your snare drum into a mute group, you may re-create this effect. For example:



SNARE DRUM ROLL WITH MUTE GROUP OFF

In this example, each snare hit is allowed to decay naturally.



SNARE DRUM ROLL WITH MUTE GROUP ON

In this example, each hit is cut short by the next one.

On the S1000 and S1000 and in early versions of S2800, S3000 and S3200 software, you needed to create a separate program, make it 1 voice polyphonic and assign it the same program number as the rest of your drums. Now, you may do all this within one program which you may find more convenient.

OVERRIDE FX — This allows you to send individual keygroups to the effects by overriding the main program's effects routing. The default will be MULTI (i.e. the routing uses the effects buss selection set when the program is placed in a MULTI) but you may also select OFF (i.e. the selected keygroup is not routed to the effects) or FX1, FX2, RV3 or RV4.

FX SEND LEVEL — This allows you to set the amount of effect for each keygroup. In this way, you can, for example, send individual drums in different amounts to the effects. Furthermore, each drum could be routed to a different effect (i.e. bass drum to a tight gated reverb, snare to a large hall, toms to a medium hall, etc.).

The keys on this page give access to keygroup functions.

SELECTING KEYGROUPS

In the top right hand corner of every keygroup page is the keygroup selector. Touch F9 and use the DATA wheel to select the keygroup you wish to edit.

This key also has a drop down menu that allows you to switch between editing just single individual keygroups or ALL keygroups. The selection is shown clearly in the keygroup select key:



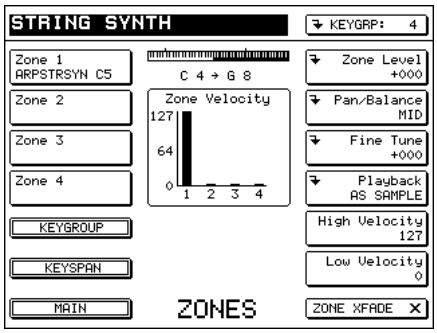
You may still select individual keygroups using the DATA wheel but any edits you make will affect all keygroups in the program.

TIP: *A quick way of selecting keygroups is to press AND HOLD F1 and play a note on your MIDI keyboard (or other controller). This will select that note's keygroup. For example, in a program with five keygroups spanning C0-B1, C2-B2, C3-B3, C4-B4, C5-G8, playing G3 will select keygroup 3 - i.e. the one spanning C3-B3.*

In the case where keygroups are layered or overlap, pressing and holding EDIT and repeatedly playing the note will select each keygroup in turn.

KEYGROUP ZONES

Pressing KEYGROUP ZONES shows something like this display:



The parameters are as follows:

ZONE 1/2/3/4 — Samples are assigned here. To assign a sample, simply press F2, F3, F4 or F5 and use the DATA wheel to scroll through the samples in memory. A zone can contain a mono or a stereo sample[5] and samples assigned here can be normal RAM samples or 'virtual' samples. Having 'virtual' samples in a program means that they can be processed by the envelopes, filters, LFOs, etc., just like any normal sample and no distinction is made between them. This opens up many exciting possibilities for playing disk recordings alongside ordinary RAM samples.

NOTE: *Keygroups that have 'virtual' samples assigned to them have a polyphony of 1 voice and you cannot play chords with 'virtual' samples. However, apart from this restriction, they can be transposed and played much like normal RAM samples.*

ZONE LEVEL — This sets the level for the selected zone. As well as allowing you to balance the level of keygroups, this parameter can also be used in the event of distortion occurring with high resonance settings in the filters and turning the level down (setting a negative value here) will reduce the level going to the filters and so will prevent distortion occurring.

PAN/BALANCE — If the sample in the selected zone is mono, this parameter controls pan to move the sound around the stereo image. If the sample in the selected zone is stereo, this parameter works as a balance control.

FINE TUNE — This allows you to fine tune the selected zone.

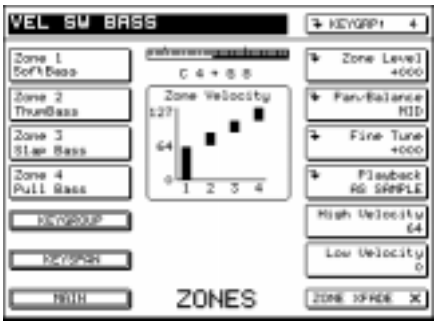
5 Previous Akai samplers required the left and right channels to be assigned to Zones 1 and 2 separately with pan and other parameters set manually for each 'leg' of the stereo sample in each zone. This restriction no longer applies. However, please note that 'old' Akai sound library will transfer directly when loaded into the S6000 with the -L and -R 'legs' of the stereo sample appearing in their respective zones exactly as they were saved on the older model sampler. Please bear this in mind when editing older Akai sound library material.

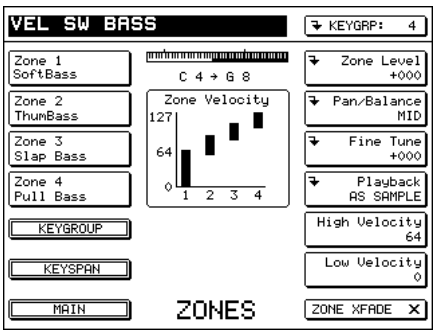
PLAYBACK — This allows to select how the sample plays back This overides the sample's own playback parameters. The options are:

AS SAMPLE	The sample will play according to the PLAY MODE set in EDIT SAMPLE.
LOOP IN REL	The sound will continue to loop during the release phase of the envelopes.
LOOP TIL REL	The sound will loop as you hold a note down but will play the rest of the sample after the loop end during the release phase of the envelopes.
NO LOOPING	The sound will play for its duration or until you release the note, whichever is the shorter.
ONE-SHOT	The sample will play to the end regardless of how long you play the note.

HIGH/LOW VELOCITY — These parameters set the high and low velocity for the zone.

For normal playback, you would normally set a zone to have a velocity range of 0-127. However, by assigning different samples to the zones and setting high and low velocity as appropriate, you can achieve velocity crossfade and switching. For example:





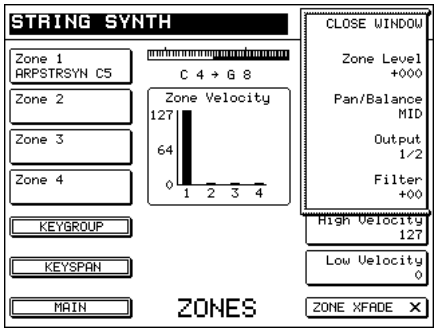
In the first example, there are four distinctly different bass samples played with different styles and these can be switched between using MIDI velocity. Play soft and you'll hear the sample SOFTBASS; play a bit harder and you'll hear THUMBBASS but really hit your keyboard hard and you'll hear PULL BASS.

If the velocity ranges overlap as shown in the second example, you can use ZONE XFADE so that the zones will crossfade giving a smoother transition.

ZONE XFADE — This 'checkbox' switches velocity crossfade on and off. With it set to off, the zones will switch; when set to ON, zones with overlapping velocity ranges will crossfade for a smoother transition.

Like MULTI mode, the parameters down the right hand side of the screen have windows:

ZONE LEVEL WINDOW



The parameters are:

ZONE LEVEL — This duplicates the main ZONE LEVEL parameter seen in the ZONES page and is included here for convenience.

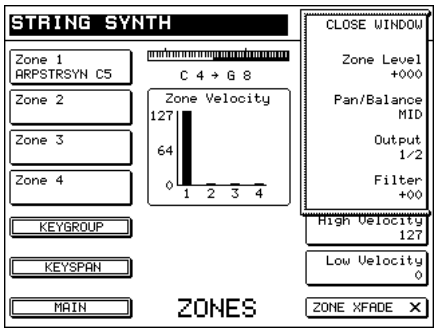
PAN/BALANCE — This duplicates the PAN/BALANCE parameter found in the main ZONES page.

OUTPUT — Here you may route zones to individual outputs.

When set to MULTI, when the program is placed in a multi part, the keygroup(s) will be assigned to the outputs set in that part. If the program is not associated with a multi, this setting routes the keygroup(s) to outputs 1/2.

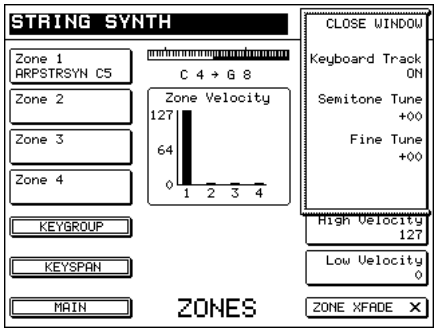
FILTER — This parameter allows you to set the filter cutoff to maintain a consistent tone between keygroups. The range is ±100.

PAN/BALANCE WINDOW



This is actually identical to the ZONE LEVEL window.

FINE TUNE WINDOW



The parameters are:

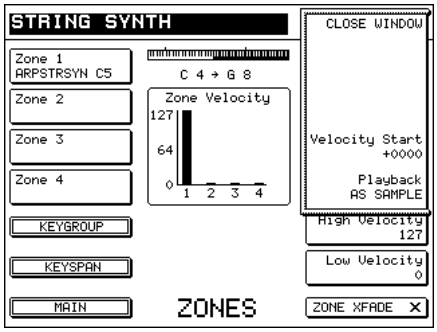
KEYBOARD TRACK — Allows you to switch the keyboard off so that the zone plays at a constant pitch of C3.

USEFUL TIP TO DRUM SAMPLISTS! *Sample all your drums on C3 and assign them to any key you like in the program and simply switch KEYBOARD TRACK to OFF for all keygroups. They will now play back at exactly the pitch they were sampled at. In this way, you don't have to worry about setting notes when sampling and then trying to match them up in EDIT PROGRAM. Other non-pitched samples such as sound effects, breakbeats, drum loops, etc., can be treated the same way.*

SEMITONE TUNE — This allows you to tune the zone in semitone increments.

FINE TUNE — This duplicates the FINE TUNE parameter in the main ZONES page and allows you to fine tune the selected zone.

PLAYBACK WINDOW



The parameters are:

VELOCITY START — This parameter allows you to determine the way in which velocity affects the playback starting point for each sample in a keygroup. The higher the positive number, the earlier in the sample playback will start relative to the key velocity (i.e. a high key velocity will start playback earlier in the sample). A negative number has the opposite effect (a

high key velocity will start playback later in the sample than a low key velocity). This effect is particularly useful for simulating percussion instruments (try it with a bass drum). It can also be very effective with such instruments as a heavily bowed cello - by setting a high positive value, hard keystrokes will play the aggressive bowing whilst soft keystrokes will not. The same could be done with overblown saxes or flutes, even synth sounds that have a pronounced attack.

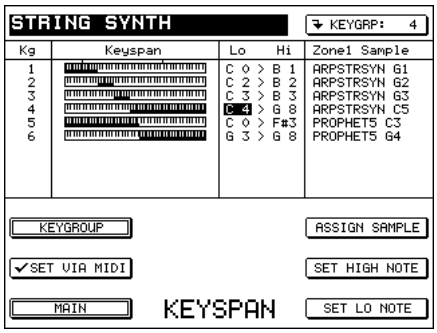
PLAYBACK — As per the main ZONES page.

SELECTING AND EDITING ZONES

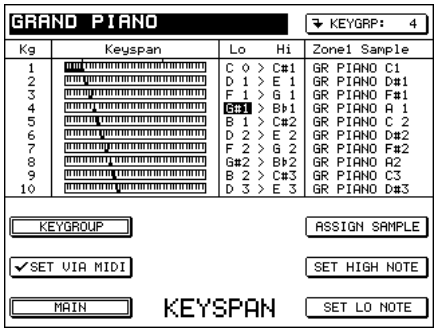
This is not unlike the MULTI mode where you first select a part using the soft keys on the left and then editing them using the parameter keys on the right, opening windows if necessary. So, for example, to transpose Zone 2 by an octave, press F3, press FINE TUNE (F12) and then press the WINDOW key (or press F12 again) to open the window where you can set the SEMITONE TUNE. Close the window when you've finished.

KEYSPAN

This is where you set the note ranges of the keygroups to map them out across the keyboard as you want. Pressing KEYSPAN shows something like this screen display:



A more complex program such as an intricately multi-sampled piano would look like this:



You may set note ranges in two ways - manually or via MIDI. Via MIDI is by far the easiest.

First, select the keygroup you want to set using F9. Now press SET HIGH NOTE or SET LOW NOTE as appropriate and switch SET VIA MIDI to ON. Now play the notes on your keyboard to set the ranges. The cursor will jump to each low and high note in the list. This is a very fast way to set up keygroup note spans and a whole program can be set up in seconds!

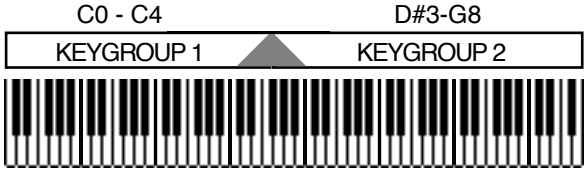
The other way to set note ranges is manually. First select the keygroup you want to set using F9. Now press SET HIGH/LOW NOTE to select the low or high note and use the DATA wheel to enter a note. Now press SET HIGH/LOW NOTE again to select the low or high note and use the DATA wheel to set the note. Repeat the process for all keygroups you want to set.

It is also possible to assign samples to Zone 1 of the keygroups in this page. In this way, it is possible to set up entire programs within the KEYSPAN page without needing to jump between pages (however, please note that if you want to assign samples to the other three zones, this should be done in the KEYGROUP ZONES page as normal).

KEYGROUP CROSSFADE

As well as 'butting' keygroups end to end, you may also set keyspan overlaps.

Sometimes, when mapping samples out across the keyboard range, there can be abrupt tonal changes from one sample/keygroup to another. In such circumstances, you may overlap adjacent keyspan ranges. The S6000 will automatically crossfade the the two keygroups for a smooth transition between the keygroups. E.g.:



In this simple example, two keygroups have been set to overlap. When played, the region between D#3 and C4 will crossfade.

NOTE: *If there is a tuning discrepancy between the keygroups' samples, you may experience a 'chorus' effect in the overlap/crossfade region. Be sure to tune the samples precisely to overcome this.*

Also, please note that in the overlap region, two voices are used (four if they are stereo samples) and so you will find that polyphony is reduced in the overlap/crossfade region.

KG PITCH/AMP

Pressing KG PITCH/AMP in either the MAIN or KEYGROUP pages will show something like this:



The parameters are:

SEMITONE TUNE — This allows you to tune the keygroup in semitone steps.

FINE TUNE — This allows you to fine tune the selected keygroup.

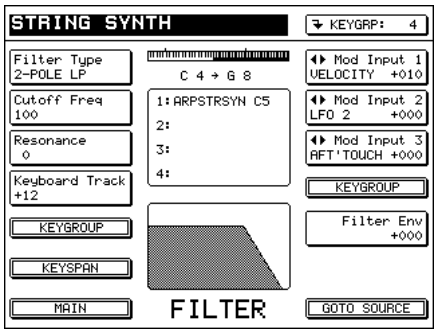
PITCH MOD 1/2 — Here you may set pitch modulation levels for the selected keygroup and also select a controller for the two pitch mod inputs. The process is exactly as described on Page 58.

AMP MOD — Here you may set amplitude modulation levels for the selected keygroup and also select a controller (as described on Page 58).

GOTO SOURCE — This will take you directly to the selected controller's page. Of course, a mod input needs to be selected for this.

FILTER

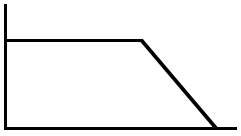
The filter page looks something like this:



The parameters on the filter page are:

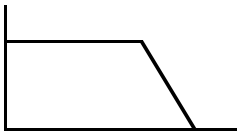
FILTER MODE — Here you can select from one of the 26 different resonant filter types. These are:

2-POLE LP



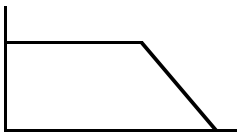
A 12dB/Octave lowpass filter with resonance.

4-POLE LP



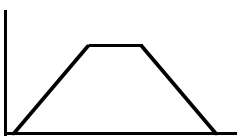
A 24dB/Octave lowpass filter with resonance.

2-POLE LP+



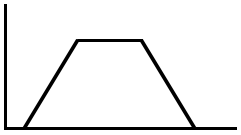
A 12dB/Octave lowpass filter with enhanced resonance.

2-POLE BP



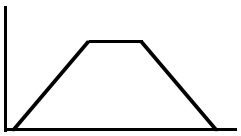
A resonant bandpass filter with a 6dB/Octave roll-off slope either side of the band.

4-POLE BP



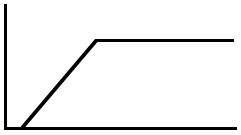
A resonant bandpass filter with a 12dB roll-off slope either side of the band.

2-POLE BP



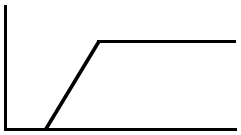
A bandpass filter with a 6dB/Octave roll-off slope either side of the band with enhanced resonance.

1-POLE HP



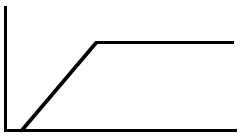
A 6dB/Octave highpass with resonance.

2-POLE HP



A 12dB/Octave resonant highpass filter .

1-POLE HP+



A 12dB/Octave highpass filter with enhanced resonance.

LO<>HI

A resonant filter that is lowpass at the lower end of the frequency spectrum and highpass at the upper end.

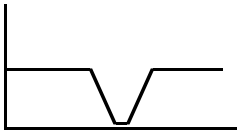
LO<>BAND

A resonant filter that is lowpass at the lower end of the frequency spectrum and bandpass at the upper end.

BAND<>HI

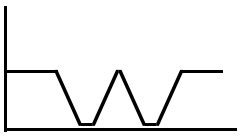
A resonant filter that is band pass at the lower end of the frequency range and highpass at the top end.

NOTCH 1



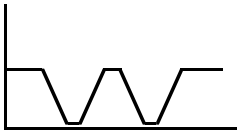
A notch filter with a single notch. Resonance increases the depth of the notch.

NOTCH 2



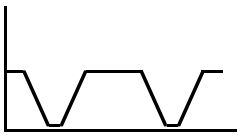
A notch filter with a two notches spaced two octaves apart. Resonance increases the depth of the notches.

NOTCH 3



A notch filter with a two notches spaced three octaves apart. Resonance increases the depth of the notches.

WIDE NOTCH



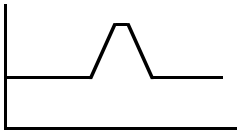
Another dual notch filter with one notch in the upper frequencies and the other in the lower frequencies.

BI-NOTCH

A dual notch filter based on NOTCH 1 in which modulation sweeps the notches in opposite directions. As one moves up through the frequency range, the other moves down and *vice versa*.

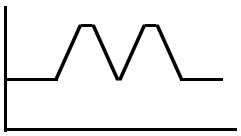
NOTE: *The differences between the five notch filters are subtle, it must be said but with different cutoff frequency and resonance settings and depending on the modulation settings and the sound being processed, you will hear quite distinct differences.*

PEAK 1



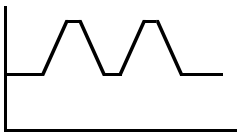
A peak filter with a single peak. Resonance increases the intensity of the peak.

PEAK 2



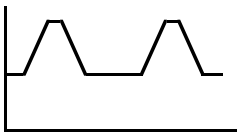
A peak filter with a two peaks spaced two octaves apart. Resonance increases the intensity of the peaks.

PEAK 3



A peak filter with a two peaks spaced three octaves apart. Resonance increases the intensity of the peaks.

WIDE PEAK



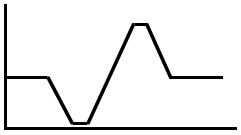
Another dual peak filter with one peak in the upper frequencies and the other in the lower frequencies.

BI-PEAK

A dual peak filter based on PEAK 1 in which modulation sweeps the peaks in opposite directions - as one moves up through the frequency range, the other moves down and *vice versa*.

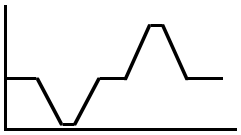
NOTE: *The differences between the five peak filters are subtle, it must be said but with different cutoff frequency and resonance settings and depending on the modulation settings and the sound being processed, you will hear quite distinct differences.*

PHASER 1



A phase shifter created with a notch and peak filter at around the same frequency. Resonance increases the intensity of the peak and the depth of the notch.

PHASER 2



A phase shifter created with a notch and peak filter with offset frequencies that has a slightly 'swirlier' sound as the frequency is modulated. Resonance increases the intensity of the peak and the depth of the notch.

BI-PHASE — A phase shifter based on PHASER 1 in which modulation sweeps the peaks in opposite directions - as one moves up through the frequency range, the other moves down and *vice versa*.

VOWELISER — This is a special filter configuration that is able to produce certain vowel sounds and articulations (EE-OO, EE-OR, EE-AH and OO-AA, OO-EH, OO-OW) with certain settings. The quality of the results depends very much on the filter's settings and also on the sound being filtered.

The 'chart' shown in the centre of the VOWELISER's screen display guides you to certain optimum settings (for example, a cutoff of 70 and a mod amount of +005 will give something approaching an EE-OO vowel articulation).

NOTE: *Because of the way that the FILTER ENVELOPE interacts with the filter and the special way the VOWELISER works, it is recommended to set FILT ENV DEPTH (see below) to +000 for optimum 'vowel' effects.*

CUTOFF FREQ — Sets the initial cutoff frequency for the selected filter type.

RESONANCE — This sets the resonance for the selected filter types. Extreme settings can cause distortion. If this happens, either back off the ZONE LEVEL parameter in the KEYGROUP ZONES page or reduce the overall LOUDNESS in the main OUTPUT page.

KEYBOARD TRACK	Allows the filter's cutoff frequency to track the keyboard for a uniform tone across the keyboard range.
MOD INPUT 1/2/3	Here you may set the depth of the selected filter modulation controllers. Pressing the key twice allows you to change the controller.
FILT ENVELOPE	Takes you to the filter's dedicated envelope page.
FILT ENV DEPTH	Sets the amount of sweep by the filter's envelope. Note that this is a duplication of the same parameter in the FILTER ENVELOPE page - it is included here for convenience.

NOTE: *When using the VOWELISER filter, because of the way the filter envelope controls the filter, it is recommended that this parameter is set to +000*

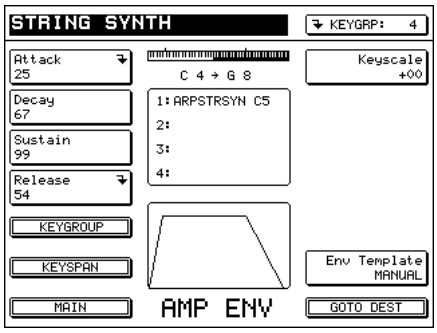
GOTO SOURCE	This will take you directly to the selected controller's page. Of course, a mod input needs to be selected for this.

NOTE: *This has no function when the FILT ENV DEPTH parameter is selected.*

Because each of the filter types have their own very distinctive characteristics, you may have to adjust CUTOFF, RESONANCE and MOD INPUT settings as you switch from filter to filter to get the best results. When switching between certain filter types, you may hear no difference at all between them whilst switching between others will yield very distinct differences. Experimentation is the name of the game here!

AMP ENVELOPE

This is an ADSR envelope that is used to control overall amplitude:



The parameters are:

ATTACK — This sets the attack time of the envelope. High values produce a long attack time (several seconds).

DECAY — This sets the time it takes for the amplitude to fall to the SUSTAIN level (see below).

SUSTAIN — This sets the level the sound will sustain at when holding a note down.

RELEASE — This sets the time it takes for the sound to die away after the note is released.

The graphic representation of the envelope shape is animated and updates in real-time as you change these four parameters.

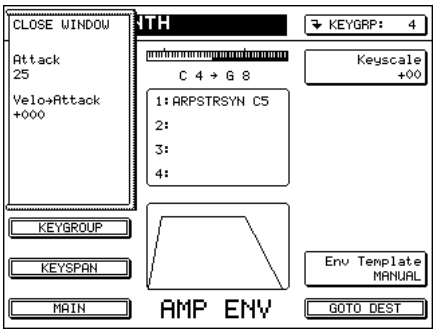
KEYSCALE — This allows you to vary the envelope shape according to key position (i.e. higher notes can have a faster, shorter envelope than lower notes in order to simulate the natural characteristics of certain sounds such as piano, for example).

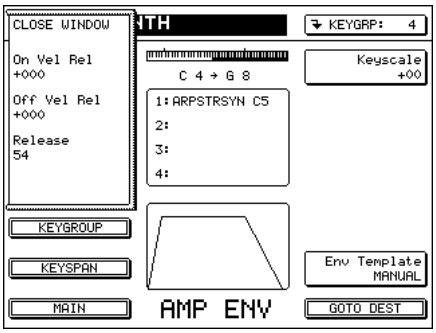
ENV TEMPLATE — This allows you to choose from a variety of preset envelope shapes.

GOTO DEST — This pops up a window and allows you to go directly to any places where the AMP ENVELOPE may be routed.

AMP ENVELOPE WINDOW FUNCTIONS

As always, behind certain parameters is access to lesser used functions:





In the ATTACK window, parameters are:

ATTACK — Reproduced in the ATTACK window for convenience

VEL>ATTACK — This allows you to use velocity to control attack time. Setting a positive value here will result in heavy keystrikes making the attack time faster (and light keystrokes making the attack time slower). Negative values set here will produce the opposite effect.

In the RELEASE window, the parameters are:

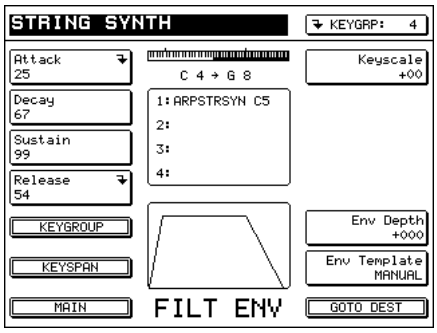
ON VEL>REL — This allows you to use note-on velocity to control the release time of a sound. Setting a positive value here will result in heavy keystrikes making the release time faster (and light keystrokes making the attack time slower). Negative values set here will produce the opposite effect.

OFF VEL> REL — If your keyboard has the ability to generate note-off velocity, this allows you to use note-off velocity to control the release time of a sound. If you take your hands off the keyboard quickly, setting a positive value here will result the release time being faster (taking your hands off the keyboard slowly will make the release time slower). Negative values set here will produce the opposite effect.

RELEASE — Duplicated here for convenience.

FILTER ENVELOPE

Pressing FILTER ENVELOPE in either the MAIN or KEYGROUP page will show this screen:



The parameters and window functions are identical to the AMP ENVELOPE except....

ENV DEPTH — This sets the output level of the FILTER ENVELOPE.

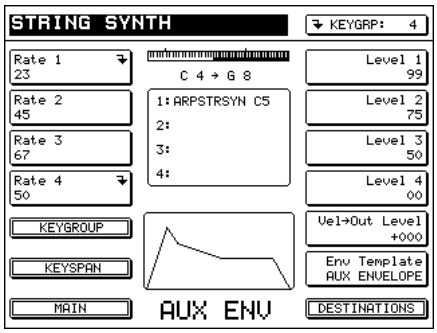
Set to +000, it will have no effect on the filter or on anything else it may be routed to in the APM modulation matrix.

NOTE: *If you are using the FILTER ENVELOPE as a mod source elsewhere in the APM modulation matrix (for example, if the filter envelope is being used to control, say, pitch), a value other than +000 needs to be set here otherwise you will not hear the pitch sweep effect.*

However, because this parameter also sets the level for the 'hardwired' link to the filter, setting a value appropriate to the pitch sweep effect you want will also affect filter modulation which may or may not be what you want.

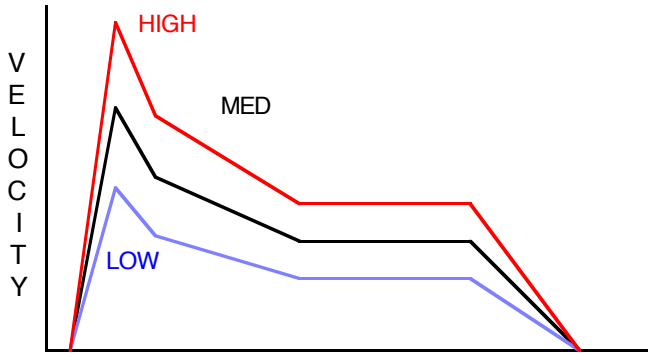
AUX ENVELOPE

Pressing AUX ENVELOPE will show something like this screen:



The parameters are:

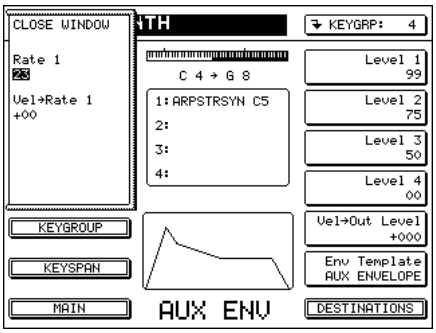
RATE 1	Sets the time it takes for the envelope to get to LEVEL 1
RATE 2	Sets the time it takes for the envelope to get to LEVEL 2
RATE 3	Sets the time it takes for the envelope to get to LEVEL 3
RATE 4	Sets the time it takes for the envelope to get to LEVEL 4
LEVEL 1	Sets the level for RATE 1
LEVEL 2	Sets the level for RATE 2
LEVEL 3	Sets the level for RATE 3. This is also the level at which a note will sustain when you hold a note
LEVEL 4	Sets the level for RATE 4.
VEL>OUT LEVEL	This sets the amount of effect velocity will have on the AUX ENVELOPE's output.

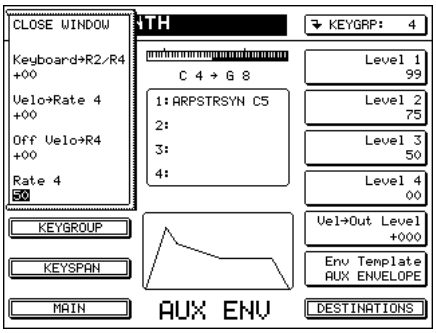


ENV TEMPLATE	This allows you to choose from a variety of different preset envelope templates.

AUX ENVELOPE WINDOWS

RATE 1 and RATE 4 have window functions:





The parameters in the RATE 1 window are:

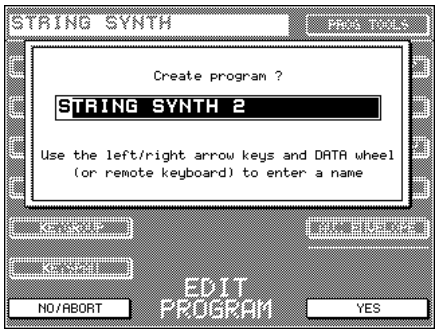
RATE 1	RATE 1 is duplicated here for convenience.
VEL>RATE 1	This allows you to use velocity to control RATE 1's time. Setting a positive value here will result in heavy keystrikes making RATE 1 faster (and light keystrokes making the RATE 1 slower). Negative values set here will produce the opposite effect.

The parameters in the RATE 4 window are:

KEYBOARD>R2/R4	This will set how much key position will affect RATE 2 and RATE 4.
VEL>RATE 4	This sets how much note-on velocity will affect the speed of RATE 4.
OFF VEL>RATE 4	This sets the amount by which MIDI note-off velocity will affect the speed of RATE 4.
RATE 4	This is duplicated here for convenience.

CREATING PROGRAMS

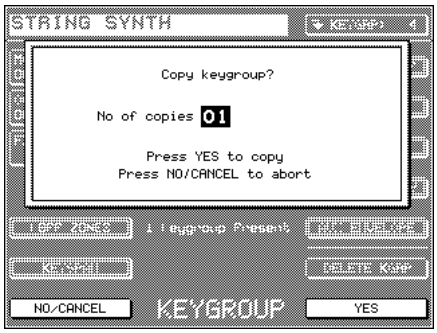
In the main EDIT PROGRAM page, F15 is CREATE PROGRAM where you may create a brand new, empty program. Pressing this pops up this screen:



An auto numbered name is automatically assigned using the currently selected program name as a 'seed'. You may, however, rename this if you want in the usual fashion either by using the CURSOR </> keys and the DATA wheel or more conveniently with an external QWERTY keyboard.

CREATING (COPYING) KEYGROUPS

When in the KEYGROUP pages, it is possible to create (or rather *copy*) keygroups. In the KEYGROUP pages, pressing COPY KEYGROUP (F15) will pop-up this prompt:

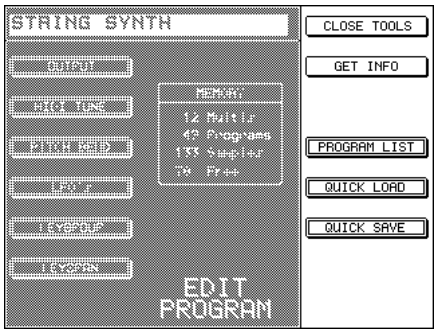


The selected keygroup will be copied. You may then use this as the basis for a new keygroup.

If you want to copy/create multiple keygroups, you may enter a number in the large numeric field using the DATA wheel or numeric keypad.

PROG TOOLS MENU

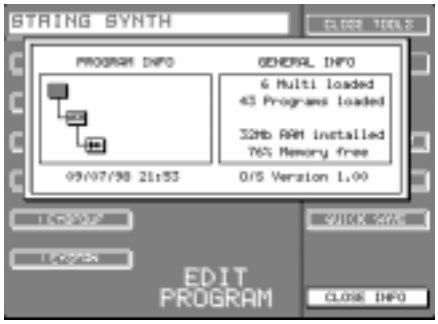
Pressing PROG TOOLS shows this drop down menu:



The functions are:

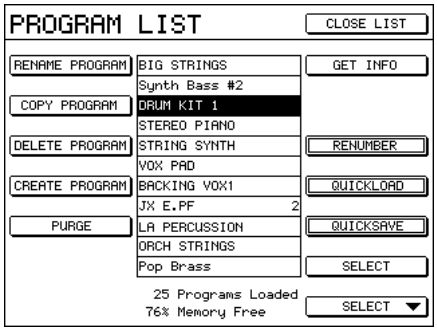
GET INFO

This shows the sampler's current status regarding memory and items loaded, etc.:



PROGRAM LIST

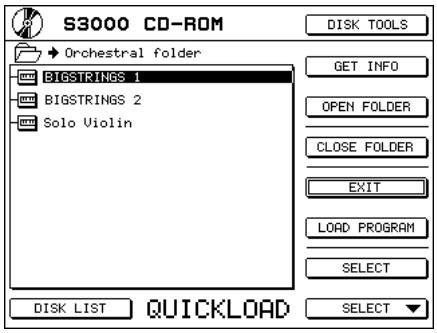
This takes you to the PROGRAM LIST page:



Here you may select, rename, copy, delete, rename, purge and renumber programs. These functions are described on Page 56

QUICKLOAD

This takes you to a simplified version of LOAD where you may load programs and their associated samples into memory quickly and easily:



Being a 'quickload' function, it only shows the programs available for loading.

To load a program, simply select it in the usual way using F15/16 (SELECT), press LOAD PROGRAM and follow the on-screen instructions.

To leave the page, press EXIT.

QUICKSAVE

This allows you to quickly save the selected program.

NOTE: *PROG TOOLS is not available in any of the keygroup pages.*

WORKING WITH VIRTUAL SAMPLES IN A PROGRAM

The prime application for 'virtual' samples is for playing long recordings directly from disk. These include sounds such as backing vocals, breakbeats, long guitar/sax/whatever solos, etc. - in fact, anything you can imagine!

The S1100 was the first sampler to introduce disk recording and this became a standard feature on many other Akai samplers afterwards. However, it had restrictions:

- Only one recording (take) could be played at any one time
- There were delays in triggering the take so you had to offset MIDI triggers to fixed delay times
- Takes could not be pitched or transposed
- Takes could not be converted into ordinary samples and loaded into memory
- Ordinary samples (particularly long samples) could not be converted into takes
- The playback process was separate from playing programs

The 'virtual' sample function on the S6000 overcomes all of these restrictions.

- Multiple 'virtual samples' can be played simultaneously[6]
- Playback is instant with no trigger delays or offsets to set
- They can be played up and down the keyboard (even subject to pitchbend and vibrato) just like any normal RAM sample
- They can be converted into normal samples and loaded into RAM for editing
- Ordinary RAM samples can be converted into 'virtual' samples
- "Virtual' samples can be assigned to programs and so can be more easily integrated into a multi to play alongside normal programs

There is another benefits too in that 'virtual samples' can be processed with the program's filters, envelopes, LFOs, etc. so that you can really mangle disk recordings beyond recognition (if you like that kind of thing!).

The only restriction with using 'virtual' samples in a program is that any keygroup they are assigned to will have a polyphony of 1 voice so it is not possible to play chords.

6 The actual limit of how many 'virtual' samples you can play simultaneously depends on the speed of your hard disk. Faster drives will allow more 'tracks' whilst slower drives may struggle with just a few.

You may use ‘virtual’ samples in a number of ways.

- You could have programs specifically set up for just one ‘virtual’ sample - i.e. you could have a BACKING VOCAL program, a GUITAR SOLO program, a PERCUSSION LOOP program, etc., each containing just one ‘virtual’ sample. Each of these programs could then be assigned to their own parts in a multi and addressed on unique MIDI channels.

- You could have multiple ‘virtual’ samples in a program each in their own keygroup mapped out across the keyboard range. In this way, your BACKING VOCAL program (for example) could have several different backing vocal samples triggered on specific notes. Likewise with the GUITAR SOLO program, whatever.

- You could have a drums program in which some keygroups contain normal drum samples triggered from RAM whilst others have ‘virtual’ percussion or drum phrases played direct from disk.

Basically, there is no distinction made between normal RAM samples and ‘virtual’ samples and as long as you are aware of some of the restrictions with ‘virtual’ samples[7], RAM and ‘virtual’ samples can be integrated seamlessly into your production.

7 These restrictions are mostly due to limitations with disk drives.

EDIT SAMPLE

Whilst MULTI is where you can set superficial attributes to a sound such as level, pan, FX send, etc., and EDIT PROGRAM is where you have access to deeper levels of sound editing, EDIT SAMPLE is where you edit the raw samples that make up a sound. Pressing EDIT SAMPLE shows this page:



The sample you wish to edit is selected by pressing F1 and turning the DATA wheel.

On each sample edit screen, icons display information about the selected sample.

This icon shown after the sample name indicates that the sample is looped. If this icon is not shown, the sample is not looped.

This icon indicates that the sample is mono.

This icon indicates that the sample is stereo.

Centre screen, further information about the current sample is also shown. You can see its length, its sample rate and whether it is a normal RAM sample loaded into memory or a 'virtual' sample that will play from disk. The MEMORY box shows the contents of the sampler.

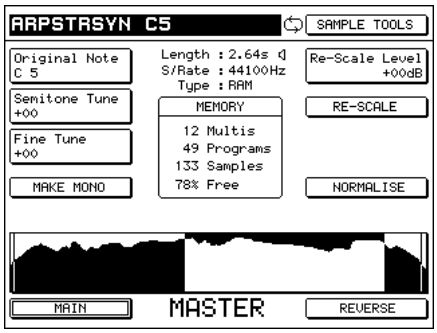
The functions on the main EDIT SAMPLE page are:

MONITOR

This allows you to monitor the 'raw' sample - i.e. in isolation with no processing by the program it is in - or you can monitor/edit the sample within the context of the program it assigned to. For example, let us say you have made a snare drum sample and this is placed into a program DRUMS 1. By selecting DRUMS 1 in this field, you will be able to edit it in EDIT SAMPLE whilst listening to the other drums in the program.

MASTER

This gives access to certain 'general purpose' sample editing functions:



The sample's waveform is shown at the bottom of the screen. The inverted/highlighted area is the sample's loop.

The parameters are:

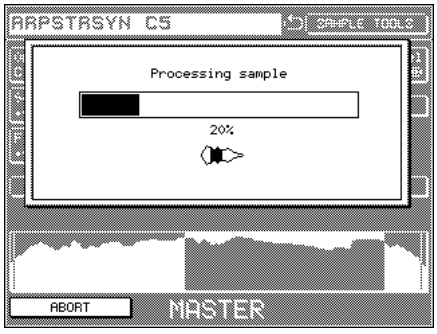
ORIGINAL NOTE — Here you may reset/edit the sample's original note - i.e. the note it was recorded on.

SEMITONE TUNE — Here you may tune the sample in semitone steps.

FINE TUNE — This allows you to fine tune the sample.

MAKE MONO — This will convert a stereo sample into a mono sample by merging the left and right channels into one mono sample that is half the size of the original. This may be useful in non-critical situations where stereo is not important (i.e. live gigging) or in situations where memory is tight and stereo is not vital. Converting a stereo sample to mono will also halve loading times as well as conserving memory which, again, may be useful in a live gigging situation.

Pressing MAKE MONO will show this progress display:



A progress bar will move left to right and a percentage of progress is also shown. An animated 'waveform processing' icon is also used to further indicate sample processing activity.

At the end of the process, you will receive this prompt:



A new 'autonamed' sample will be created. You may rename this if you want in the usual way using the CURSOR </> keys and the DATA wheel or an external QWERTY keyboard (if connected).

You can use PLAY ORIGINAL and PLAY NEW to compare the two samples. Depending on the results, as the on-screen instructions explain...

* KEEP ORIGINAL will keep the original sample and will discard the new sample and keep the original (this is basically an 'abort' function).

* KEEP NEW will keep the new sample created by the process but will delete the original source sample from memory.

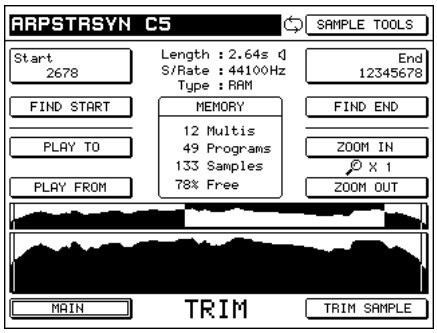
* KEEP BOTH will, not surprisingly, keep both samples. This is the safest option as you have the original to fall back on.

IMPORTANT NOTE: *This process is common to ALL off-line sample editing functions and is consistent throughout all the off-line editing processes. As such, it is not specifically described for each sample editing function but is simply referred to as the "PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt".*

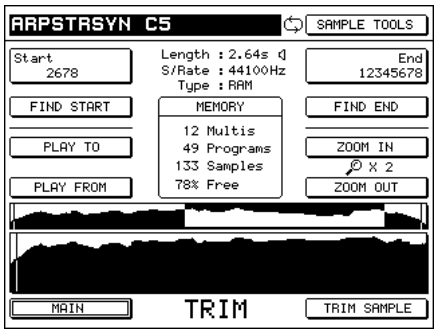
RE-SCALE LEVEL	This sets the level for the RE-SCALE function and allows you to turn the level of a sample up or down.
RE-SCALE	This initiates the RE-SCALE process. Pressing this will show the "Processing sample" progress display described above followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt.
NORMALISE	This allows you to bring a sample's level up to optimum. Pressing this will show the "Processing sample" progress display described above followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt.
REVERSE	This allows you to reverse a sample. Pressing this will show the "Processing sample" progress display described above followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt.
MAIN	This returns you to the main EDIT SAMPLE page.

TRIM

Pressing TRIM will show something like this screen display:



Here, you can set start and end points and discard audio either side of them. The waveform display is slightly different to that shown in the MASTER page in that the upper waveform shows an overview of the sample with the loop area highlighted whilst the main lower waveform display allows you to zoom in on it for finer editing resolution for editing:

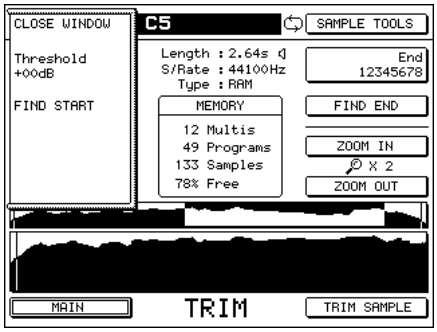


The parameters are:

START/END — These set the start and end points of the region you wish to edit. Use the CURSOR keys to move around the field and the DATA wheel to adjust the value. For example, in the screen shot shown above, to make a big change to the start point, move the cursor to the 2 of 2678 using the CURSOR < key. As you move the DATA wheel, you will increment in big jumps. This is good for getting some way into the sound with little effort. When you are close to where you want to be, move the cursor one position right using the CURSOR> key to edit the start point in smaller increments. As you get closer and closer to the point you want to set, you can use finer incrementation until, with the cursor on the furthest right field, you are editing to a resolution of individual sample accuracy. You can use ZOOM IN to see the waveform with greater accuracy. You will hear the results in real-time as you play your MIDI keyboard or use the ENT/PLAY key and adjust the START or END times.

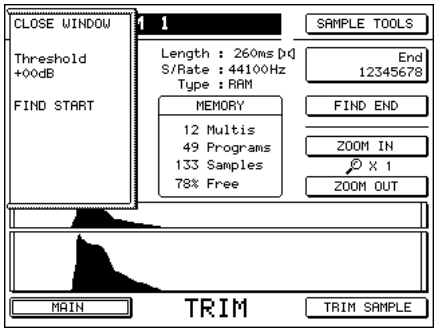
NOTE: *If the sample has a loop, you cannot move the START and/or END point within the loop.*

FIND START/END — Pressing either of these pops up a window:



You should set a threshold level at which to find the start (or end) point.

The above example is probably not a good one but in the case of a drum sound with a lot of 'dead space' such as the following, FIND START and FIND END is very useful.



By setting an appropriate THRESHOLD, you can automatically set START and END points to aid you with your editing.

PLAY TO — This allows you to play to the currently selected edit point (i.e. with the START parameter selected, it will play to the start point; with the END parameter selected, it will play to the end point).

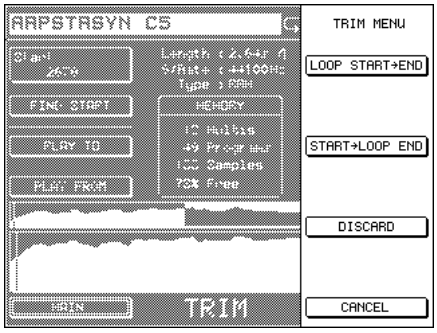
An edit point must be selected for the PLAY TO function to work.

PLAY FROM — This allows you to play from the currently selected edit point (i.e. with the START parameter selected, it will play from the start point; with the END parameter selected, it will from the end point).

An edit point must be selected for the PLAY FROM function to work.

ZOOM IN/OUT — This allows you to zoom in on the main waveform display. The 'overview' (i.e. the upper, smaller waveform display) always displays the full sample regardless of the zoom factor.

TRIM SAMPLE This displays the following pop-up menu:



The options are:

LOOP START>END This will discard audio either side of the loop (if one is set).

START>LOOP END This will discard audio before the TRIM start point and after the LOOP END point.

DISCARD This will discard audio before the TRIM start point and after the TRIM end point.

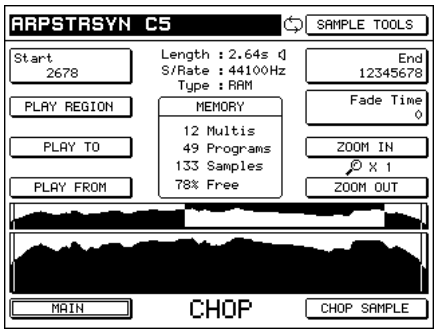
CANCEL This closes the pop-up should you change your mind.

Pressing one of these will initiate the selected TRIM function. You will see the usual “Processing sample” progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt[8].

8 The process may be so fast that you may not see a progress display, especially on shorter samples.

CHOP

Pressing CUT/ERASE shows something like this screen:



This is similar in many ways to TRIM except that edits are done *within* the START/END region and you may erase a portion of the sample (i.e. remove it and keep the gap) or you may cut a portion from the sample (i.e. remove it and close the gap).

The parameters are also similar:

START/END — Sets the start and end points for the edit.

NOTE: *If the sample has a loop, you cannot move the START and/or END point within the loop.*

PLAY REGION — Allows you to play the region marked by the START/END points.

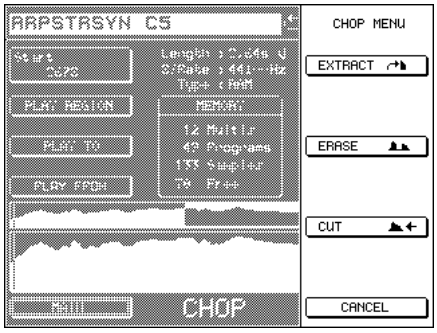
PLAY TO/FROM — Plays to or from the selected edit point. With START selected, PLAY TO will play up to the start point; PLAY FROM will play from it. With END selected, PLAY TO will play up to the end; PLAY FROM will play from the end.

PLAY REGION and PLAY TO/FROM allow a great deal of flexibility when auditioning your edit prior to committing it.

FADE TIME — Sets the fade down/up time for the edit. In the case of ERASE, this will smooth the extraction and reduce the possibility of clicks. In the case of CUT, this will perform a crossfade to smooth the butt edit.

ZOOM IN/OUT — These allow you to zoom in on the selected editing point for greater resolution.

Pressing CHOP SAMPLE will show this pop-up menu:



Pressing CUT will remove the area marked by the START and END points and will butt the remainder together: E.g.:



Original



After CUT

If the butt edit is too severe, you can use the FADE function to set a crossfade:



Pressing ERASE will remove the area marked by the START and END but will keep the gap:



Original



After ERASE

If the extraction is too severe, you can use the FADE function to smooth it:



EXTRACT allows you to mark a section of a sample and extract it to a new sample. For example, this may be used to extract a snare drum or kick drum from a drum phrase. For example, you may have this drum phrase:



By marking the START and END points on the snare you want to extract:



Pressing EXTRACT will remove the snare drum and create a new sample:

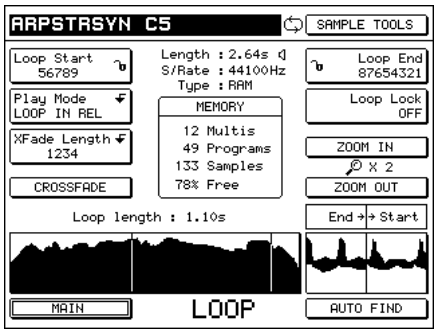


Pressing CUT, ERASE or EXTRACT will initiate the selected function. You will see the usual “Processing sample” progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt[9].

9 The process may be so fast that you may not see a progress display, especially on shorter samples.

LOOP

Pressing loop will display this screen:



The waveform display shown to the left of the screen shows an overview of the waveform and the loop points. The loop length is shown above this display[10]. This display is not affected by ZOOM IN/OUT.

The smaller waveform display shown to the right of the screen shows the 'loop join' point at the waveform level. You can use ZOOM IN to magnify this display in order to match the waveform more precisely. Ideally, you want the two waveforms to 'look' as similar as possible.

The parameters on the LOOP page are:

LOOP START/END — These set the start and end of the loop. Unlike previous Akai samplers, these are set independently of each other. Loop START and END times cannot be set beyond the TRIM page's START and END times.

LOOP LOCK — Once you have set a good loop, you may lock its length and 'slide' it around the sample to see if it sounds better in a different position.

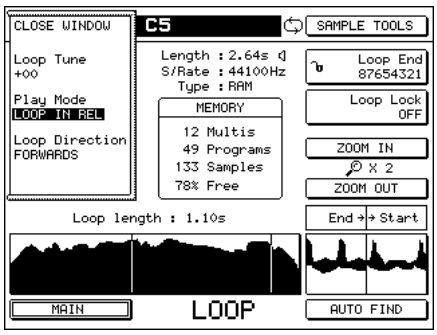
PLAY MODE — This allows you to set how the sample will play. The choices are:

- NO LOOPING — This selection causes the sample to play without loops for as long as the key is held down. If the sound is not long enough, it will finish even though you are holding down a note. If the sample is still sounding, however, as soon as the key is released, the sound will stop.
- ONE SHOT — This will cause the sample to be played in its entirety regardless of how long the key is pressed. This is useful for triggering drums or 'phrases' as an instantaneous trigger signal or key press will play the whole sample and the key does not have to be held down for the whole length of the sample.

10 In UTILITIES - PREFERENCES, you can choose to display the loop length in time (i.e. minutes and seconds) or in sample points. The screen shot shown above displays the loop length in time.

LOOP IN REL	When a key is pressed, the sample will loop according to the LOOP settings for as long as you hold the key. When the key is released, the loop will continue to play as the release falls away (this depends on the settings of the envelope generators in EDIT PROGRAM).
LOOP TIL REL	This will play the sample and will loop for as long as you hold the key but, as soon as you release the note, the loop will stop playing and the rest of the sound (if any) will play through the release phase of the program's envelope.

The PLAY MODE's WINDOW parameter reveals these further parameters:



The parameters are:

LOOP TUNE	Allows you to tune the loop separately from the rest of the sample.
PLAY MODE	The PLAY MODE parameter duplicated here for convenience.
LOOP DIRECTION	You may set FORWARDS or ALTERNATING:



Original with loop settings



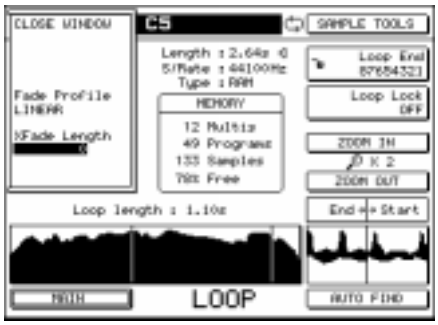
Playback with FORWARD loop



Playback with ALTERNATING loop selected

As you can see, you can get a smoother loop with ALTERNATING selected in some circumstances. ALTERNATING is particularly useful on long loops with sounds such as strings, etc.. It can also be useful for looping decaying sounds such as cymbals or pianos.

XFADE LENGTH — This sets the length of the crossfade. It too has a WINDOW function. Pressing WINDOW reveals these further functions:



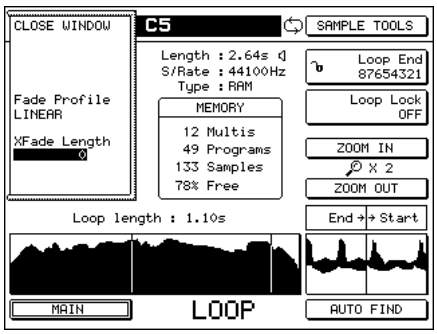
Here you may select from a choice of crossfade curves (LINEAR, LOG and SINE). Of these, for a smooth crossfade, SINE is possibly the best selection but you may like to experiment for the best results.

The XFADE LENGTH parameter is duplicated for convenience.

XFADE LENGTH — This sets the length of the loop crossfade.

What this function does is to crossfade a portion of the sound before and after the loop according to the time set in the XFADE LENGTH field. This will (should!) smooth out any glitches you may have. There are no rules and so some experimentation will be required. Having said that, although the process is not guaranteed, this can be very effective in getting almost perfect loops.

The CROSSFADE's WINDOW function reveals these further parameters:



FADE PROFILE — This allows you to choose different fade curves for the crossfade. The choices are LINEAR, LOG and SINE.

XFADE LENGTH — This is duplicated here for convenience.

CROSSFADE — This initiates the crossfade function. Pressing this will display the usual "Processing sample" progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. You should respond accordingly to the final prompt according to the results of the XFADE function.

ZOOM IN/OUT — This allows you to view the right hand waveform display in greater detail when trying to match waveforms.

AUTO FIND — Pressing this will cause the sampler to look for the best match point for a loop. With simple waveforms, the results are almost guaranteed to be perfect. However, with more complex waveforms, whilst you may get an acceptable loop, it may still not be perfect and may exhibit some clicks and thumps (in which case, use CROSSFADE to smooth them out perhaps).

Repeated pressing of the AUTO FIND function moves the LOOP START point nearer to the LOOP END point.

SETTING A GOOD LOOP

The first thing to do is to set the START and END points, referring to the overview waveform on the left of the screen. You want to set the START and END at points which match in amplitude. For example:



This would not be a suitable loop and would give the following result:



As you can see quite clearly, the loop will have very noticeable clicks and thumps because of the abrupt changes in level at the loop points (however, you may be able to cure this using an ALTERNATING loop).

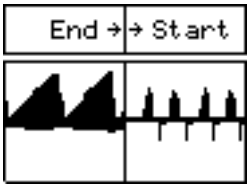
Setting the loop points as below may give better results.



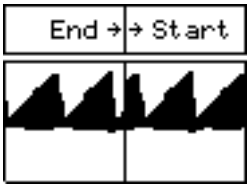


Because the levels are better matched, a smoother loop is created

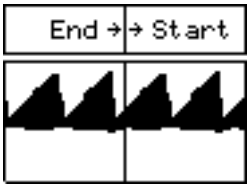
However, matching overall level is one thing - you also need to keep an eye on the right hand waveform display which shows you the sound in more detail. Ideally, you want to match the two waveforms so that the two look the same. For example:



Example 1



Example 2



Example 3

Example 1 would not make a good loop as the waveforms at the loop point are completely different.

Example 2 may make a better loop as the waveforms are very similar. However, the small mismatch at the join would undoubtedly cause a glitch or clicks.

Example 3 would probably provide a good loop as the waveforms match almost perfectly.

However, even though you may get a good level match in the left hand display and a good match in the right hand waveform display, this is no guarantee that the loop will be free of clicks or other glitches. This is where CROSSFADE can usually save the day.

The crossfade function creates a crossfade at the loop point which can help to smooth out any clicks, thumps or other glitches you may have:



For tiny clicks (such as you may have with Example 2 or even Example 3 above), a small crossfade of a few hundred samples can often do the trick. For more serious thumps and glitches (such as you would have with Example 1 above), you would need to set longer crossfade values.

***NOTE**: Sometimes when crossfading the end and the start of the loop, because the end may be slightly out of phase with the start, you may sometimes get a dip in level where they cancel each other out. This is not a fault of the S6000 but something that cannot be avoided.*

AUTO FIND and CROSSFADE are probably your best allies in looping. AUTO FIND will automatically look for good points of equal amplitude and good waveform matches whilst CROSSFADE will 'smudge' the loop area to eliminate glitches, thumps and any other unpleasantness. Perfect results are not always possible but you'll be surprised at how easy looping can be on the S6000.

***NOTE:** Multiple loops are not supported on the S6000.*

JOIN

Pressing JOIN will display this page:



This (and MIX described next) are the only two sample editing pages that don't conform to the normal page layout due to the fact that you are working with two samples.

Using F1 and F9, you may select the two samples A and B you wish to join. The JOIN process will splice them end-to-end with or without a crossfade.

The parameters are:

SAMPLE A/B FROM — These parameters allow you to set the start point for the two samples.

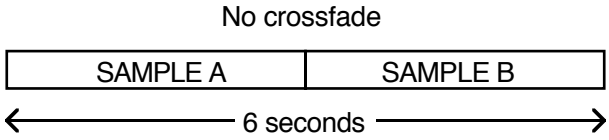
SAMPLE A/B TO — These parameters allow you to set the end point for the two samples.

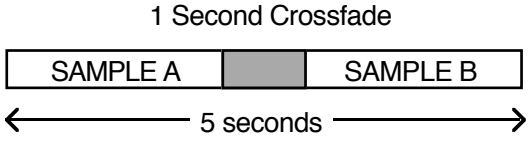
SAMPLE A/B LEVEL — These parameters allow you to set the level of both samples.

JOIN A>B/JOIN B>A — These two check boxes allow you to select whether sample A is followed by B or sample B is followed by A. Switching one on disables the other.

PLAY SAMPLE A/B — These two keys allow you to audition the two samples A and B prior to committing the join function.

XFADE LENGTH — This allows you to set the crossfade length. The longer the crossfade, the more the second sample is pulled back into the first. For example:





XFADE CURVE — This allows you to select a crossfade curve. The choices are LINEAR, LOG and SINE.

Pressing JOIN SAMPLES (F16) will pop-up the usual progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. However you will note a slight difference in the ‘keep’ prompt:



The options are basically the same and you can compare the new sample with the originals but because there are two originals with this process, you have the opportunity to play each one before deciding to keep or discard them. If in doubt, press KEEP ALL and decide what to do with the originals afterwards.

MIX

Again, the MIX page does not conform to the usual page layout:



Like in JOIN, use F1 and F9 to select the samples you want to mix. The process will merge the two samples, effectively 'layering' them into one composite sample.

The parameters are:

SAMPLE A/B FROM — These parameters allow you to set the start point for the two samples.

SAMPLE A/B TO — These parameters allow you to set the end point for the two samples.

SAMPLE A/B LEVEL — These parameters allow you to set the level of both samples.

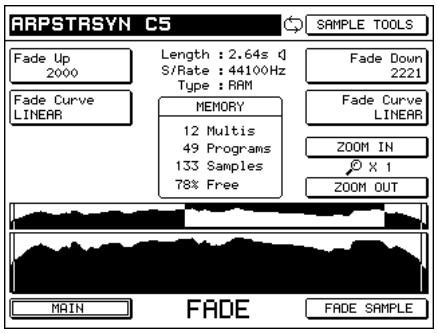
PLAY SAMPLE A/B — These two keys allow you to audition the two samples A and B prior to committing the join function.

MAKE STEREO — This allows you to make a stereo mix out of two mono samples and will place Sample A on the left and Sample B on the right. It is a 'check box' that is either on or off.

Pressing MIX SAMPLES (F16) will pop-up the usual progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. However, as with JOIN, because there are two originals with this process, you have the opportunity to play each one before deciding to keep or discard them. If in doubt, press KEEP ALL and decide what to do with the originals afterwards.

FADE UP/DOWN

Pressing the FADE UP/DOWN key will show this display:



The parameters are:

FADE UP/DOWN — These parameters set the length of the fade.

NOTE: *If the sample has a loop, you cannot set FADE UP or FADE DOWN times within the loop.*

FADE CURVE — There are two FADE CURVE parameters - one for FADE UP and one for FADE DOWN and both allow you to select from a choice of fade curves (LINEAR, LOG and SINE).

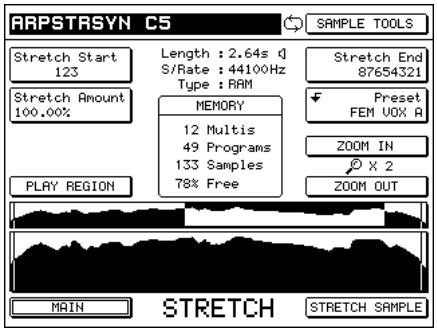
You may zoom in and out of the waveform for detailed editing.

Pressing FADE SAMPLE will show the usual “Processing sample” progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt.

TIMESTRETCH

The S6000 uses the same timestretch algorithms as the highly acclaimed Akai DD1500 Digital Audio Workstation, a 16-track digital hard disk recorder found in broadcast, video and film post production suites across the world and responsible for the audio you have heard on many of the TV programs, films and videos you may have seen! Naturally, when you're working on a mega budget blockbuster film, TV or video production, you demand the very best in digital signal processing. Sampler users require no less and so the DD1500 timestretch process has been ported directly into the S6000 to offer high quality, phase coherent stereo processing as well as a range of easy to use presets for setting the timestretch parameters.

Pressing TIMESTRETCH shows this display:



The parameters are:

STRETCH START — This set the start of the region you wish to stretch.

STRETCH END — This sets the end of the region you wish to stretch.

You can audition the region you want to stretch using the PLAY REGION key (F5)

Normally, you will want to stretch the entire sample but there are occasions where stretching only a part of it may be useful.

STRETCH AMOUNT — This sets the timestretch factor. the range is 50% (twice the speed) to 200% (half the speed) with 100% being 'no stretch'. Like any timestretch process, extreme settings may introduce unwanted artefacts but a range of +/-10% (i.e. 90%-110%) will yield excellent results most of the time.

PRESET — Instead of a complex array of incomprehensible parameters, the S6000's timestretch algorithm uses a series of 18 presets optimised for certain types of sounds as described by their name. So, instead of sitting there setting the parameters aimlessly for half a dozen or more meaningless, confusing controls, the idea is that you simply select a preset, the description of which largely fits the material you are trying to process and you press EXECUTE. If the results are not that good, simply select another preset and try again.

However, do not get too tied down with these preset descriptions because they are not cast in stone - they are merely guidelines and the LOW FREQ ORCH B preset may do a fantastic job on an ambient loop! Experimentation is the order of the day!

Each preset also has three variations (giving a total of 54 presets). These are:

A — Standard quality timestretch with fast processing.

B — Better quality timestretch but slower processing.

C — The highest quality timestretch results but slower processing.

Furthermore, the PRESET parameter has a 'window' function that provides access to an ADJUST parameter.

Sometimes, our presets may not quite satisfy your needs and some kind of 'manual override' is required. This is the ADJUST control. The ADJUST parameter gives access to the key parameters in any one preset and allows you to 'tweak' the preset with one, easy to use control. There are no strict rules to using this control other than if the selected preset gives you almost acceptable results but there are few glitches in the processed sound, try tweaking the ADJUST control and do it again to see if this improves things.

The basic rule of thumb for using the ADJUST parameter is that a positive value will help improve high frequency and percussive sounds whilst negative values will help in improving bass notes. So, for example, if the timestretched sample has a lot of percussive transients which are 'flamming' , try setting a positive value to improve things. This may, however, cause lower frequency sounds, especially sustained bass parts, to 'wobble' slightly. Conversely, if the bass end is more important and the processed version exhibits any 'wobble', try setting a negative value (although be aware that this may upset high frequency percussive transients).

PLAY REGION — You may audition the region marked by Stretch Start and Stretch End.

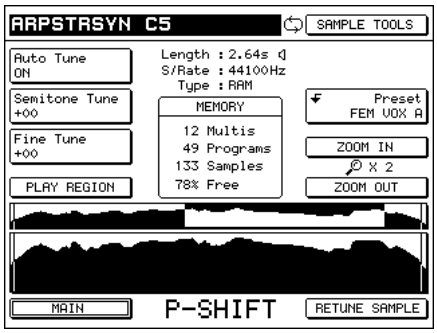
ZOOM IN/OUT — These allow you to zoom in on the waveform for more detailed setting of the START/END points of the region you want to stretch.

Pressing STRETCH SAMPLE will initiate the timestretch. You will see the usual "Processing sample" progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. Respond accordingly.

NOTE: *When timestretching a sample that has loops, you may find that the processed versions loop points are slightly disrupted and exhibit clicks. To overcome this, visit the LOOP page and try AUTO FIND and/or a CROSSFADE - this should restore the loop fairly easily. However, a bit of work may be necessary to get a perfect loop again.*

PITCH SHIFT

Pressing PITCH SHIFT will display this screen:



This process is a subset of timestretch. However, the 'stretch factor' in PITCH SHIFT is described in terms of transposition, For example, if you have a sample in the key signature of C which you want to use during a key transposition of a song where everything is transposed up a tone to the key of D, set a SEMITONE TUNE value of +02 semitones.

Similarly, if you have a sample that is slightly out of tune, use the FINE TUNE parameter to bring it back into tune by an appropriate amount.

The AUTO TUNE function allows you to set whether the new sample will automatically be transposed. For example, let's imagine you have a set of backing vocals sampled on C3 in the key of C that you want to transpose so that they can be used during a 2 semitone key change in the song. With AUTO TUNE set to OFF, after the pitch shift process is complete, if you press C3, the sound will not be transposed - it will still play in the key of C on the 'physical' key C3 only slower. In order to play the processed sample in the right key in the song, you will have to play D3.

With AUTO TUNE set to ON however, in the same example, after the sound has been processed, when you play C3, it will automatically play 2 semitones higher in the key of D.

You may prefer that after processing the sample, it automatically transposes to the new pitch. However, it could be that you find it odd playing the note C3 when the song is in D so you may prefer to leave AUTO TUNE off and actually play the note D3 to hear it at the correct pitch and speed.

As with the TIMESTRETCH page, a series of presets optimised for certain sounds is provided. The ADJUST parameter is available via the PRESET parameter's WINDOW function.

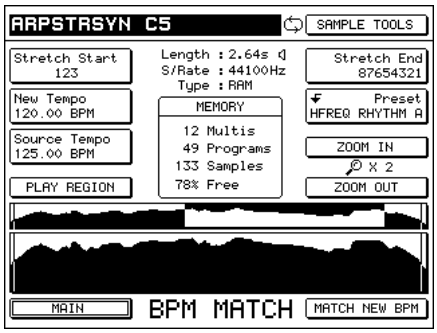
Pressing RETUNE SAMPLE will initiate the pitch shift. You will see the usual "Processing sample" progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. Respond accordingly.

NOTE: *It is not possible to retune just a portion of the sample.*

NOTE: *When pitch shifting a sample that has loops, you may find that the processed version's loop points are slightly disrupted and exhibit clicks. To overcome this, visit the LOOP page and try AUTO FIND and/or a CROSSFADE - this should restore the loop farily easily. However, a bit of work may be necessary to get a perfect loop again.*

BPM MATCH

Pressing BPM MATCH will show something like this screen display:



This is another derivative of the timestretch algorithm. The parameters are almost identical to the TIMESTRETCH function with the addition of the SOURCE TEMPO parameter.

The BPM MATCH function allows you to stretch a sample to a new tempo. It works like this:

You have a sample that you know is 123 BPM however, the track you are working on is 127 BPM. To match the tempo of the sample to your track, set 123.00 BPM in the SOURCE TEMPO field (i.e. the tempo of the original sample). Now set a value of 127 BPM in the NEW TEMPO field (i.e. the tempo you want it to be to match the track you are working on). Choose a preset that approximates the type of sample you are trying to process and press MATCH NEW BPM. You will see the usual “Processing sample” progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. Using the PLAY NEW and PLAY ORIGINAL, you will hear the tempo change. You can decide whether you want to keep it or not.

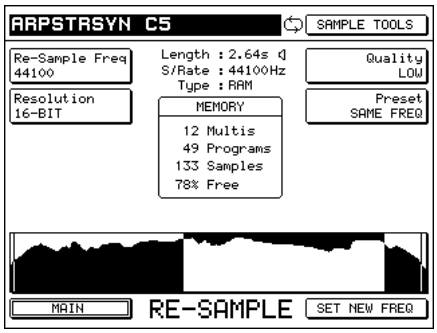
Of course, the whole BPM MATCH process relies on you knowing the tempo of the sample you are trying the process and the tempo of the track you are attempting to match it to.

You don’t have to stretch the whole sample and using the STRETCH START and END times, you may set tempo changes anywhere you want in the sample. This may be useful if you have a live drum track or whatever which wanders slightly out of time for a few bars. By marking those bars, you can bring them back to the right tempo. Conversely, you may have a very tight drum machine pattern that is unwavering in its tempo - you could program in ritardandos using the BPM MATCH function.

NOTE: *When using BPM MATCH on a sample that has loops, you may find that the processed versions loop points are slightly disrupted and exhibit clicks. To overcome this, visit the LOOP page and try AUTO FIND and/or a CROSSFADE - this should restore the loop farily easily. However, a bit of work may be necessary to get a perfect loop again.*

RE-SAMPLE

Pressing RE-SAMPLE shows this screen:



The RE-SAMPLE process allows you to change the sampling frequency of a sample. This can be used to conserve memory but can also be used to 'creatively' to reduce the quality of a sound. The parameters are:

RE-SAMPLE FREQ — This sets the new frequency of the sample.

RESOLUTION — You may change the 'bit' resolution here. Typically, this will be kept at 16-BIT but you may like to experiment with other settings for a 'grungier' sound[11].

QUALITY — There are three settings:

- LOW — Least quality (i.e. transposed sounds will become aliased) but fastest processing.
- MED — Moderate quality and relatively fast processing.
- HIGH — Best quality but slow processing.

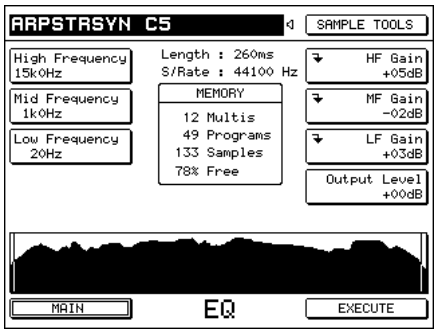
PRESET — This allows you to select from a variety of preset re-sampling frequencies (e.g..: 1/2, 3/4, 1/3, 2/3, etc.).

Pressing SET NEW FREQ will initiate the process. You will see the usual "Processing sample" progress display followed by the PLAY/KEEP ORIGINAL/NEW/BOTH and RENAME prompt. Respond accordingly.

11 In theory, you would think that the resolution parameter would enable you to re-create the sound of older 8- or 12-bit samplers. However, the 'grungy' sound these samplers produced was as much due to their low quality D-A convertors as the bit-rate they were sampled at. Because of the high quality 20-bit D-A converters used on the S5000, setting a low bit-rate using the RESOLUTION parameter may not automatically result in the 'lo-fi' effect you are after. However, selecting a low bit resolution here AND setting the lowest RE-SAMPLE FREQ(uency) will produce a suitably grungy, muddy, lo-fi sound. Experiment!

EQ

Pressing EQ shows this screen display:



Here you have access to three bands of parametric EQ. Each band has variable frequency and gain and the 'window' function in the GAIN parameters down the right hand side of the screen offer further functionality.

The ranges for each frequency are:

LF	10Hz	2000Hz (2kHz)
MF	500Hz	10,000Hz (10kHz)
HF	2000Hz	20000Hz (20kHz)

Gain for all bands is variable +/-18dB

The HF and LF GAIN parameters have a 'window' function that allows you to select a 6dB/Octave shelf or 12dB/Octave shelf. This will give a more pronounced effect on the LF and HF GAIN. The MF GAIN parameter's 'window' function allows you to set a variable 'Q' or 'bell' allowing you to set the 'width' of the EQ effect. A setting of 0.5 is the 'widest' bell you can have and a setting of 20 is the narrowest.

The OUTPUT LEVEL parameter allows you to compensate for cut and/or boost settings in the GAIN controls. With extreme gain boost on the frequencies, be sure to reduce OUTPUT LEVEL to prevent distortion; with extreme cut values set on the three frequencies, be sure to boost the OUTPUT LEVEL by an appropriate amount (or use NORMALISE after the EQ processing) to bring the sample's level back up to optimum.

The rule of thumb is quite simple - if you boost a frequency by XdB, reduce the OUTPUT LEVEL by the same amount. If you boost two or more frequencies by XdB, reduce the OUTPUT LEVEL by the amount of the sum of the frequency's boost (i.e. boost LF by 3dB and HF by 6dB, reduce output level by 9dB). If you use a mixture of cut and boost, reduce the OUTPUT LEVEL by an appropriate amount equal to the sum of the three frequency's cut/boost - for example, if LF is boosted by 3dB, MF is cut by -5dB and HF is boosted by 6dB, add the lot together and reduce OUTPUT LEVEL by -4dB (i.e. 3 + (-5) + 6 = +4dB of overall gain therefore an OUTPUT Level of - 4dB will bring the overall signal back down to 0dB.

Of course, this only applies to a normalised signal running at optimum level. If the sample level is less than optimum, you will just have to experiment!

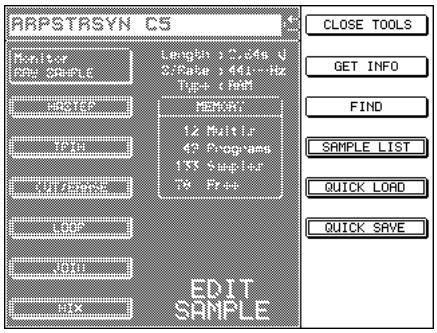
COPY SAMPLE

It is possible to copy samples by pressing COPY SAMPLE (F15) in the main EDIT SAMPLE page. You may like to do this to allow you to work on a sample without affecting the original.

Pressing COPY SAMPLE will pop-up an “are you sure?” prompt. The process will use the sampler’s auto-name process to give it a new name (which you may override by setting you own name either using the CURSOR </> keys and the DATA wheel or more conveniently from a QWERTY keyboard attached to the PS2 keyboard input on the front panel - you should respond accordingly to the prompt.

SAMPLE TOOLS

In all pages (except JOIN and MIX), F9 shows SAMPLE TOOLS. Pressing this pulls down a menu of further options:



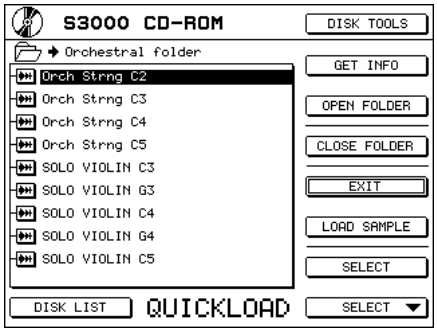
The functions are:

GET INFO

This shows information about the currently selected sample.

QUICKLOAD

This takes you to the sample QUICKLOAD function where you may load samples directly into memory:



The screen only shows samples making loading very quick and convenient as you don't have to wade through other file types .

QUICKSAVE

This allows you to quickly save the currently selected sample. Pressing it pops up a prompt:

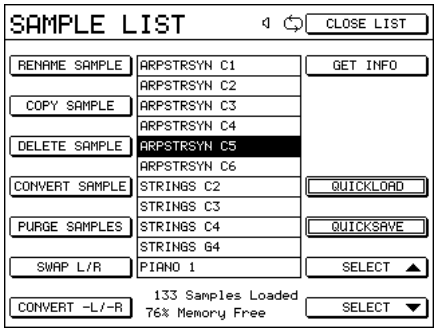


The currently selected sample name is shown as is the folder in which it will be saved. You may save just the selected sample, all samples in memory or the entire contents of memory.

NOTE: *If the folder to be saved to is not the correct one, cancel QUICKSAVE and use the normal SAVE function to select the correct folder.*

SAMPLE LIST

This takes you to this page:



Here you may rename, copy, delete and otherwise manage your samples.

At the top of the display (next to CLOSE LIST) you will see the icons that show whether the currently selected sample in the list is mono or stereo and/or looped, etc..

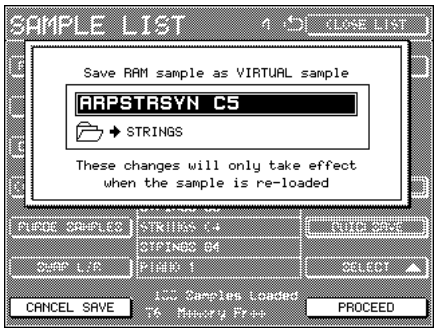
RENAME SAMPLE — This pops up a prompt and you may rename the sample in the usual fashion.

COPY SAMPLE — This pops up a prompt and you may copy the selected sample. You may use the name automatically generated by the copy process or you may enter your own.

DELETE SAMPLE — You may delete the selected sample.

CONVERT SAMPLE

This allows you to save a RAM sample as a virtual sample or *vice versa*. Pressing this will pop up this prompt:



What this process does is to save the selected sample in its 'alternative' format. I.e. if the selected sample is a RAM sample, the process offers you the chance to save it as a 'virtual' DD recording and if the sample is 'virtual', you may save it as a RAM sample. The sample will subsequently load in its new format.

A practical example....

Imagine you have an eight bar drum phrase loaded as a RAM sample in memory. You may convert this to a 'virtual' sample. Immediately after the conversion/save process, the sample will still exist in memory as a normal RAM sample however, when you subsequently come to re-load it, it will load as a 'virtual' sample and playback direct from disk.

Conversely, if the sample was 'virtual' to begin with, this function will save it as a normal RAM sample. Immediately after the conversion/save process, the sample will still exist in memory as a 'virtual' sample however, when you subsequently come to re-load it, it will load as a normal RAM sample and the whole sample will be loaded into memory.

How is this useful?

- You have an S3000 (or S1000) format CD-ROM full of long breakbeats and drumloops. When you load them, they load into memory and take up a lot of space. This function allows you to save them to an MS-DOS formatted disk as 'virtual' samples which, when subsequently re-loaded, will take up minimum memory and will play direct from disk.

- You have some 'virtual' samples on disk which you want to process with EQ or Timestretch or whatever[12]. By converting these to RAM samples, they can be processed just like any other sample. The processed versions can then be saved as 'virtual' samples to play back direct from disk when re-loaded.

- If you have a lot of 'virtual' samples loaded and polyphony is a problem due to restricted disk bandwidth, certain samples could be saved as RAM samples and then re-loaded to overcome this.

12 Please see the section that describes editing 'virtual' samples for more details on this.

PURGE SAMPLES — This useful function deletes all samples not currently being used by any programs that may be loaded (these samples are referred to as 'orphans'). This allows you clear out any redundant samples in order to make more memory available.

SWAP L/R — This will swap the left and right channels of a stereo sample. This may be useful if you have recorded a stereo sample and the stereo image is the wrong way round.

CONVERT -L/-R — This will convert 'old' S1000, S1100, S2000 and S3000 series 'stereo' samples that are appended -L and -R and will create a stereo .wav file with -S appended to the name. For example, STRINGS C3 -L and STRINGS C3 -R will become STRINGS C3 -S.

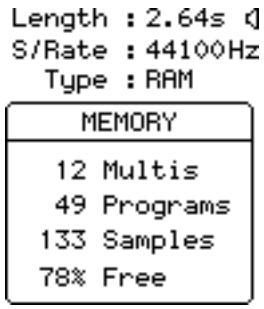
To convert an old -L/-R pair of samples, select either of the two 'legs' of the stereo file (i.e. the -L or the -R sample) and press CONVERT -L/-R. You will receive the usual progress display as the samples are processed followed by the usual PLAY/KEEP ORIGINAL/NEW/BOTH prompt.

Once converted, you may subject it to the other stereo editing functions such as MAKE MONO and SWAP L/R. Of course, all other sample editing (TRIM, LOOP, TIMESTRETCH, etc.) will also be done in stereo.

GET INFO, QUICKLOAD and QUICKSAVE are duplications of the functions found in the SAMPLE TOOLS menu described on preceding pages.

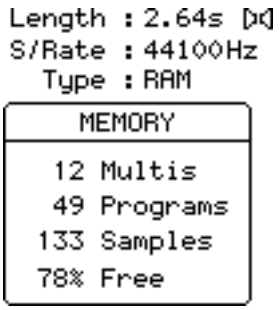
STEREO AND MONO SAMPLES

There is little or no distinction made between mono or stereo samples on the S6000 and stereo samples are treated as one 'file' thus you don't even really need to know what you are editing most of the time. Mono and stereo files have an indicator after their name in all EDIT SAMPLE pages. Mono samples are indicated thus:



A single speaker icon is shown.

Stereo samples are shown thus:



NOTE: *S1000, S1100, S2000 and S3000 series 'stereo' samples (i.e. those appended with -L/-R) will be treated as mono files that will require individual editing.*

If this is inconvenient, however, you could convert such samples into a single stereo .wav sample using the CONVERT -L/-R function described on the previous page.

EDITING VIRTUAL SAMPLES

The way 'virtual' samples work is that the 'nose' of the sample is loaded into memory. This is extremely short and takes up negligible amounts of memory. However, when you play that sample, while the 'nose' is playing, the S6000 has time to go off and get the rest of the recording and play it back direct from disk. There is no distinction made between normal RAM samples and 'virtual' samples. However, there are a few things to be aware of when editing 'virtual' samples.

- You may experience some delays in playback when editing, particularly when setting start and end points for 'virtual' samples. For example, you may move the START point quite some way into the sample - in this case, you may experience a small delay in playback . The reason is that the START point is now way beyond the small 'nose' and so the sampler has nothing to play while it fetches the rest of the recording off disk.

- You may experience some delays when using PLAY TO, PLAY FROM and PLAY REGION with 'virtual' samples.

You will experience delays when selecting different 'virtual' samples. This is because the sample's waveform has to be loaded in from disk and this can take some time, especially with long recordings.

- You cannot play chords when editing 'virtual' samples.

- When you select a 'virtual' sample for editing, it may take a short while for the waveform to be displayed on the screen (the waveform information has to be loaded from disk). ZOOM IN/OUT is also slower than when editing normal RAM samples. The actual amount of time it takes depends on the length of the 'virtual' sample.

- You cannot loop 'virtual' samples.

- Off-line sample processing times will be slower with 'virtual' samples than with normal RAM samples.

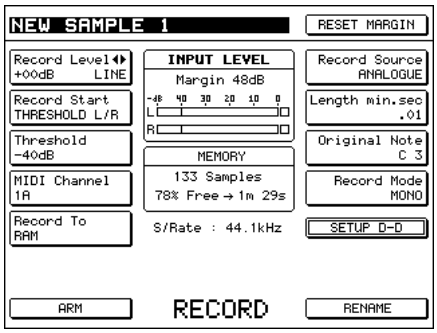
If you find any of the above limitations restricting or inconvenient, the following possibilities are available to you:

- Record the sample as a normal RAM sample to begin with, do all your sample editing and tweaking (and even program creation/editing) as normal and then, when you're happy with the results, use the CONVERT SAMPLE function (described above in SAMPLE LIST) to save it as a 'virtual' sample. When this sample is subsequently reloaded, it will be loaded as a 'virtual' sample and will play from disk thus freeing up memory for other sounds. If you need to do any further editing, you can always convert it back to a RAM sample.

- If you have already recorded the sample as a 'virtual' one, you can save it as a RAM sample using the CONVERT SAMPLE function (described above in SAMPLE LIST). You can then load the whole sample into the S6000 (assuming you have enough memory installed of course) and work on it as a RAM sample. Once you have done all your sample editing work, you can, if you want, re-save it as a 'virtual' sample.

RECORD

Pressing RECORD will show something like this screen:



The parameters are:

RECORD LEVEL — This sets the record level. This is a software control which is used instead of a front panel control. You will note the ◀▶ icon in the parameter. Pressing the RECORD LEVEL key twice allows you to set the gain sensitivity of the input and the choices are MIC, LINE and PRO. Use MIC to record low level signals from microphones; use LINE to record line level signals from keyboards or typical mixing consoles, etc.; use PRO when recording from high level equipment running at +4dB.

RECORD TRIGGER — Here you may select what will initiate recording. The choices are:

- THRESHOLD L/R — Recording will start once the threshold level on either the left or right channel is exceeded.
- THRESHOLD L — Recording will start when the input to the left channel exceeds the threshold.
- THRESHOLD R — Recording will start when the input to the right channel exceeds the threshold.
- AUTO L/R — Recording will start once the threshold level on either the left or right channel is exceeded. It will automatically stop recording if the signal falls below the threshold.
- AUTO L — Recording will start when the input to the left channel exceeds the threshold. It will automatically stop recording if the signal falls below the threshold.
- AUTO R — Recording will start when the input to the right channel exceeds the threshold. It will automatically stop recording if the signal falls below the threshold.

	MIDI NOTE-ON	Recording will start when a MIDI note-on is received on the channel specified in the MIDI TRIG CHAN (See below).
THRESHOLD	This sets the threshold level for any of the THRESHOLD or AUTO options.	
MIDI TRIG CHAN	Sets the MIDI channel when MIDI NOTE-ON is selected as the record trigger.	
SETUP D-D	You may set up where you will record a 'virtual' sample to (recording 'virtual' samples is described separately).	
RECORD SOURCE	Here you may select the input source for the recording. These are:	
	ANALOGUE	Selects the front panel analogue inputs.
	DIGITAL	Selects the rear panel phono digital input.
	OPTICAL	Selects the rear panel optical digital input.
	OUTPUT 1/2	Allows you to re-record the outputs of the sampler. In this way, you can record a sound with effects as a new sample (EB20 needs to be installed on the S5000 to record with effects). To re-record a sounds, first select the sound you want either in MULTI or EDIT PROGRAM (you can actually re-record a raw sample but this is a bit meaningless!). Once you have selected the sound(s) you want, assuming it is routed to Output 1/2, you can record it. To record with effects, ensure that these are also routed to Outputs 1/2 (this is set in UTILITIES, FX IN/OUTS).
	ADAT 1/2 - 7/8	If the optional ADAT board is installed you may record via this. The paired numbers actually refer to the connected ADAT output - i.e. you can record ADAT 'tracks' 1/2 or 3/4 or 5/6 or 7/8.
LENGTH MIN.SEC	This sets the length of the recording you are about to make. It is shown in minutes and seconds.	
ORIGINAL NOTE	This sets the note the recording will appear on (i.e. the note on which the recording will play back at its correct pitch and speed). This may be set manually using the DATA wheel or by playing the appropriate note on your MIDI controller.	
RECORD MODE	You may select STEREO or MONO	
RECORD TO	Here you may select where the recording will go - in RAM or direct to disk (recording 'virtual' samples is described separately).	

SETTING RECORD LEVELS

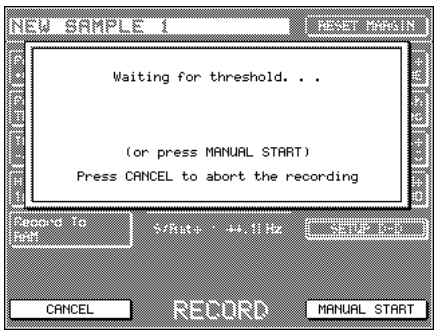
In the centre of the screen are two level meters. These are accurately calibrated to show level precisely. As signal is input to the sampler, so these meters will move. At the far right of the meters is a small box that indicates clipping.

Above the meters, you can see the margin of headroom you have and this value is held until the signal exceeds it again. To obtain optimum record level, you should increase (or decrease) RECORD LEVEL until the margin is as close to 0dB as possible. If the maximum headroom is exceeded by too loud a signal, the clip indicator will illuminate and an exclamation mark (!) will appear above it. If this happens, reduce RECORD LEVEL, press RESET MARGIN (F9) and try again.

MAKING A RECORDING

When you enter RECORD, a new name is automatically generated. You may rename this by pressing F16 - RENAME. You will receive a name pop-up and you should enter the name you want to use using either the </> CURSOR keys and the DATA wheel or an external QWERTY keyboard. Once the recording has been made, the autoname process will use the name you gave the sample as the 'seed' name - i.e. if you renamed something to SNARE 1, the next autonamed recording will be SNARE 2).

Once you have set the parameters described above as appropriate, press ARM (F8). You will see this screen:



The sampler is waiting for the signal to exceed the threshold level (or receive a MIDI note on). You may start recording using MANUAL START if you prefer. Whichever method is used to start recording, you will see this record progress display:



At the end of the recording you will receive this prompt:



The new recording's waveform will be shown and you may use PLAY NEW to audition it. If you like it, press KEEP NEW; if you don't, press DISCARD.

If you keep the recording, a new autonamed recording will be created (if you renamed the sample from NEW SAMPLE *N* to one of your choosing, the name you chose will be used as the 'seed' name for all subsequent recordings or until you change it).

If you press DISCARD, the recording will be abandoned and you will return to the main RECORD page with the previous name still shown.

NOTE: *If the sample clipped during record, you will receive this warning at the end of the record process:*



You should respond accordingly. If you press OK, you will be taken to the 'keep/discard' screen shown at the top of the page. DISCARD will take you back to the main RECORD page retaining the name of the sample you discarded where you may try again.

OVERWRITING AN EXISTING SAMPLE

Using F1, you may select an existing sample to record over. If you do this, you will, of course, receive a prompt warning you of this.



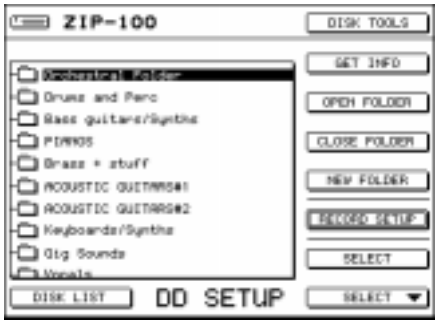
You should take the appropriate action. If you press NO, the process will be aborted and the existing sample will remain intact and unaffected. If you press YES, you will be taken to the "WAITING FOR THRESHOLD..." prompt.

NOTE: *If you press YES, this deletes the original sample. As a result, even if you press CANCEL in the "WAITING FOR THRESHOLD...' prompt, the damage has been done and the sample will have been already overwritten. Please proceed with caution when selecting samples to overwrite.*

RECORDING 'VIRTUAL' SAMPLES

By selecting DISK in the RECORD TO parameter, you can record directly to disk.

However, before you make a 'virtual' recording, you need to select *where* on the disk you are going to record to. This is done in D-D SETUP which will display something like this screen:



You can use OPEN and CLOSE FOLDER to navigate your way around the folders in the filelist to select where the new disk recording will go. Alternatively, you can create a new folder to record to. Once you have selected where the new recording will be placed, return to the main RECORD page (press RECORD SETUP - F14 - or the main RECORD mode key), set the record parameters as appropriate and record as normal as described above. The whole process is exactly the same and you will receive exactly the same prompts, etc..

However, please note that due to the slowness of disk drives, you will find the display of the new recording's waveform at the end of the record process takes some time (i.e. several seconds or more depending on the length of the recording). Much of this will depend on the speed of your drive (faster drives will give a better performance) and the length of the recording.

Once recorded, virtual samples appear in the sample list just like any other sample in memory and similarly, in EDIT PROGRAM, they can be assigned to keygroup zones and processed by the filters, envelopes, LFOs, etc., just like any other sample. A program can contain multiple 'virtual' samples and they can be mapped out across the keyboard just like any 'normal' sample. Once in a program, they can be placed in a multi just like any other program and tuned, mixed, sent to FX, etc., just like a 'normal' program with RAM samples. Programs can contain a combination of RAM and 'virtual' samples.

When you go to LOAD, 'virtual' samples appear in the list just like any other. Load a program that contains 'virtual' samples and they will load just like any other program (except, of course, you are not actually loading the sample(s) into memory so load is VERY fast).

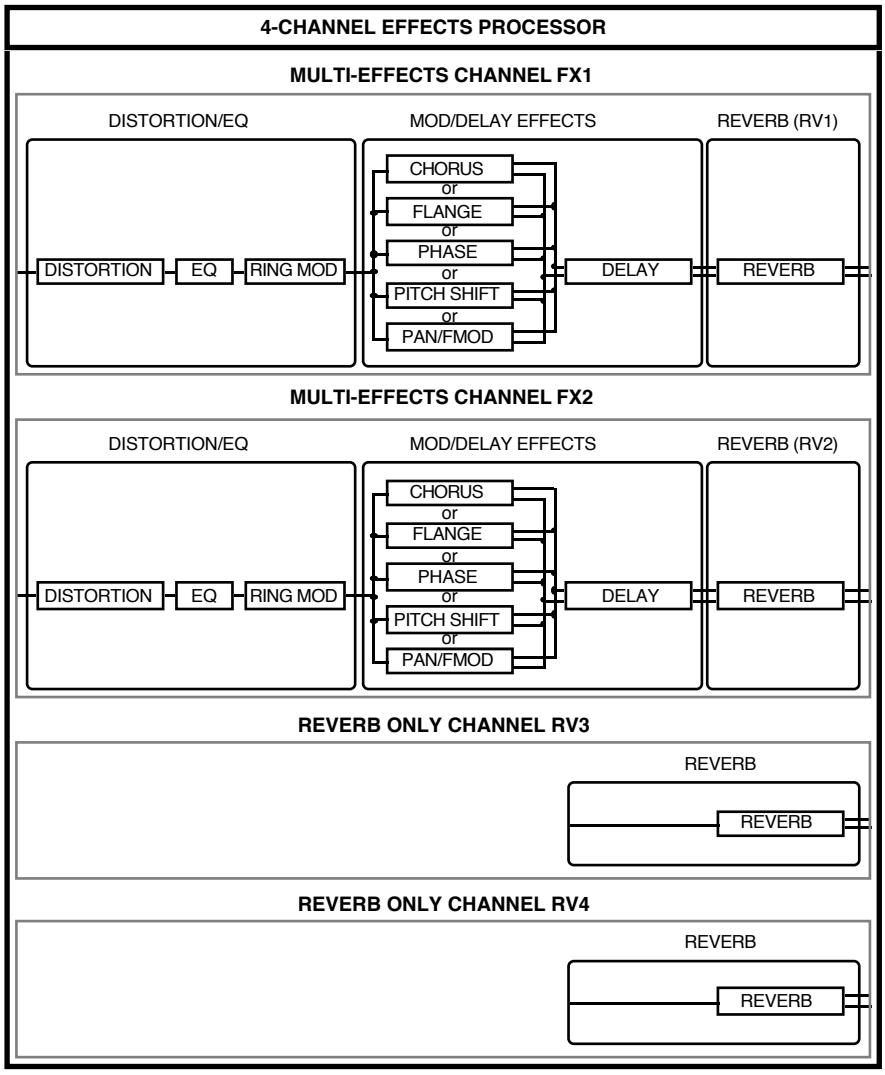
Similarly, scroll down to a 'virtual' sample and load it individually and it will load the tip of it into memory (where it will appear in the sample list just like any other sample - again, the load time, even for a three minute stereo 'virtual' sample is almost instantaneous!).

IMPORTANT NOTE: *You can only record to MS-DOS formatted hard disks. It is not possible to record to old S1000, S1100, S2000, S3000 or XL series formatted disks.*

FX

This gives access to the S6000's internal effects (even though the EB20 is optional on the S5000, these pages are still accessible).

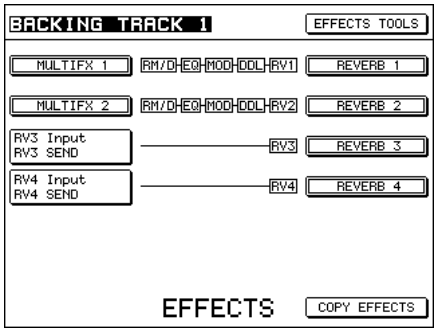
The EB20 is a 4-channel effects processor. Two channels (MULTIFX1 and MULTIFX2) offer multi effects that include distortion, ring modulation, EQ, modulation effects such as flanging, chorus and phasing, stereo pitch shift, autopanning, rotary speaker simulations plus delay/echo and reverb. The other two channels are reverb only channels (RV3 and RV4) giving a total of four reverbs.



In the multiFX channels, you also have control over the direction of the effects and the modulation and delay effects can be placed before the final reverb, in parallel with the final reverb or after the final reverb making it very flexible. Furthermore, RV3 and RV4 can take as their input source their own effects send or can be fed from the two multiFX channels.

The effects are stored in the multi so that switching between multis recalls the correct effects settings and configurations.

Pressing FX shows this screen:

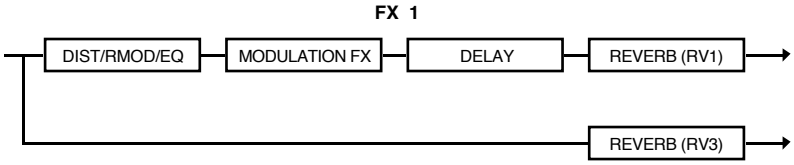


The currently selected multi name is shown on F1 - if you want to edit the effects for another multi, you may select that multi using the DATA wheel as normal.

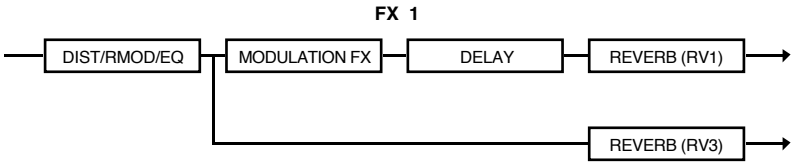
You can see the block diagrams for the two multi effects channels, MULTIFX 1 and MULTIFX 2. Underneath those are the two reverb-only channels, RV 3 and RV 4. F4 and F5 allow you to set the input source for RV3 and 4 and you may select the following:

RV3 SEND — This feeds RV3 with any signals sent on the RV3 effects send buss. This is the default setting and allows four totally separate reverb channels.

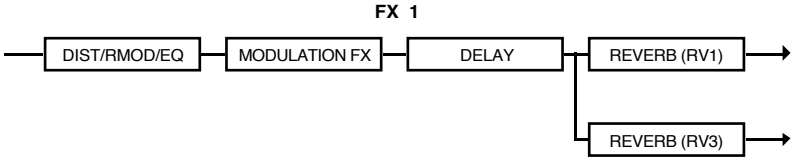
FX1 — This feeds RV3 with any signals sent on the FX1 effects send buss:



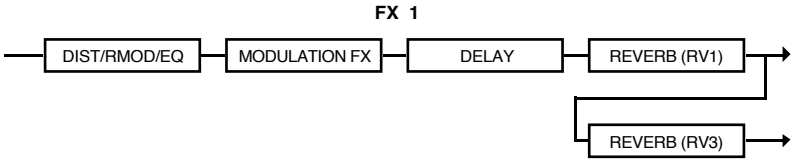
FX1 DIST/EQ — The output of the DISTORTION/RING MOD/EQ section of FX1 will be routed to RV3:



FX1 MOD/ECHO — The output of the MOD/ECHO section in FX1 will be routed to RV3:



FX1 REVERB The output of FX1's reverb will be routed to RV3:



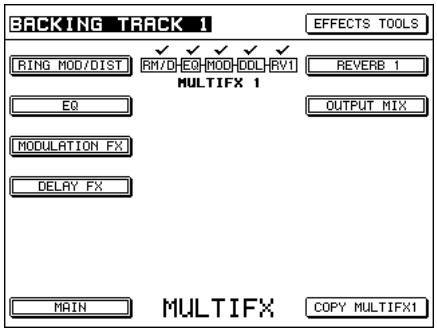
Using this facility, it is possible for one sound to have two reverb effects applied to it.

TIP: *This can also be used to create a smoother, denser reverb sound. By selecting one of the gated reverbs in the multiFX chain and then selecting FX1 REVERB as the input for RV3 and selecting a hall or room reverb, the initial attack of the overall reverb sound will be more diffused resulting in a smoother decay.*

RV4 is identical except that it is partnered with MULTIFX2.

To edit MULTIFX 1 or 2, press F2 or F3; to edit any of the reverbs, press F10, 11, 12 or 13.

Selecting one of the multiFX channels (in this example, MULTIFX 1), you will see this screen:



Here you have access to the individual blocks in the chain.

As you edit each effect type, it is highlighted in the block diagram shown centre screen. The 'ticks' above each effect type indicate whether it is active (bypassed) or not. If an effect in the chain has been bypassed, an 'X' will be shown above it.

The multiFX are fully programmable and you can set anything you want to achieve the desired effect combination. However, to assist you in setting up effects chains, each effect type (except for the RING MOD/DISTORTION effect) has a series of templates offering a wide range of popular effect settings. In this way, it is extremely quick and easy to set up complex chains of effects by selecting an appropriate template for each effect type. For example, if you know you want something like a thick, slow flange with long ping-pong delay and a large hall, simply select the appropriate preset in each effect type. If the chosen templates are still not quite right, they can be edited and modified to your own requirements.

NOTE FOR EXISTING AKAI OWNERS

This method of embedding the effects in the multi and setting them up with easy to use templates for each effect type in the chain replaces the old method of working with a single effects files that is shared by all programs and multis. Instead, each multi has a complete set of effects and combinations can be created either manually or using the templates.

The old method of using an effects file worked on the S2000 and S3000XL because there was only one multi containing up to 16 programs. On the new samplers, it is possible to have 128 multis loaded and so one effects file with 50 preset combinations is not enough to service that number of multis in memory.

There would be other complications with using effects files in the new samplers too. For example, you may load a multi from one folder that has a particular effects file with a particular combination of effects used by that multi. However, you may load another multi from another folder that has a completely different effects file. This new effects file would overwrite the one in memory and would therefore corrupt the first multi's effects.

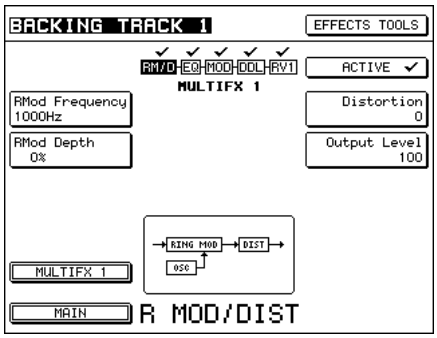
What is required, therefore, is some way of associating effects with each multi uniquely. This is what is implemented on the S6000 and S5000.

Of course, you lose the one benefit of an effects file that services all sounds - namely, the ability for two or more multis to share the same effects combination. However, the new effects method on the S6000 has the means to copy multiFX and reverb settings from one multi to another so that different multis can effectively share the same reverb and effects.

As a result, the concept of effects files does not exist on the S6000 and S5000 and old effects files from the S2000, S3000 and XL series cannot be used in the S6000.

RING MOD/DISTORTION

Pressing RING MOD/DISTORTION in the main MULTIFX page will show this screen:



A ring modulator is a device with two inputs and one output. One input carries the audio source and the other a sine wave signal of variable frequency. The two signals are modulated to produce sum and difference frequencies. For example, if one input is a sine wave of 500Hz and the other is a sine wave of 750Hz, the output will carry the original signals AND the sum (1250Hz) and the difference (250Hz). The result is enharmonic and 'clangy' sounds. With harmonically rich sounds fed to the ring modulator, the sounds can be even more discordant.

Other effects are also possible. If the modulating oscillator's frequency is low, the effect will be a tremolo effect. At frequencies of 100Hz or so, you can produce the famous 'dalek' voices and other robotic, metallic effects on speech. At high frequencies, the results are rather unpredictable and largely depend on the audio input signal but, basically, they can best be described as discordant and clangourous. The parameters are:

RMOD FREQUENCY — This sets the frequency of the sine wave modulation signal. It is variable from 1Hz - 5000Hz

RMOD DEPTH — Sets the depth of the ring modulation effect.

The distortion processor offers variable distortion from mild clipping to heavy metal filth! The parameters are:

DISTORTION — Sets the amount of distortion

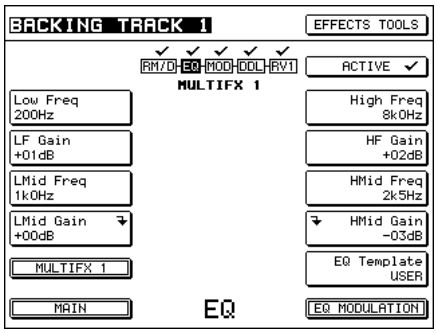
OUTPUT LEVEL — Sets the output level of the distortion processor. This can be used to compensate for the high gain you get with high DISTORTION levels.

The ACTIVE switch on F10 allows you to bypass the RMOD/DISTORTION effect.

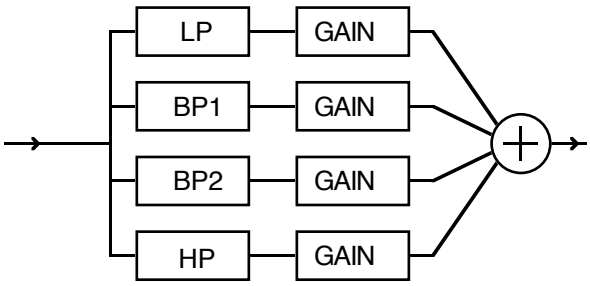
You may return to the main FX page using F8 or you may return to the multiFX page using F7.

EQ

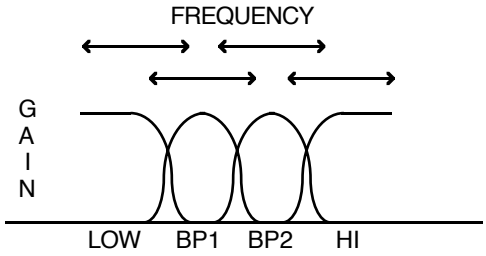
Pressing EQ in the main MULTIFX page will show this screen:



The EQ section of the two multi-effects channels is a four band EQ offering lowpass control over a low frequency, two bandpass mid frequencies and a highpass high frequency control. I.e.:



You may set the centre frequency and the gain for each of the four channels (on the two mid frequency ranges, you may also set the width of the EQ effect).



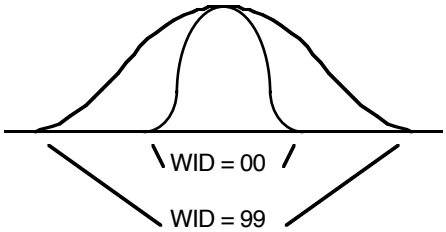
The frequency of each of the four bands is variable and may overlap if you wish and you may selectively boost these frequencies if you wish to enhance certain aspects of the sound. Furthermore, you can modulate the frequencies of either of the two mid range sections to create auto-wah effects such as you find on a wah-wah pedal. It is also possible to create synthesiser filter sweep effects.

The parameters are:

LOW FREQ	Sets the low frequency. This is variable from 16Hz - 500Hz.
LF GAIN	Sets the low frequency gain.
LMID FREQ	Sets the low mid frequency. This is variable from 40Hz - 6.3kHz.
LMID GAIN	Sets the low frequency gain.
HMID FREQ	Sets the high mid frequency. This is variable from 40Hz - 6.3kHz.
HMID GAIN	Sets the high mid gain.
HIGH FREQ	Sets the high frequency. This is variable from 500Hz - 16kHz
HF GAIN	Sets the high frequency gain.

The ACTIVE switch on F10 allows you to bypass the EQ effect.

For the two mid-range frequencies, you may also set the width of the EQ via their WINDOW function. Larger values set a wider width whilst lower settings produce a narrow width.



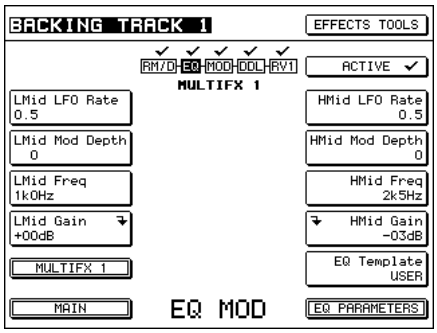
With narrow WID(th) settings, you can accentuate certain frequencies more tightly whereas with higher width settings, a wider frequency range is covered by this EQ parameter. If you are familiar with synthesiser filters, this control is similar to the resonance control. If you are familiar with parametric EQ devices, this is the same as the 'Q' or 'bell' control found on outboard EQ devices or some very expensive mixers' EQ sections.

EQ TEMPLATES

A handful of basic EQ templates are offered here. Because EQ is a very personal thing and one that depends largely on context, it is almost impossible to provide a set of EQ templates to cover every eventuality. As a result, some basic EQ settings are provided along with some 'autowah' settings.

EQ MODULATION

Pressing EQ MODULATION (F16 in the main EQ page) shows this screen:



The LOW MID and HIGH MID bandpass filters of the EQ are able to be modulated by their own independent LFOs. The LMID and HMID LFO RATE parameters set the speed of these LFOs and the LMID and HMID MOD DEPTH parameters set the amount of LFO modulation. In this page, because there is a certain degree of interaction between the modulation and the LMID and HMID frequency and gain settings, the LMID EQ controls are duplicated here for convenience to save you swapping between pages

Many effects are possible using the modulation functions. Effects from ‘wah- wah’ clavinet and guitar may be created by sweeping just one band (either will do) and more extreme filter sweep effects can be created by sweeping both. High Q settings on the selected mid band (i.e. a tighter ‘bell’) accentuates the effect and with very high Q settings, very pronounced synth filter sweep effects can be achieved.

The fact that both LMID and HMID bands can be independently controlled by their own LFOs running at different rates further expands the possibilities.

The phase shifter option in the MOD section can also be enhanced by sweeping one (or both) of the bandpass frequencies with narrow width settings at exactly the same rate as the phase shifter’s LFO.

You could also experiment with setting the AUTOPAN selection in the MOD section to the same rates so that EQ/filter sweeps pan in synchronisation with each other.

Pressing EQ PARAMETERS will return you to the EQ page.

Pressing MAIN will take you back to the main FX page.

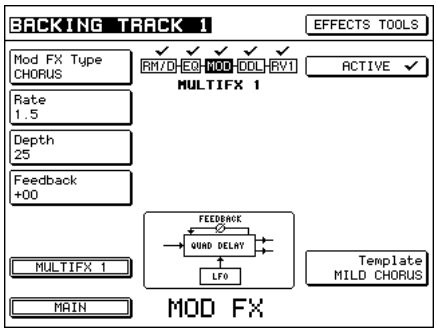
Pressing F7 will return you to the selected multiFX page.

MODULATION EFFECTS

A variety of modulation effects are also available. Pressing MODULATION FX will show something like this screen. Using F2, you may select the various modulation effects.

CHORUS

The first of the modulation effects is CHORUS.



This uses four very short delay lines all modulated at different phase angles of the modulating LFO to produce a rich, swirling stereo chorus effect. The parameters are:

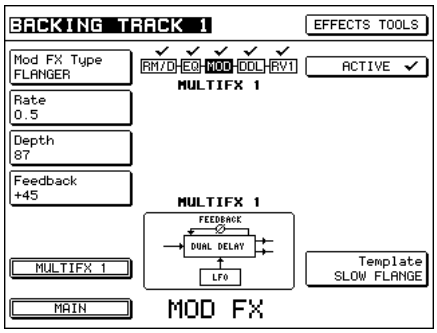
RATE — Sets the speed of the chorus effect.

DEPTH — Sets the depth of the chorus effect

FEEDBACK — Sets the amount of signal that will be routed back to the chorus processor's input. Higher feedback levels accentuate the effect and can be used to create flanging effects. The feedback level may be inverted for different effects.

FLANGE

The next modulation effect is FLANGE:

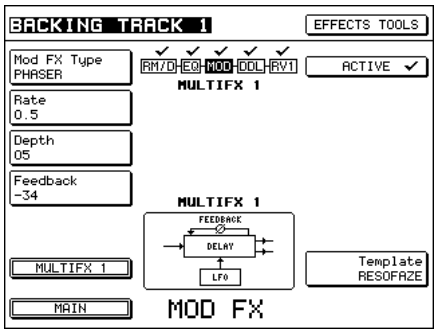


This uses a dual delay line with the left and right delays swept in opposition (as one goes up, the other goes down) to produce rich stereo flanging effects.

The parameters are identical to those found in the chorus effect.

PHASE

The next modulation effect is PHASE.



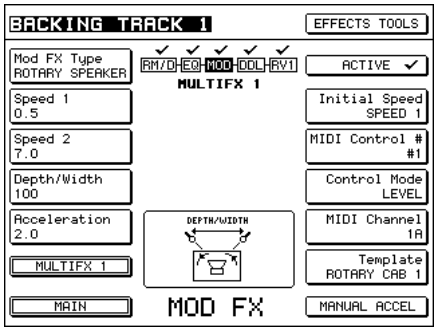
This uses a single short delay line to produce certain phase shifter effects.

The parameters are identical to those found in the CHORUS and FLANGE effects. However, please note that stronger phase effects are created with the DEPTH parameter set to *low* values. Higher settings of the DEPTH parameter give effects more like simple flanging.

Also, as mentioned in the description of EQ, phasing can be augmented by sweeping one of the EQ's mid bands at the same rate as the phaser.

ROTARY SPEAKERS

The next modulation effect available is ROTARY SPKRS.



SPEED 1 — This sets one of the rotary speaker speeds. Typically, this will be used to set the speed of the slow rotary speaker effect but it may be used as the fast rotary speaker effect if you wish.

SPEED 2 — This sets the second of the rotary speaker effect speeds.

ACCELERATION — On a 'proper' rotary speaker, because of mechanics and inertia, it takes a certain amount of time for the speaker to change from the slow speed to the fast speed and vice versa. This parameter allows you to set the time in seconds it will take to go from SPEED1 to SPEED 2 and vice versa.

DEPTH/WIDTH — This sets the depth (or width) of the rotary speaker effect. High settings will give a wide left-right sweep, lower settings will give a narrower sweep.

INIT SPEED — This parameter sets which of the speeds will be the 'initial' speed when you select this effect. It also allows you to listen to the speed parameter you may be adjusting. For example, when setting speed 1, select SPEED 1 and when setting speed 2, select SPEED 2. This allows you to set up rotary speaker effects without having a MIDI controller to hand.

MIDI CONTROL — This selects which MIDI controller will trigger the change from SPEED1 to SPEED2 and vice versa. You may select any of the 128 MIDI controllers.

NOTE: *If using MODWHEEL, make sure that this is not used to introduce vibrato to the sound as well otherwise, as you change the rotary speaker speed, you will also increase/decrease vibrato which may or may not be desirable.*

CONTROL MODE — Depending on the MIDI controller selected in the MIDI CONTROL parameter, you may select whether crossing a threshold level of 64 that will cause the speed change or a switch action that will cause the speed change.

When LEVEL is selected, once the controller goes past a level of 64, the speed will change. When TOGGLE is selected, the selected controller will switch between speed 1 and speed 2 and vice versa. Confused? Read on!

Let's take a practical example. Let us imagine that you are using the modwheel (controller #1 - the default) to switch between speed 1 and speed 2. With LEVEL selected, pushing the modwheel up will cause the controller to go over the 64 threshold (i.e. as it moves from 0-127) and the rotary speaker effect will change from speed 1 to speed 2 (i.e. typically, get faster). Bringing it back down again will once again go over the 64 threshold (i.e. as it travels from 127-0) causing the rotary speaker effect to go from speed 2 to speed 1 (i.e. typically, get slower). However, with TOGGLE selected, pushing it up will cause it to change from speed 1 to speed 2 but you must bring the modwheel down again and push it back up to go from speed 2 to speed 1.

LEVEL is recommended for use with continuous controllers (modwheel, aftertouch, breath, foot pedal, etc.), whilst TOGGLE is recommended for 'switch action' controllers (footswitch type controllers such as sustain, etc.).

MIDI CHANNEL — Because several parts may be sharing the same effect, you must designate which MIDI channel will initiate the change from SPEED1 to SPEED2.

NOTE 1: *In practice, it is likely that only one sound will be routed to a multi-effects channel producing a rotary speaker effect (typically, an organ sound) in a multi. In this case, set the MIDI CHANNEL parameter to the same channel as the part the organ sound (or whatever) is in. For example, if the organ sound is in PART 5 on MIDI channel 5, set 5 in the MIDI CHANNEL field shown here.*

Of course, more than one part may be routed to a multi-effects channel producing a rotary speaker effect but one channel must be designated to initiate the change from SPEED1 to SPEED2. Select as appropriate.

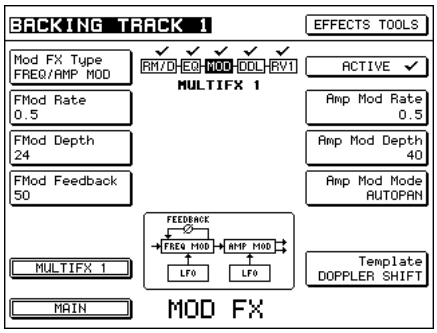
NOTE 2: *Please note that because the stereo mod section passes through the echo section, any stereo mod effects you create will be 'monofied' when mono delay effects are selected. As a result, you cannot effectively use the rotary speaker effects with mono echo.*

NOTE 3: *You will find that the rotary speaker effect is best created with no 'straight' signal. You should use the DIRECT SIGNAL: ON/OFF function in the OUTPUT MIX page to turn off the straight signal. Preset rotary speaker effects have DIRECT SIGNAL set to OFF.*

TIP: *You may find the sound of a rotary speaker is enhanced using just a hint of overdrive in the DISTORTION section to re-create the overdrive effect commonly found on rock organ sounds.*

FREQ/AMP MOD

The next modulation effect shows the following screen:



This effect type allows you to modulate frequency and/or amplitude for a variety of vibrato, autopan, tremolo and Doppler Shift effects. The parameters are:

FMOD RATE	This sets the speed of the frequency modulation.
FMOD DEPTH	This sets the amount of frequency modulation.
FMOD FEEDBACK	This sets the amount of feedback from the output of the frequency modulator back to its input. This parameter can be used to accentuate the frequency modulation effect.
AMOD RATE	This sets the speed of the autopan effect.
AMOD DEPTH	This sets the 'width' of the autopan effect. With high settings the sound will pan across a wider stereo image.

AMOD MODE — This sets the type of the autopan effect. The choices are:

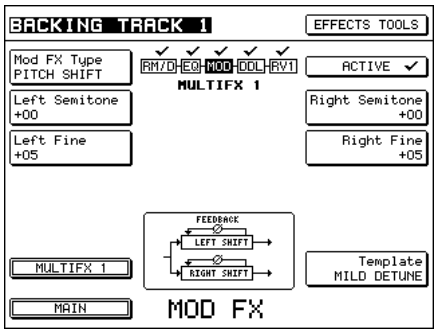
- L>R — The sound will move from left to right. As the sound crosses the central axis, however, the effect is of the sound 'rotating'' (i.e. as it goes from left to right, the sound becomes more distant and as it travels from right to left it becomes more 'up-front' and forward).
- R>L — As above but in the opposite direction.
- PAN — The sound will move from left to right but, as the sound crosses the central axis, the level will be constant giving the impression of it simply panning left to right.
- TREMOLO — The output of the autopanner is mono and the effect is a tremolo effect (i.e. mono amplitude modulation)

The FREQ/AMP MOD can be used to produce many different sounds. It can used as an ordinary autopanner (i.e. FMOD parameters all set to 00) or to create vibrato and chorus effects (using just the FMOD parameters; AUTOPAN parameters set to 00) or, using both panning AND frequency modulation, you can create a Doppler effect (i.e. as the sound moves, it also changes pitch - the classic ambulance siren effect!).

NOTE: *Because the stereo mod section passes through the echo section, any stereo mod effects you create here will be 'monofied' when mono delay effects are selected. As a result, you cannot effectively use autopan with mono echo.*

PITCH SHIFT

The next modulation effect type is PITCH SHIFT:



This is a stereo pitch shifter with independent control over the left and right channels. The parameters are:

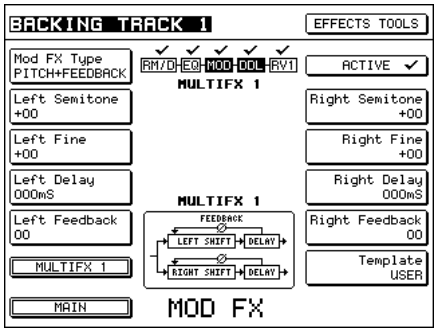
- LEFT SEMITONE — Sets the left channel's pitch shift in semitone increments.
- LEFT FINE — Allows you to fine tune the left channel's tuning.
- RIGHT SEMITONE — Sets the left channel's pitch shift in semitone increments.
- RIGHT FINE — Allows you to fine tune the left channel's tuning.

Whilst the PITCH SHIFT effect can be used for special effects by tuning each channel to wide semitone intervals, one of the most useful applications is to use just a hint of detune using the LEFT/RIGHT FINE parameters. This gives a rich chorus or ensemble effect but without the inherent cyclicness imposed by the LFO modulation found in chorus effects.

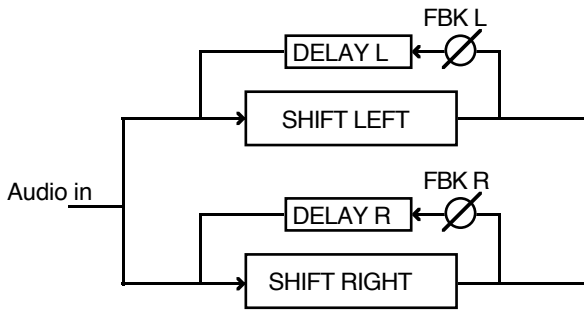
NOTE: *As with all but the most expensive pitch shifters, there is a small delay in the pitch shifted sound. This can be used to enhance an ensemble effect, however. Also, extreme pitch shifts will exhibit some 'wobbly' artefacts. In this case, mix the level of the pitch shifted signal back a bit.*

PITCH+FEEDBACK

This is the next and final modulation effect.



It is pretty much the same as PITCH SHIFT except that there is a delay line in the feedback path:



The signal from the pitch shifter is fed back into itself via a delay line. If you can imagine it - the sound goes through the pitch shifter and, after a delay, the pitch shifted sound is fed back into the pitch shifter where it is further pitch shifted. After a delay, it is fed back again after the delay and shifted again. The amount of feedback and the delay time for each channel is separately variable and this gives rise to all sorts of weird and wonderful arpeggio effects. The parameters are:

LEFT SEMITONE	Sets the left channel's pitch shift in semitone increments.
LEFT FINE	Allows you to fine tune the left channel's tuning.
LEFT DELAY	Sets the delay time for the left channel's feedback.
LEFT FEEDBACK	Sets the amount of feedback for the left channel.

RIGHT SEMITONE	Sets the left channel's pitch shift in semitone increments.
RIGHT FINE	Allows you to fine tune the left channel's tuning.
RIGHT DELAY	Sets the delay time for the right channel's feedback.
RIGHT FEEDBACK	Sets the amount of feedback for the right channel.

NOTE: *When PITCH+FEEDBACK is selected, this uses the delay line normally used for delay/echo effects (you will note that the DDL section in the multiFX block diagram is also highlighted when PITCH+FEEDBACK is selected to indicate this).*

In other words, the delay/echo effects described next are not available when PITCH+FEEDBACK is selected.

Attempting to access the DELAY FX in the main MULTIFX page in this case will pop up this dialogue:



If you want to use the delay effects, please select another modulation effect type.

MODULATION EFFECTS BYPASS

In all modulation effects types, F10 allows you to bypass the selected modulation effect.

MODULATION EFFECTS TEMPLATES

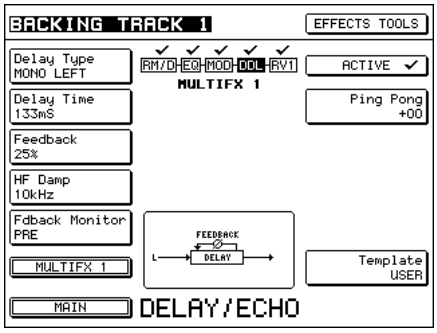
A wide variety of templates are offered that cover the whole range of modulation effects from mild chorus to thick flanging to rotary speakers, autopan, tremolo, pitch shift and many other special effects. These can be used 'as is' or can be edited and used as the basis for your own effects. Simply select a template that is close to what you want and make the necessary tweaks to it for your own requirements.

DELAY FX

Pressing DELAY FX in the main MULTIFX page will give you access to the various delay/echo effects. The delay line in the multi-effects is dual channel allowing you to create ping pong and many other stereo delay effects. It can also operate in a mono mode and this has the advantage of doubling the available delay time.

MONO LEFT

The first of these is a simple mono delay line:



This takes its input from the left output channel of the modulation section. The parameters are:

DELAY TIME — Here, you may set a delay time of up to 670mS

FEEDBACK — This sets the amount of repeats the echo effect will have by setting how much of the delayed output is fed back into the delay line.

NOTE: *Be careful with high feedback settings as you can cause the delay line to go unstable and cause 'howl around'.*

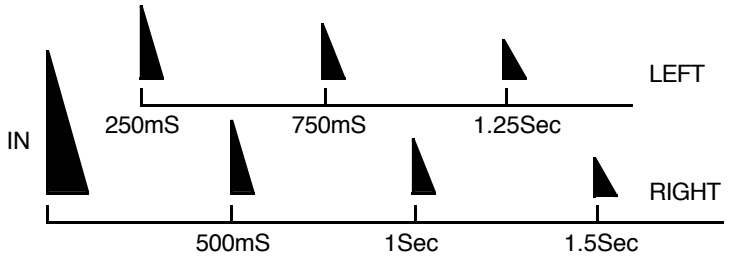
HF DAMPING — This sets the high frequency damping. The HF DAMP parameter filters out some of the high frequency components in the sound in the feedback loop. This is to simulate the effect that in real life, each repeat of the echo gets slightly duller as the surfaces off which the sound is bouncing absorb some of the high frequencies. The value shown is the frequency that will be attenuated in the feedback loop.

FDBACK MONITOR — This selects where you will listen to the output of the delay and allows you to set the direction of the modulation section and the echo section. You may select POST which will give the effect of echo followed by the mod effects or you may select PRE which will give the effect of the mod effects followed by echo.

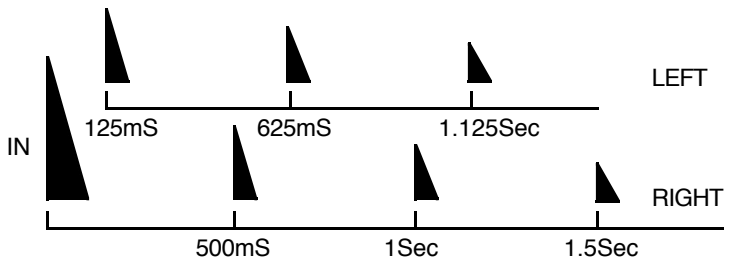
NOTE: *When PRE is selected, you must set a value in the FEEDBACK parameter to hear any delay effect*

PING PONG — This allows you to create stereo 'ping pong' echo effects that bounce back and forth from left to right. A setting of 00 creates a mono echo effect. A setting of +50 will create a 'ping pong' echo effect that goes from right to left and back again. A setting of -50 will create a 'ping pong' echo effect that goes from left to right and back again. Settings in between 00 and ±50 will give 'asymmetric' or syncopated 'ping pong' effects.

For example, with a delay time of 500mS and a PING PONG setting of +/-50, the result will be equally spaced repeats of 250mS. I.e.:

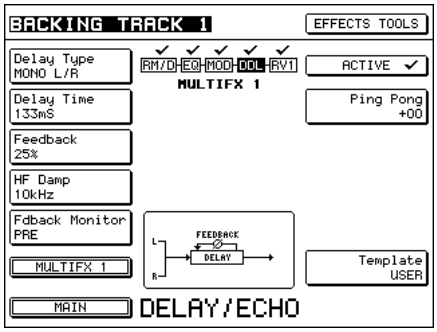


With a PING PONG setting of, say, +/-25, however, the first repeat will come after 125mS, the second after 500mS, the third after 625mS, etc. (depending on the amount of feedback). I.e.



MONO L/R

This sums the left and right outputs of the modulation section into a mono delay:

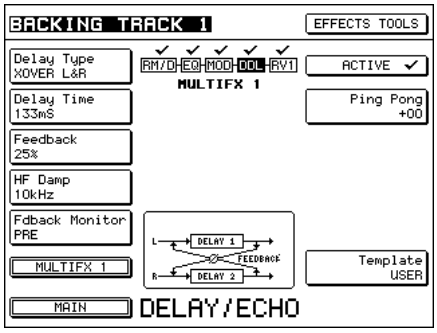


The parameters are identical to the MONO LEFT delay.

NOTE: *Please note that because the stereo mod section passes through the echo section, any stereo mod effects you create will be 'monofied' when either of mono delay effects described above are selected. To enjoy stereo modulation effects with echo, please choose the stereo delay option (see below).*

XOVER L+R

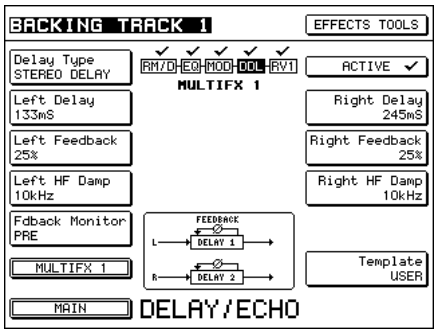
This is a 'pseudo' stereo effect that takes the left and right outputs of the mod effects sections and feeds them through separate delay lines, the feedback paths of which crossover and feed each other.



The parameters are identical to those found in the mono delay effects except that because two delay lines are used, delay time is halved (to 335mS).

STEREO DELAY

This is a dual channel stereo delay with two independent delay lines:



The parameters are identical to those found in the mono and crossover delays except that you have independent control over both channels delay time, feedback and HF damping. The PING PONG parameter is not available in this delay effect type.

As with the crossover delay effect, because two delay lines are used for this effect, the maximum delay time for each channel is 335mS.

DELAY EFFECTS BYPASS

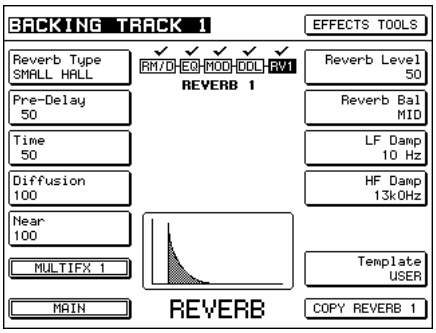
In all delay effects types, F10 allows you to bypass the selected delay effect.

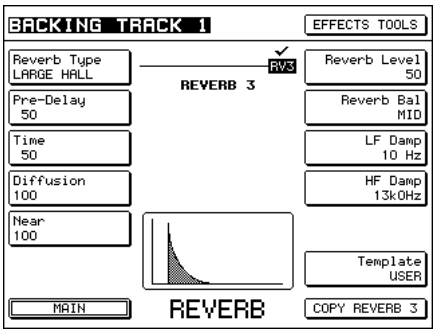
DELAY EFFECTS TEMPLATES

Some basic delay effect templates are provided. However, because delay effects rely on a variety of unpredictable factors such as the tempo of the song, etc., only basic 'guidelines' are offered. You should tweak them according to your specific requirements.

REVERB EFFECTS

The EB20 offers four channels of stereo reverb, RV1-4. RV1 and RV2 are associated with the two multiFX channels and these may be accessed in the main FX page by pressing REVERB 1 (F10) or REVERB 2 (F11) or via the main MULTIFX page. RV3 and RV4 are two 'spare' reverb-only channels accessed in the main FX page on F12 and F13 respectively. However you access the reverb page, you will see something like this:





As you can see, apart from the block diagram of the multiFX chain, both reverb screens are identical. The parameters are:

REVERB TYPE — You may select from seven different reverb types - LARGE HALL, SMALL HALL, LARGE ROOM, SMALL ROOM, GATED 1, GATED 2 and REVERSE (the parameters change slightly for the two GATED and the REVERSE reverb types - these are described separately).

PRE-DELAY — This sets the time between the original sound and the onset of the reverb.

TIME — This sets the time it takes for the reverb to die away.

DIFFUSION — This sets the density or 'smoothness' of the reverb. Typically, this will be set to maximum but there may be occasions when you want a more 'fluttery' or 'echoey' reverb type in which case DIFFUSION should be set to a lower value.

NEAR — This affects the amount of 'agitation' the direct sound will have on the reverb decay and this has an effect on our perception of how close we are to the direct sound. High settings give the impression of being closer to the original sound whilst lower settings gives an enhanced sense of distance.

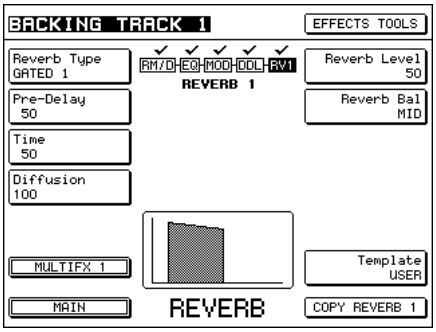
REVERB LEVEL — Sets the output level of the reverb.

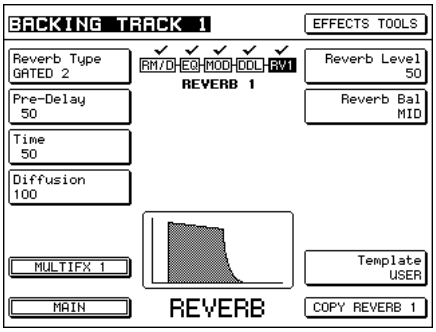
REVERB PAN — Sets the pan/balance of the reverb effect

LF DAMPING — This reduces the amount of low frequency signal in the reverb decay. For a full sounding reverb, set a low frequency value but if you want a thinner, more brittle sounding reverb, set a higher frequency.

HF DAMPING — This reduces the amount of high frequency content in the reverb decay. This simulates the effect that in a natural acoustic environment, high frequencies tend to get absorbed and so the reverb decay gets progressively duller as it decays.

When either of the GATED reverb types are selected, the screens change slightly:





The parameters for both gated reverb types are identical:

PRE-DELAY — Sets the time between the original sound and the onset of the gated reverb effect.

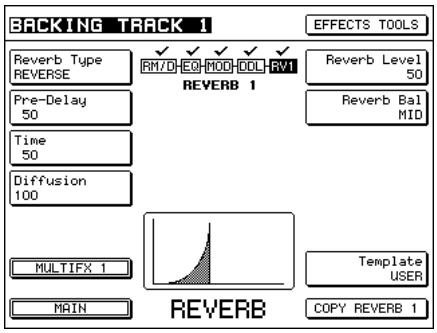
TIME — Sets the length of the gated reverb effect.

DIFFUSION — Sets the density of the gated reverb effect.

REVERB LEVEL and REVERB PAN serve the same function as for the other reverb types but the gated reverb types to do not have LF or HF damping or the NEAR parameter.

NOTE: *The same parameters are available for RV3 and RV4 of course.*

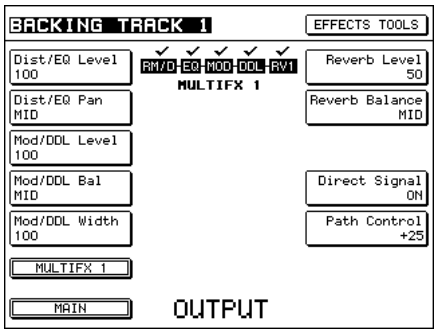
When the REVERSE reverb type is selected, a slightly different screen is also shown:



The parameters are identical to the gated reverb types.

OUTPUT MIX (MULTIFX1 AND 2 ONLY)

Pressing OUTPUT MIX in the main MULTIFX page shows this screen:



Here you may balance the various multiFX sections. The parameters are:

DIST/EQ LEVEL — Sets the output level of the RING MOD/DISTORTION/EQ block of effects.

DIST/EQ PAN — Sets the pan position of the RING MOD/DISTORTION/EQ block of effects.

MOD/DEL LEVEL — Sets the level of the MODULATION/DELAY effects.

MOD/DEL PAN — Sets the stereo balance of the MODULATION/DELAY effects.

MOD/DEL WIDTH — Sets the width of the stereo image. At a value of 100, maximum stereo is obtained but set lower than that and the sound becomes gradually narrower. At a value of 0, the output from the MODULATION/DELAY section is mono.

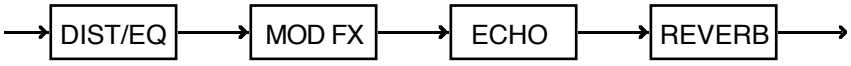
REVERB LEVEL — This sets the level of the reverb in the multiFX chain.

REVERB PAN — This sets the stereo balance of the reverb in the multiFX chain.

NOTE: *REVERB LEVEL and REVERB PAN are duplications of the parameters found in the main reverb pages and are included here for convenience.*

DIRECT SIGNAL — You can switch out the direct signal from the multiFX chain. This is of most relevance when using effects such as autopan or rotary speakers although it can be useful in other circumstances.

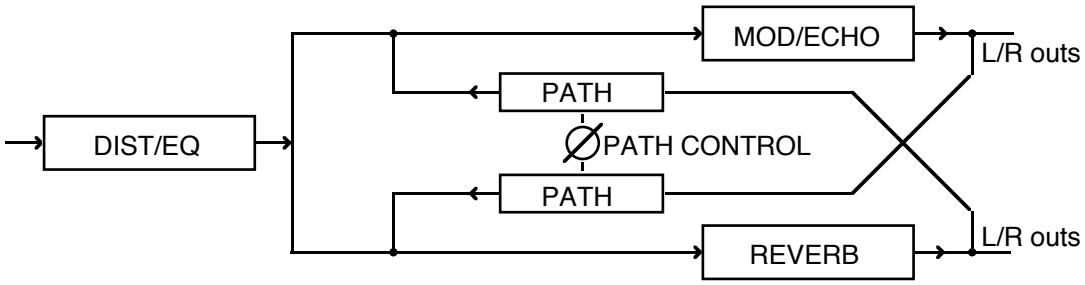
PATH CONTROL — This parameter allows you to set the flow or direction of the effects. Most multi-effects processors follow a 'traditional' path for the effects:



However, there are times when you want to have the modulation and echo effects in parallel with each other or to be able chorus, flange or phase the reverb to add a shimmer or a 'swoosh' to the reverb decay.

When using separate outboard effects processors, this is simply a matter of patching the effects in the order you want. Many multi-effects processors don't allow this, however, and you are limited to just one path as depicted above.

The EB20 allows you to set the direction of the effects with one simple control, the PATH CONTROL. You may have mod/echo followed by reverb; you may have reverb followed by mod/echo or you may have mod/echo and reverb in parallel.



When the PATH CONTROL is set to 00, the mod/echo section and the reverb section feed the main left/right outputs in parallel.

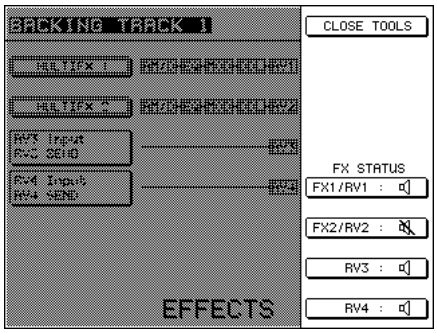
When set to +50, the output of the mod/echo section is fed into the reverb.

When set to -50, the output of the reverb is fed into the mod/echo section.

When set to values in between, this means that part of the signal is going to the reverb or the mod/echo section whilst also feeding the L/R outputs directly. For example, setting the PATH CONTROL to +25 indicates that some of the mod/echo section is being fed to the reverb whilst also going direct to the L/R outputs. Similarly, a setting of -25 would send some reverb to the mod/echo section whilst some reverb is going direct to the main outputs.

EFFECTS TOOLS

F9 of every effects page shows FX TOOLS. Pressing F9 will show this drop down menu:



Here you may selectively mute the effects channels. This can be useful when editing effects as it allows you to hear the effect you are working on in isolation by muting the other channels.

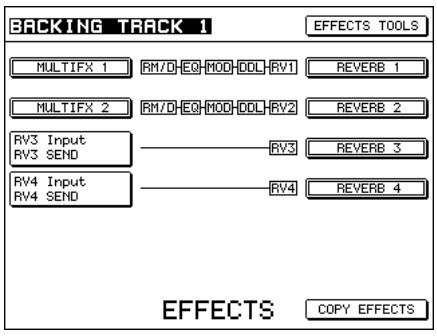
To mute an effects channel, simply press the appropriate mute key. When muted, a diagonal line will appear through the speaker icon (as shown for FX2/RV2 in the above screen shot).

EFFECTS TOOLS is available in all effects and reverb pages allowing you to quickly mute effects channels at any time.

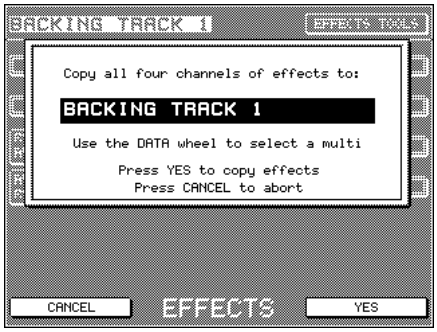
COPYING EFFECTS

It is possible to copy effects from one multi to another. In this way, if there is a particular effects combination you like, it can be used in another multi.

On the main FX page, F16 shows COPY EFFECTS:

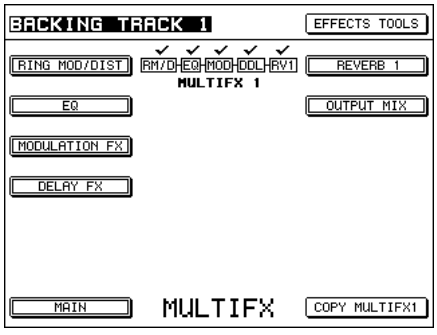


This allows you to copy all four channels of effects to another multi. Pressing COPY EFFECTS will pop up this prompt:



The currently selected multi will be selected by default as the destination multi - using the DATA wheel, you should choose the multi you want to copy the effects to and press YES (or CANCEL if you change your mind).

As well as copying all four channels of effects, you may also copy individual channels. For example, in the main MULTIFX page, F16 shows COPY MULTIFX1 (or 2 depending on the selected channel):

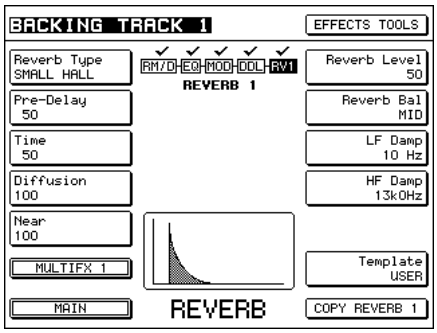


Pressing this will show this prompt:

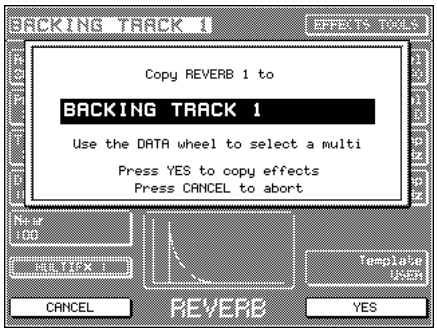


You should select the multi you wish to copy the multiFX chain to and press YES (or CANCEL if you change your mind).

Similarly, it is possible to copy individual reverbs from one multi to another. F16 in all the reverb pages shows COPY REVERB *n*:



Pressing this will pop-up this prompt:



You should select the multi you wish to copy the selected reverb to and press YES (or CANCEL if you change your mind).

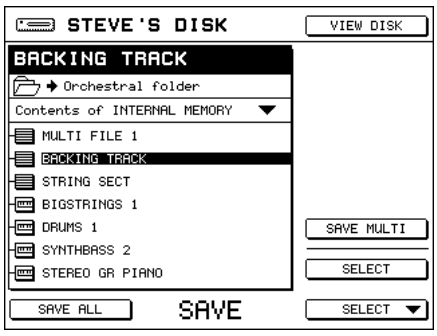
SAVING AND LOADING EFFECTS

Unlike previous Akai samplers, there is no specific function to save and load effects as they are stored within the multi and saved and loaded with them. Thus, when you load a multi, you load all the programs and all their samples and the four channels of effects unique to that multi.

SAVE

Once you have done work on multis, programs and samples, you will no doubt want to save them. This is done using the SAVE key.

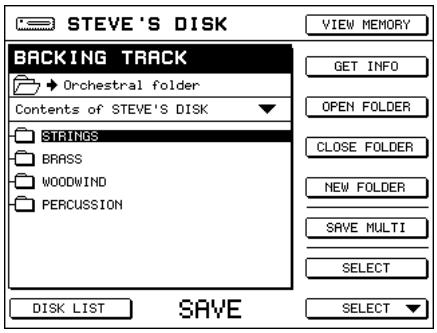
Depending on what you are working on, pressing SAVE will show this screen:



In this example, you were working on the multi BACKING TRACK 1 when you pressed SAVE. This is therefore the item selected to save. Had you been working on a sample or a program, the appropriate item would be shown to be saved.

The window shows the current contents of memory and you may select another item to save if you prefer. To save the selected item, press F14. This key's label changes according to the item selected (i.e. multi, program, sample). If you want, you can save the entire contents by pressing F8.

Also shown is the currently selected folder where the selected item(s) will be saved to. If you need to change the destination folder (or disk), press VIEW DISK. The window will change:

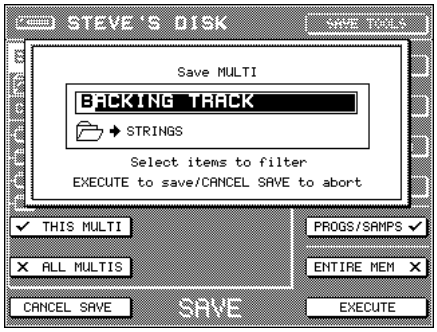


The window shows you the contents of the current folder or the root directory and you can use OPEN and CLOSE FOLDER to navigate your way around your disk to set *where* the item (multi, program or sample) will be saved.

Alternatively, you may also create a new folder to save to using NEW FOLDER.

If the selected disk is not the correct one, you can use DISK LIST to select another disk to save to. Once selected, you may navigate your way around the folders as described above.

In either window, pressing F14 will show this prompt:



You may rename the item if you want. This is useful in case you want save an edited copy of the item and retain the original on disk or in case you used an autoname and want to give it a more meaningful name.

The selected folder where the item will be saved to is shown beneath the item's name. If it is the wrong destination, press CANCEL and select the correct folder.

Using the usual ‘checkboxes’, you can select what will be saved. In this case, you can choose to save just the selected multi with or without its associated programs and their samples. You can also choose to save all multis, again with or without the associated programs and samples. Alternatively, you can save the entire contents of memory.

Pressing EXECUTE will pop-up a progress display:



Assuming you chose to save the programs and samples as well, you will see these being saved:





When saving an item, if something of the same name exists n the currently selected folder, you will receive this prompt:



Pressing YES will replace the item on disk with the item you are saving. Pressing NO will keep the original on disk and will not save the new item.

If you press NO, the next time an item of the same name is found in the folder, you will receive the same prompt again. However, pressing YES TO ALL will replace all items that may have the same name without you receiving any further prompting.

If in any doubt at all, press CANCEL SAVE and re-appraise the situation before you save to prevent accidentally overwriting anything valuable on disk.

NOTES REGARDING SAVE

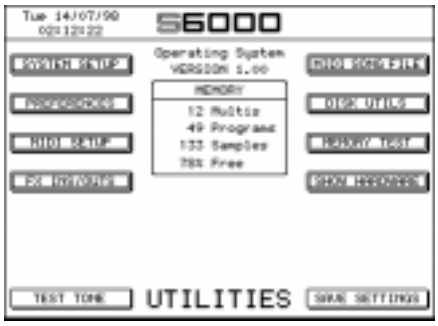
You may only save to an MS-DOS formatted disk. This includes hard disk, removable disks (Jaz, Zip, Syquest, etc.), and floppy disk.

Whilst you can load data from an S1000, S1100, S2000, S3000 or XL series hard disk, it is not possible to save data to these or other Akai formatted disks.

NOTE: *Similarly, you cannot record 'virtual' samples to anything other than an MS-DOS formatted disk.*

UTILITIES

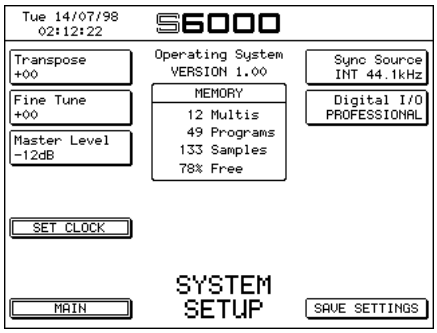
Pressing UTILITIES shows this screen:



As for EDIT PROGRAM and EDIT SAMPLE, the main page gives direct access to further functions. These are:

SYSTEM SETUP

Pressing this shows this screen:

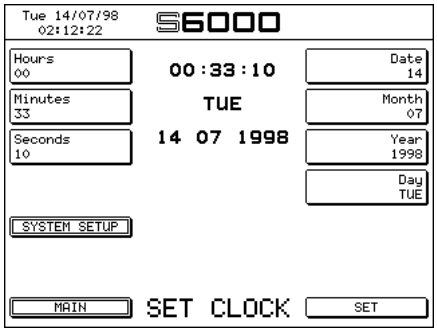


The parameters are:

TRANSPOSE	Sets the overall tuning of the sampler in semitones.
FINE TUNE	Allows you to fine tune the sampler to external instruments.
MASTER LEVEL	Sets the overall output level of the sampler.
SYNC SOURCE	This sets the sampling rate and/or external digital wordclock sync options. These are:

INT 44.1kHz	Sets the internal clock to run at 44.1kHz
INT 48.0kHz	Sets the internal clock to run at 48kHz
EXT WORDCLOCK	The sampler will run at whatever sampling rate is received at the WORDCLOCK BNC connector.

	DIGITAL INPUT	The sampler will run at whatever sampling rate is received at the digital I/O phono input.
	OPTICAL INPUT	The sampler will run at whatever sampling rate is received digital I/O optical input.
	ADAT INPUT	The sampler will run at whatever sampling rate is received at the ADAT input (if installed).
DIGITAL I/O	Here you may select between CONSUMER and PROFESSIONAL depending on the type of digital equipment you are using with the S6000.	
SET CLOCK	Here you may set up the S6000's internal clock. Pressing it displays this screen:	

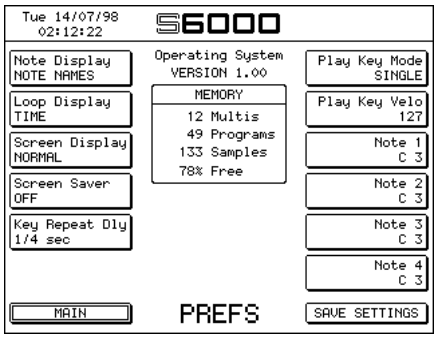


The time you entered this page is captured in the centre of the screen (the actual time the sampler was previously set to keeps ticking away in the top left corner). You should set the various parameters accordingly to set the time and date and, at an appropriate moment, press SET (F16) to actually set the time.

The clock is used to date stamp files when you save them.

PREFERENCES

This allows you to personalise your samplers settings. Pressing PREFERENCES shows something like this screen:



The parameters are:

NOTE DISPLAY — This allows you to choose whether to display notes as MIDI numbers (i.e. 0-127) or as names (C 0 - G 8) in all displays where notes are shown.

LOOP DISPLAY — This allows you to select whether LOOP LENGTH is displayed in time (i.e. 1 sec) or samples (i.e. 44100).

SCREEN DISPLAY — This allows you to invert the screen display. You may have white lettering on a blue background (NORMAL) or blue lettering on a white background (INVERTED).

SCREEN SAVER — This turns off the LCD's backlight at timed intervals in order to preserve it. If the function is enabled, the backlight will switch after *n* minutes of inactivity. To reactivate it, press any key.

KEY REPEAT DLY — This sets the delay time before certain keys such as SCROLL UP/DOWN and SELECT keys start auto-repeating.

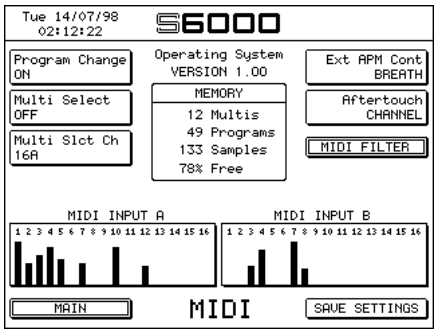
PLAY KEY MODE — This allows you to choose from three 'play' modes for the ENT/PLAY key. These are:

- SINGLE — Pressing ENT/PLAY will play the selected sound at C3 (or whatever NOTE 1 is tuned to)
- ARPEGGIO — This will play NOTES 1 - 4 in succession. This may be useful to check multi-samples and sounds across the keyboard's range when away from a MIDI keyboard.
- CHORD — This will play NOTE s1 - 4 simultaneously as a chord.

NOTES 1 - 4 — Allows you to tune the notes in an arpeggio or chord. If SINGLE is selected in PLAY KEY MODE, only NOTE 1 is used.

MIDI SETUP

This sets up how the S6000 will respond to MIDI. Pressing MIDI SETUP shows this screen:



The parameters are:

PROGRAM CHANGE — This applies to remote program selection of programs via MIDI within parts. It may be switched ON or OFF

MULTI SELECT — This allows you to select whether MIDI program change will remotely select multis.

MULTI SLCT CH — When MIDI program change is set to ON in the MULTI SELECT parameter, this sets the channel for the reception of program change commands.

EXT APM CONTROL — You may select any one of the 128 midi control parameters to be used as a controller in the APM matrix.

AFTERTOUCH — This is a 'system-wide' parameter that allows you to select whether the S6000 responds to CHANNEL or POLYPHONIC aftertouch.

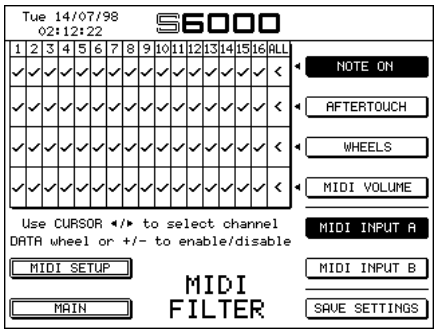
With channel aftertouch, pressing harder on one note will affect all notes that are held. With polyphonic aftertouch, pressing harder on one note affects only that note. Polyphonic aftertouch is therefore much more expressive, especially with ensemble sounds such as strings or brass where one voice can be made brighter or louder or to have more vibrato, whatever.

Your MIDI keyboard (or other controller) must be capable of generating polyphonic aftertouch for this to work. If your keyboard or controller only generates channel aftertouch (as most aftertouch-equipped keyboards do) and you select polyphonic aftertouch in this parameter, you will get no aftertouch at all. This is because the MIDI commands for channel aftertouch are not recognised by polyphonic aftertouch and are therefore ignored.

At the bottom of the screen are 32 (1-16A and 1-16B) 'PPMs' that allow you to monitor incoming MIDI. This can be useful for troubleshooting.

MIDI FILTER

Pressing this will show this screen:



This page allows you to selectively filter out certain types of MIDI events on selected MIDI channels. This can help to reduce bottlenecks at the MIDI inputs and therefore help to keep note-on delays to a minimum.

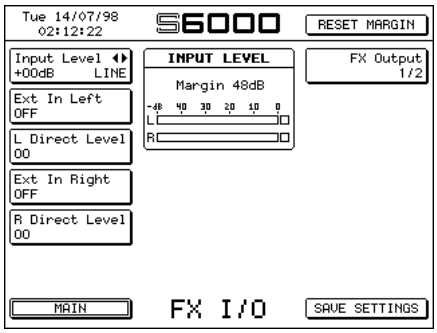
The MIDI event types are selected using F2/F10 for note-on, F3/F11 for aftertouch, F4/F12 for wheels (pitchbend and modwheel) and F4/F13 for MIDI volume. The channels are selected using the CURSOR </> keys. Use the DATA wheel to turn them on and off.

With the cursor on ALL, you can disable the selected MIDI event on all channels.

Use MIDI A and MIDI B (F14 and F15) to select the MIDI input.

FX IN/OUTS

Back in the main UTILITIES page, pressing FX IN/OUTS will show this page:



It is possible to use the EB20 as an effects processor for external signals fed into the sampler's inputs. An effects channel may share an external input AND internal sounds. For example, you may route some parts to FX channel 1 which also has an external input routed to it. If you want an FX channel for exclusive use by an external sound source, do not route any parts to that FX channel.

The parameters in the FX I/O page are:

INPUT LEVEL — This sets the overall input level for both inputs. By double clicking this key, you may also set the inputs' overall sensitivity (i.e. MIC, LINE or PRO). Input level is set by observing incoming signal level on the meters and adjusting INPUT LEVEL accordingly. As with RECORD, the ideal input level is as close to 0dB as possible.

EXT IN LEFT/RIGHT — These two parameters allow you to select which of the four effects channels the external inputs will be routed to (OFF, FX1, FX 2, RV3, RV4).

L/R DIRECT SIGNAL — This sets how much of the inputs' direct signal is passed to the outputs. If you are using the S6000 as a standalone effects processor with an external mixer via the mixer's AUX sends, this should be set to 0 otherwise set the levels as appropriate.

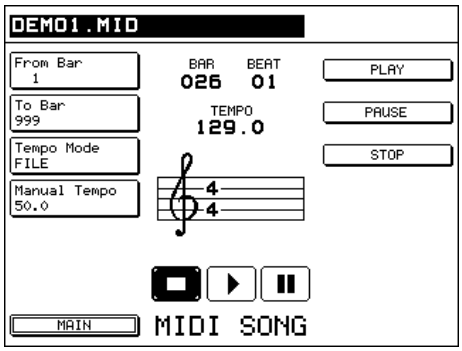
NOTE: *It is only possible to use the analogue inputs as a signal source to the effects. Furthermore, because there are only two inputs, only two effects channels may be nominated to be used with external sounds.*

FX OUTPUT — You may, if you wish, route the effects to appear at a pair of the individual outputs. This allows you to balance the relative levels of the 'straight' signal and the effects signal on an external mixing console and you may select OFF (no effects), 1/2, 3/4, etc., as you wish. You will note, however, that the outputs selected here carries a mix of all four effects channels' outputs and it is not possible to route individual effects channels to different outputs.

NOTE: *The EB20 multi-effects processor is an option on the S5000. Even though it may not be installed, this page is still accessible.*

MIDI SONG FILE

Pressing MIDI SONG FILE (F10) will show something like this screen:



The parameters are:

SONG TITLE	Although not specifically labelled as such, F1 allows you to select different songs that may be loaded in memory.
FROM BAR	Allows you to select which bar the MIDI song file will play from.
TO BAR	Allows you to select which bar the MIDI song file will play to.
TEMPO MODE	You may select FILE or MANUAL. Selecting file will cause the MIDI song file to play at the tempo stored with the file. Selecting MANUAL allows you to override the stored tempo to play at a tempo set in the MANUAL TEMPO field described below.
MANUAL TEMPO	Allows you to set a tempo that the MIDI song file will play at if MANUAL is selected in the TEMPO MODE field described above.
PLAY	Pressing this will start playback of the selected MIDI song file from the beginning (or the value set in the FROM BAR parameter).
PAUSE	Pressing this will stop playback of the selected MIDI song file. Pressing it again will cause the MIDI song file to re-commence playback from the point it was paused.
STOP	This will stop playback and will rest playback to start from the beginning (or the value set in the FROM BAR parameter).

Centre screen you will see the current bar and beat. The tempo is also shown and the value shown depends on whether FILE or MANUAL is selected.

Underneath this, the time signature is shown, This updates as the MIDI song file plays.

The ‘transport’ controls highlight according to status.

LOADING MIDI SONG FILES

MIDI song files are loaded into memory using the LOAD mode. MIDI song files are shown with their own unique icon:



Pressing LOAD SMF will show this screen:



You may choose to load only the selected SMF or all SMFs. You may also choose to clear the memory prior to loading an SMF.

Press EXECUTE to load the selected SMF(s) or CANCEL LOAD to abort.

NOTE: *It is only possible to load Type 0 MIDI song files. Type 1 MIDI song files are not supported on the S5/6000 and will need to be converted to Type 0 MIDI song files before they can be loaded.*

DISK UTILS

Pressing DISK UTILS will show this screen:



This is not unlike LOAD to look at except that F13 allows you to rename the selected item and F14 allows you to delete the selected item.

RENAMING DISK ITEMS

To rename an item, move the cursor to the item you want to rename and press RENAME. You will get this prompt:



You should enter a new name and press F16 (or press F8 if you change your mind).

If you proceed and a file of that name already exists in the location, you will be prompted:



DELETING DISK ITEMS

To delete something from disk, move the cursor to the item you want to delete and press F14. You will see this prompt:

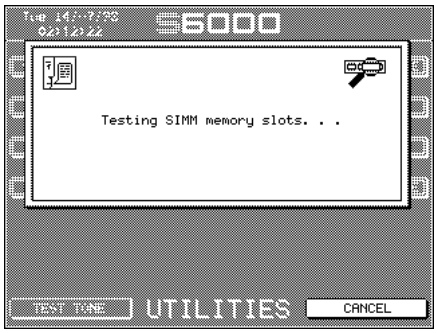


You should proceed (with caution!) as appropriate.

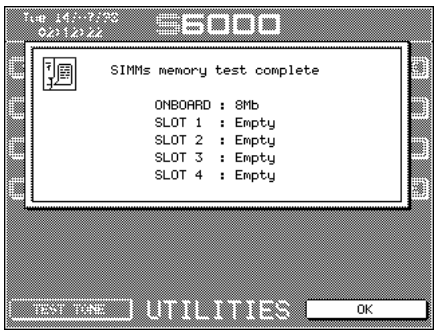
If a folder is selected for deletion, the folder and its entire contents will be deleted

MEMORY TEST

Pressing this shows this pop-up:



The animated magnifying glass indicates progress. After a while, you will see something like this message:



This test is mostly for service engineers for diagnostic purposes but you may find it useful to check how much memory is in your S6000 (especially if you have just installed some SIMMs and want to check they are correctly seated and recognised by the system).

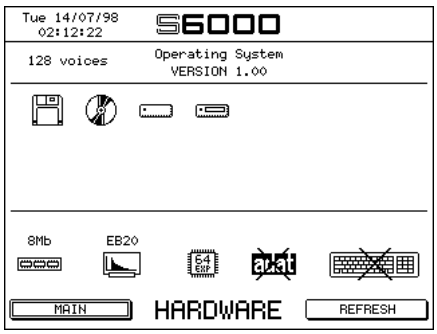
If the memory test checks out ok, it will show you what memory is installed in each slot. If a slot doesn't have a SIMM installed, it will show EMPTY; if there is a problem with a SIMM, the appropriate slot will show FAULTY.

SHOW HARDWARE

This is a useful utility for checking what hardware is and isn't installed or connected. Pressing it shows something like this screen:



After which....



At a glance, you can see how much memory you have installed, whether the effects processor EB20 is installed (S5000 only), whether the voice expansion board is installed (S5000 only) and therefore how many voices are available, whether the ADAT option is fitted, whether the keyboard is attached and what drives are connected. Thos items shown with a cross through them indicate that they are not installed/attached.

TEST TONE

Pressing this puts out a 1kHz sine wave test tone at nominal level through all outputs. Again, this is mostly for diagnostic purposes for service engineers to check that all the outputs are working and are at the correct level but you may find it useful for checking audio connections and/or for setting levels on an external mixer.

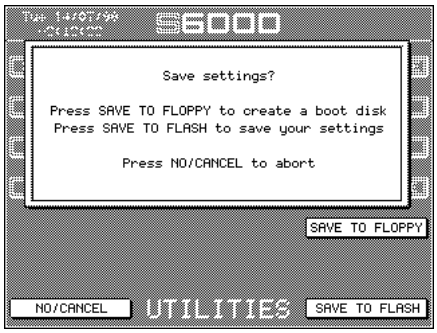
NOTE: *Because of the way audio is internally routed through the sampler, the test tone actually passes through the effects sends. The effects are muted when the test tone is being generated but they are re-initialised when you switch the test tone off resulting in a short burst of reverb that sounds not unlike a submarine sonar! This is normal and is not a fault with the S6000.*

To overcome it, switch FX OUTPUT to OFF in the FX IN/OUTS page.

This problem does not exist on the S5000 unless the EB20 is installed.

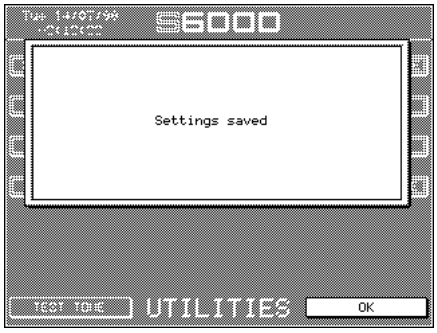
SAVE SETTINGS

This allows you to save the system settings and preferences to FlashROM or floppy disk. Pressing SAVE SETTINGS will pop-up this prompt:



By saving to FlashROM, your sampler will boot with your settings every time. However, by saving your setting to floppy disk, you may also create a 'boot' disk so that starting the sampler up with this in the floppy drive will boot the sampler up with these settings. Creating a boot disk may be useful to back up your settings but also if you are likely to be using another S6000 or S5000 and you want it to have the same system settings and preferences as yours.

Pressing either will display a progress bar followed by this prompt:



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