WARNING

Power requirements for electrical equipment vary from area to area. Please ensure that your S1100 meets the power requirements in your area. If in doubt, consult a qualified electrician.

120V @ 60Hz for USA and Canada

220V - 230V @ 50Hz for Europe (excluding UK)

240V @ 50Hz for UK and Australia

Protecting yourself and the S1100

- Never touch the plug with wet hands.
- Always disconnect the S1100 from the power supply by pulling on the plug, not the cord.
- Allow only a qualified professional engineer to repair or reassemble the S1100. Apart from voiding the warranty, unauthorized engineers might touch live internal parts and receive a serious electric shock.
- Do not put, or allow anyone to put any object, especially metal objects, into the S1100.
- Use only a household AC power supply. Never use a DC power supply.
- If water or any other liquid is spilled into or onto the S1100, disconnect the power, and call your dealer.
- Make sure that the unit is well-ventilated, and away from direct sunlight.
- To avoid damage to internal circuitry, as well as the external finish, keep the S1100 away from sources of direct heat (stoves, radiators, etc).
- Avoid using aerosol insecticides, etc near the S1100. They may damage the surface, and may ignite.
- Do not use denaturated alcohol, thinner or similar chemicals to clean the S1100. They will damage the finish.
- Make sure that the S1100 is always well-supported when in use (either in a specially-designed equipment rack, or a firm level surface).
- When installing the S1100 in a 19" rack system, always allow 1U of ventilated free space above it to allow for cooling. Make sure that the back of the rack is unobstructed to allow a clear airflow.

UK customers

Important safety notice — The flex supplied with this machine has three wires, as shown in the illustration.

WARNING: THIS APPLIANCE MUST BE EARTHED

IMPORTANT

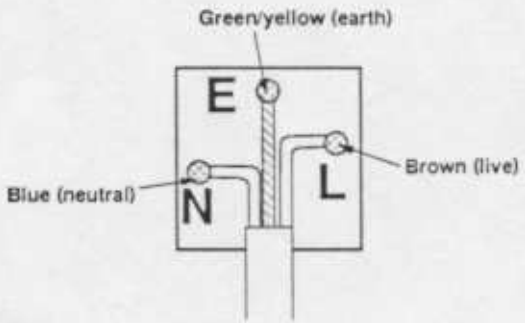
The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow — earth

Blue — neutral

Brown — live

As the colours of the wires in the flex may not correspond to the colour markings in your plug, make sure that wires are connect in the following way. The green-and yellow wire should be connected to the terminal marked "E" or marked with the safety earth symbol (⏚); the blue wire is connected to the terminal marked "N", or coloured black. The brown wire should be connected to the terminal marked "L", or coloured red. Make sure all terminal screws are tightened and there are no loose strands of wire.



FCC warning

This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Avis pour les acheteurs canadiens du S1100

Le présent appareil numérique n'émet pas des bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada

FÜR KUNDEN IN DER BUNDESREPUBLIK DEUTSCHLAND

Bescheinigung von AKAI
Hiermit wird bescheinigt, daß das Gerät AKAI
S1100
in Übereinstimmung mit den Bestimmungen der
Amtsblattverfügung 1046/1984
funkentstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berichtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.
AKAI ELECTRIC CO., LTD

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Features

The AKAI S1100 is a high-quality digital sampler. With a sampling rate of 44.1kHz, and 16-bit resolution, the S1100 is capable of recording and replaying samples literally of CD quality, and the basic unexpanded unit has a total sample time of over 23 seconds (mono). Memory may be added using 2Mbyte and/or 8Mbyte boards (EXM005 and EXM008) to a total of 32Mbytes.

Diskette and MIDI data is, naturally, compatible between all models in the industry-standard S1000 range (excepting effects settings and cue-lists, for which the S1000 series is not equipped) as well as with the S1000KB sampling keyboard.

16-note polyphony allows complex passages to be played with the full sample time. The samples may be edited with full trimming facilities, looped at up to 8 loop points per sample (with tuning of the loop), spliced to other samples, filtered and sent through two independent ADSR envelope generators. Full velocity, positional and looping crossfading is possible. Basic synthesizer waveforms (sine, triangle, etc) are available on disk for synthesizer/sampler sounds.

In the studio, eight separate outputs allow maximum flexibility in mixing and adding effects. However, stereo operation is possible from just two outputs.

Digital effects are also integrated into the S1100, allowing you to send pre-effected samples, freeing up your effect sends on the mixing desk. The parameters of the effects (reverb, echo and time modulation) are under user control and may be stored on disk together with samples and programs. An internal digital "mixer" is also integrated into the software and hardware of the S1100, allowing flexibility in the way that the sound is transmitted from the stereo outputs.

In addition to analog stereo outputs, an XLR connector is provided for digital transmission of stereo audio data in the AES/EBU format. The S1100 can therefore be connected directly to any recorder (audio or video) or mixing desk capable of accepting such digital signals.

The S1100 is capable of editing samples digitally — "stretching" or "squeezing" samples without changing the pitch in order to fit them into a specific time slot. Resampling can be done at any frequency (higher or lower than the original).

The stereo facility is ideal for sampling portions of prerecorded program material (making it an ideal tool for "house", "hip-hop" etc productions), as well as for sampling ambient acoustic sounds.

Naturally, a full MIDI implementation is built in — multi-timbral capabilities making the S1100 perfect for use with a sequencer such as the AKAI MPC-60 or ASQ-10.

Special functions for remote operation of the AKAI ME-35T Audio/MIDI trigger unit (1 or 2 can be controlled), together with a single-trigger monophonic mode make the S1100 into a real-time percussion tone generator.

For A/V post-production work, the integral SMPTE/EBU timecode generator and reader allows the S1100 to record and play timecode-based sequences (cue lists) of sound effects, etc, eliminating the need for SMPTE/MIDI convertors, etc.

The S1100 is capable of processing up to 200 samples, 100 programs, or a combination of up to 400 samples + programs + keygroups. The internal 3.5" floppy disk drive provides a quick easy method of storing and retrieving data (samples, programs and other settings).

Hard disks may be used by the S1100 when using the integral IB-103 SCSI interface board, and any SCSI-compatible drive (including magneto-optical disks such as are used on the Akai DD1000) may be used up to a capacity of 510Mbytes. The hard disk may be divided into partitions and volumes, and individual volumes may be automatically loaded in response to MIDI Program Change commands. The SCSI interface may also be used for fast transmission of sample data to SCSI-equipped computers for editing, etc.

The optional IB-104 digital interface board provides coaxial and optical digital links, for direct digital sampling at rates of up to 48kHz, and hard disk archive/restore to DAT for quick and easy storage of data.

The industry-standard sampler prior to the introduction of the S1000 and S1100 was the AKAI S900, and hundreds of sample disks were produced for this machine. You'll be pleased to know that the S1100 is capable of reading these samples and the associated programs from disk, converting them, and replaying them.

Glossary

Every new technology invents its own terms to describe new techniques. Digital music is no exception, unfortunately. However, a glossary such as this can help introduce you to the vocabulary and concepts involved. We assume you have a basic knowledge of MIDI, but if the S1100 is your first excursion into MIDI and sampling, we suggest you get hold of an introductory MIDI book, and read it before proceeding much further with your S1100.

Button

In this manual, the word "button" will generally be used to refer to a push-button switch on the front panel. This is to distinguish them from the keys on a musical piano-type keyboard. There are two major exceptions to this convention: the use of the terms "number keypad", and "soft key", which come from computing, and are so well-engrained in technical language that to insist on using the terms "number button pad" and "soft button" would be pointless.

Crossfading

On the S1100, *crossfading* is the term used to describe the setting of the relative volume of two samples which are played at the same time. For instance *velocity crossfading* is used to describe the relative balance between two samples played by the same key, when the key is played at different velocities. *Positional crossfading* refers to relative balance between samples in different *keyspans* (see *Multisampling)*. Additionally, the S1100 allows *loop crossfading* — the ability to fade samples inside themselves to allow for smooth looping.

Cursor

On the S1100, the *cursor* is the highlighted (reverse) part of the display which is moved by the CURSOR knob and indicates the parameter which may be changed by the DATA knob and/or the number keypad.

Field

On the S1100, a *field* is the portion of a *page* containing a *parameter*. Only fields (ie those portions of a page which may be altered) will be highlighted by the cursor as the CURSOR knob is turned to go through a page.

Key

In this manual, the word "key" will be generally used to refer to a key on a piano-type keyboard to distinguish these from *buttons* on the front panel.

Keygroup

The term for a collection of a number of parameters of up to four samples — their name, *keyspan*, filtering, envelopes, etc.

Keyspan

On the S1100, a *keyspan* is the range of the keyboard on which a sample can be played.

LFO

Low Frequency Oscillator - an oscillator which operates at too low a frequency to produce an audible tone, but is used to modulate such parameters as pitch, pan position, etc. The S1100 has a number of LFOs implemented in software.

Looping

In sampling, *looping* refers to the process of taking a portion of a sample and repeating it. The S1100 allows eight such loops to be present in a sample, allowing incredibly subtle variations on the basic sampled sound.

Multisampling

When sampling a sound, replaying it at a radically higher or lower pitch will produce strange and unnatural effects. To overcome this problem, samples should be taken from across the pitch range of an instrument and assigned to different *keyspans* across the keyboard. This is known as *multisampling*.

Operating system or *Operating software*

Without a computer program to send signals through the maze of chips and circuitry which make up the hardware of the S1100, the machine would be useless. The program which contains the instructions to respond to MIDI messages, buttons and controllers, and display messages, etc on screen (as well as to record and play back sounds) is known as the *operating system*. This is automatically loaded when the S1100 is powered up, either from chips inside the S1100, or, if a disk containing a later version of the operating system has been placed in the drive, from disk.

Page

On the S1100, a *page* is the set of information and *parameters* shown at any one time on the display screen. Pages can be entered by pressing the named buttons ([SELECT PROG], [MIDI], etc), or the *soft keys* whose legends are displayed at the bottom of a page.

Parameter

A value which can be changed (for instance length, tuning, upper limit of a *keyspan)* as displayed on the screen of the S1100.

Positional crossfading

See *Crossfading*.

Program

The term for a collection of *keygroups* which will all be selected together when the *program* is selected. Different programs can be assigned to different MIDI channels, so that when a sequencer is connected to the S1100, multi-timbral output is possible.

Sample

Usually in the manual, the word *sample* will refer to a sound which has been recorded, digitized and edited, and can then be added to a *keygroup* (you might like to think of it as a "waveform" in analog synthesizer terms). However, when editing one of these sounds, the length and position inside this sample is also measured n *samples*. This latter meaning refers to the digitized "snapshot" image of the sound for one cycle of the sampling process. A sample recorded at 44.1kHz and lasting for exactly one second therefore contains 44,100 samples! It will usually be clear in this manual, however, what meaning of the word *sample* is meant at any one time. *To sample*, by the way, means "to record a sound on a sampler and make a sample of it".

Soft key

On the S1100, a *button* with no predefined function. The current state of the S1100 determines the function, which is displayed on the bottom line of the page.

Splicing

The process of joining samples to each other (analogous to tape splicing). However, this is much easier electronically than when using razor blades and splicing tape, and many more effects are possible. To take an extreme example, the sound of a string section could be spliced to the sound of a bottle breaking, and the resulting sample then spliced to the reversed sound of the string attack.

Timecode

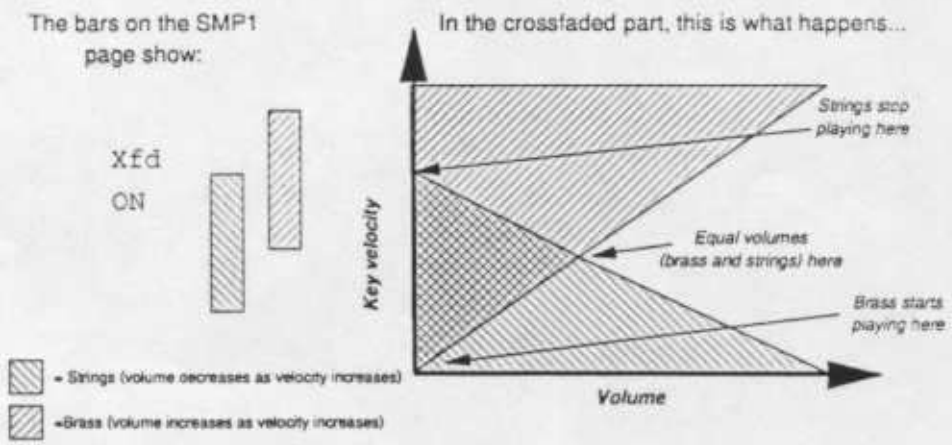
Sometimes referred to as "SMPTE" (pronounced "simpty"), or "SMPTE/EBU", timecode is a way of recording and transmitting absolute time values in terms of hours, minutes, seconds, frames and bits. Since the standard was developed by the American SMPTE (Society of Motion Picture and Television Engineers) and by the EBU (European Broadcasting Union), it is intended for use when synchronising audio to video signals, and much of the terminolgy comes from this field. The number of frames in a second varies according to the standard used. For NTSC television monochrome work, 30 frames/second is the standard. Because of the peculiar nature of NTSC colour, a frame must be "dropped" every so often, resulting in the notorious "30-drop" SMPTE standard, at 29.97 frames/second average. In European television (PAL and SECAM), 25 frames/second is standard for both monochrome and colour, and films are usually synchronised at 24 frames/second.

Velocity crossfading

See *Crossfading* and *Velocity zones*.

Velocity zones

On the S1100, a sample can be programmed to play only when a key is pressed between certain velocities. The range of these is known as a *velocity zone*. Up to four samples may be assigned in each keygroup, and if desired, each can be assigned to a different velocity zone. In this way, a finger-style electric bass sample could be assigned to lower velocity zones, and a slap or pull bass to higher ones, with a *velocity crossfade* added so that there is an intermediate range. The result, when played, will provide a highly expressive bass instrument.

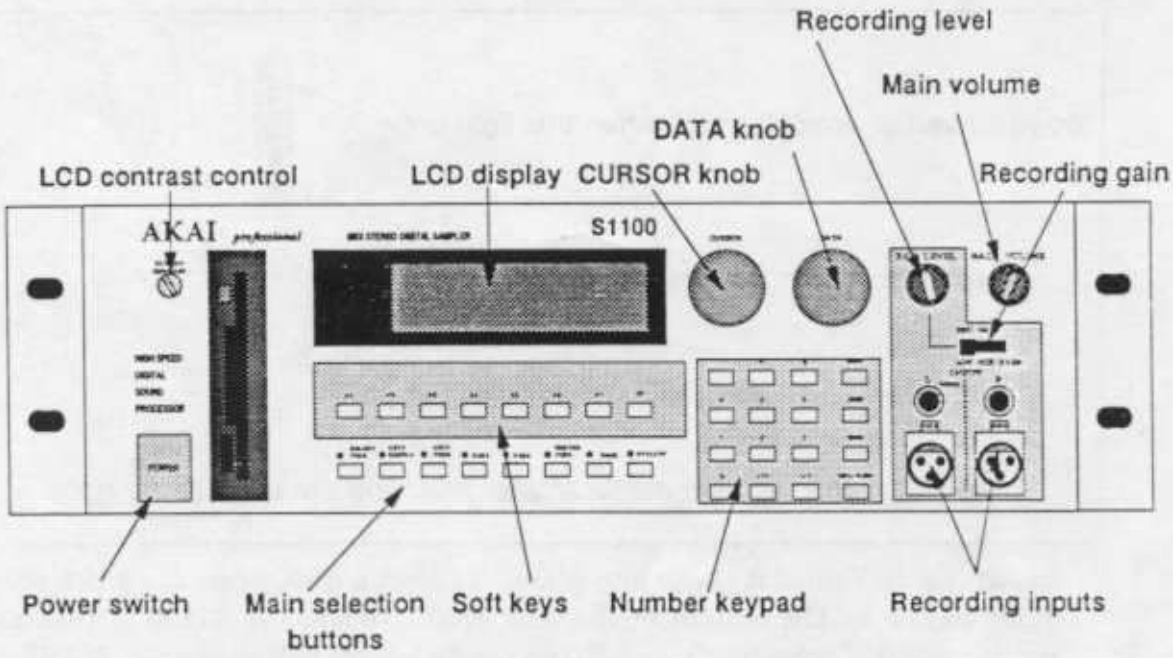


Volume

As well as being the output level from the S1100, *volume* has another meaning — a collection of programs, samples and drum settings which can be stored together on a diskette, on a hard disk or in memory. One volume can be stored in memory or on each diskette, and up to 128 volumes can be stored on a hard disk.

Front panel controls

This section describes the function of the controls on the front panel, and the general principles of operating the S1100. Reading this section now, and understanding the principles of the software user interface of the S1100 will probably save you a lot of time later on when you come to use the machine in earnest.



S1100 front panel

Though the S1100 is a highly sophisticated sampler, you may feel that there are surprisingly few controls. However, each button on the front panel serves more than one function, and together with the 40 character x 8-line LCD display (also used for graphic displays), allow you to perform a wide variety of editing and other commands easily.

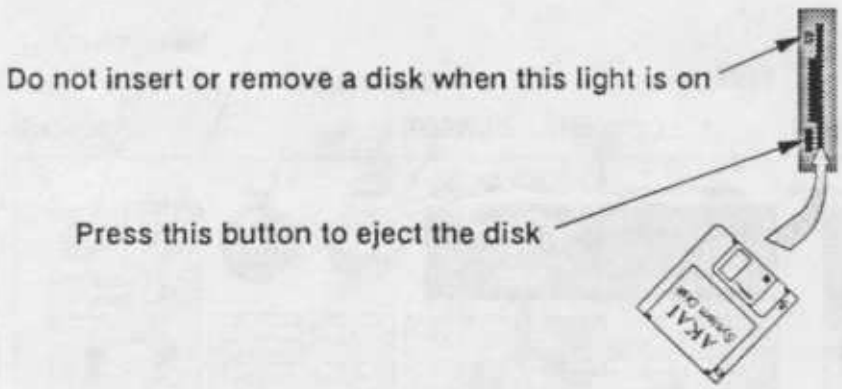
Disk drive

Since the S1100 is a sampler with 2Mbyte of RAM (as standard), sample data and programs will be lost when the power is turned off. The cost of backing up so much memory with batteries would make the S1100 a prohibitively expensive instrument. Using diskettes to store sample, program and other data is a cost-effective way of overcoming this problem, as well as providing an easily-transportable storage medium for commercial and "home-grown" samples. An additional advantage is provided in the easy way you can upgrade the operating system.

A complex hardware/software combination such as the S1100 is always capable of being improved with new features. We have designed the hardware to be ready for such software features, and these can be added simply by turning on the S1100 with a disk containing the latest version of the operating system in the drive. Normally, the S1100 will "boot" the operating system from its own internal

ROM, but if a disk containing a later version is inserted at power-on, this version will be loaded. This eliminates the need for troublesome and time-consuming ROM changes.

At the left of the unit (near the POWER switch) is a slot for 3.5" diskettes. When inserting a diskette, make sure the label is facing to the right, and the metal shutter is pointing towards the back of the S1100.



Insert the disk with the metal shutter first, and the label to the right

Insert the disk until it clicks into place. To eject a disk, press the black rectangular button at the bottom of the disk drive. When the S1100 is reading or writing a disk ("accessing"), an LED on the disk drive will show this. NEVER try to insert or remove a disk while this light is on! You may damage the drive and/or the data on the disk if you do this.

When buying blank 3.5" disks for use with the S1100, you can use either MF2DD (these are low-density disks, cheaper, but don't hold as much data), or MF2HD high-density disks (more expensive and capable of holding more data). Format disks for use with the S1100 using the [HIGH] or [LOW] options in the disk formatting page of the [DISK] menu. No harm is done by formatting high-density disks as low-density (though it's a waste of a high-density disk), but you probably won't be able to format MF2DD disks as high-density. It's better not to try this.

You can prevent accidental erasure or overwriting of a disk by opening the small tab in the corner of the disk. It is a good idea to keep this small tab open all the time, unless you are sure that you want to write to, erase, or overwrite a disk.

MAKING A COPY OF YOUR OPERATING SYSTEM DISK

If you destroy the data on any *Operating System* disk supplied as a future upgrade, this is a) annoying, and b) expensive. Unfortunately we must make a charge for replacement operating system disks, and, of course, it takes time for us to deliver them to you. You can save yourself this potential inconvenience by making a copy of the operating system, as described below. These instructions are not a full guide to disk operations — see the relevant section for full details.

1) Insert the *Operating System* disk in the drive and turn on the power to the S1100.
2) The S1100 will automatically load the operating system from disk.
3) Wait until the disk drive light goes off, remove the *Operating System* disk, and store it in a safe place. Insert a new disk (MF2DD or MF2HD).
4) Press the [DISK] button (the DISK LED will light), and the S1100 will inform you that the disk is unformatted. Press the **FORM** soft key ([F6]) once to remove the "unformatted disk" message, and once again to display the formatting menu.
5) Press the START [HIGH] — [F7] (for MF2HD) or [LOW] — [F8] (for MF2DD) soft key. The disk will be formatted, a process taking just over a minute. All existing data on the disk will be erased.
6) Now press the **SAVE** soft key ([F2]). Move the cursor (using the CURSOR knob) so that it covers the field below the "type of save:-" message (usually this will read "ENTIRE VOLUME"). Now change the message to read "OPERATING SYSTEM", using the DATA knob.
7) Press [GO] ([F8]). A message will be displayed saying that this will wipe the memory of the S1100. Since you've just turned it on, there are no samples or programs in memory — press [GO] (this time it's [F7]).
8) The S1100 will save the operating system to disk. When the disk drive light has gone out, eject the disk, slide the write-protect tab so that the small square hole is open (this will prevent you overwriting or erasing the disk accidentally), and label the disk clearly.
9) Just to check everything's gone smoothly, turn off the S1100, insert your new copy of the operating system, and turn on the power. The S1100 should automatically load the disk version of the operating system. If it doesn't, something's gone wrong. Repeat the process again using another new disk, and if all else fails, call your AKAI dealer.

MAIN VOLUME

This rotary control adjusts the overall output level of the LEFT/MONO, RIGHT and headphone outputs.

REC GAIN

This is a 3-position slider switch (LOW, MID, HIGH) used for matching the level of the input source to the recording amplifier of the S1100. Fine adjustment should be carried out with the REC LEVEL control on the front panel. Ideally, you should set the REC GAIN so that the REC LEVEL is set about 2 o'clock.

Remember that unlike analog devices, digital devices produce distortion which is particularly unpleasant, and "soft clipping" and the effect of saturation cannot be obtained by digital recording. You should always allow sufficient headroom for transient peaks when making a sample.

REC LEVEL

This rotary control is used when recording samples, to control the level of the signal fed into the S1100's recording section.

REC IN

Two parallel pairs of stereo balanced connectors are provided for connection of sound sources to be sampled. One pair is a pair of ITT-Cannon XLR-31F connectors (wired in accordance with American standards — 1=shield, 2=cold, 3=hot), and the other pair is a pair of balanced 1/4" phone connectors.

Unbalanced sources can, of course, be connected to the inputs. If a mono source is used for sampling, use only either the LEFT (MONO) XLR or phone connector.

POWER SWITCH

Turn on the S1100 with the power switch on the left of the front panel (press for on, and press again for off). On power-on, the display will indicate the initial SELECT PROG page, and the LED by the [SELECT PROG] button will light.

Editing controls

While most of the features described so far are those you might expect to find on any top-quality keyboard, all other controls on the panel are connected in one way or another with the display and operations specific to the S1100.

The display

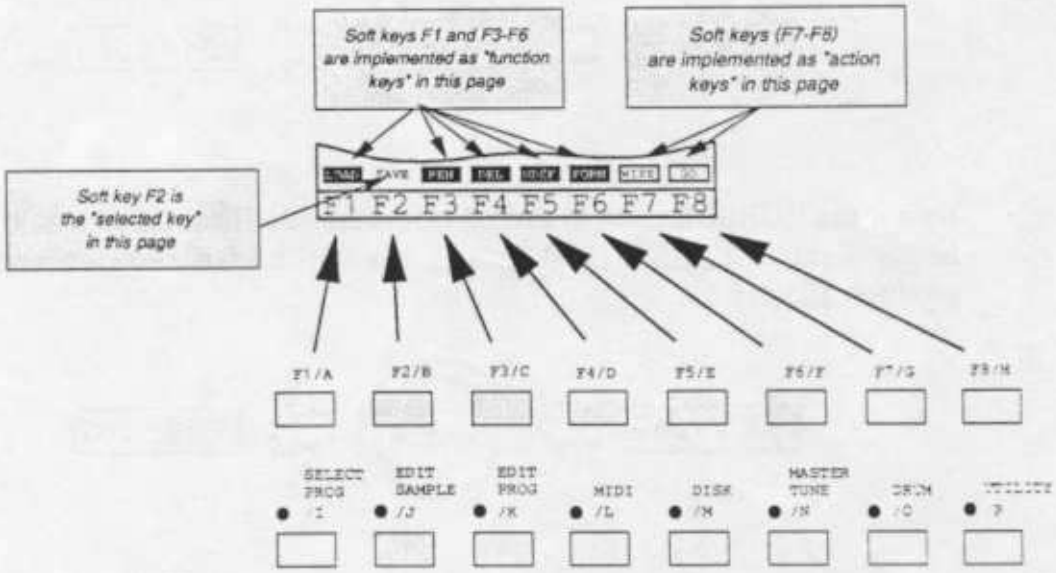
The display is a backlit LCD display which usually displays white against a blue background. When displaying characters, 8 lines of 40 characters each can be displayed. The display is also capable of displaying graphic information, such as a volume vs time display of a sample, envelope shapes and a "MIDI PPM" for checking MIDI input to the S1100. The contrast of the display can be adjusted using the LCD CONTRAST control at the bottom right of the screen.

The bottom line of the display will always contain a row of up to eight or fewer "soft key" legends. These indicate the current function of the buttons immediately below the display ([F1] — [F8]). These buttons have no predefined function — their use at any one time is defined by software — hence "soft keys". (When writing a button name as shown on the front panel, it will be written in this way: [MIDI]). Soft key legends may be of three types:

"Selected" (white on blue). When a soft key legend is displayed in this way, it means that this function has been selected. In this manual, this type of legend will be displayed like this: TUNE.

"Function" (blue on white). A soft key legend like this means that pressing the appropriate button will bring up another page of the display. In this manual, this type of legend and the soft key pressed to access this function will be represented like this: **LOAD**.

"Action" (white on blue, in a box) — These soft key legends allow specific actions within a page on a display. These legends, and the button to press when performing these actions, will be represented like this: [GO]



The CURSOR knob

Since the LCD display is capable of showing so much information, many parameters can be displayed and altered in one page. To choose which parameter will be altered, turn this CURSOR knob (in either direction). The cursor (the indicator showing which parameter may be altered — a reversed box) will move around the page as you turn the knob. Only those values and parameters highlighted by the cursor can be altered.

The DATA knob

When the CURSOR knob has been used to highlight a parameter, the value of the parameter may altered using this DATA control. Turning it clockwise increases numeric values, and turning it counterclockwise decreases these values. For non-numeric values, turning the knob will display all the options in order. Normally, there is no other entry procedure — simply displaying the correct value of a parameter using the DATA knob selects and stores it into the S1100's memory.

When editing numeric parameters, some of the values can be quite large, and it would be necessary to turn the DATA knob thousands of times (literally) in order to go through the whole range if the value was only changed by 1 for every click of the DATA control. There is an alternative to turning the knob thousands of times, though. As you move the cursor with the CURSOR knob onto a numeric field, you will notice that not all the digits are covered by the cursor immediately. Instead, they are highlighted one at a time from the left.

If a number such as 12345.67 is displayed, and the CURSOR knob is turned so that only the first three digits are highlighted (we'll use underlining here to represent highlighting here), thus: 123<u>45.67</u> . Turning the DATA knob clockwise by one step now will increase the value of the last highlighted digit, so: 124<u>45.67</u> .

Now if the CURSOR knob is turned clockwise one click, the first four digits will be highlighted: 1244<u>5.67</u>, and turning the DATA knob one click clockwise will produce: 1245<u>5.67</u>.

If you turn the DATA knob more than ten clicks, of course, the value of the whole parameter will be incremented or decremented by the number of clicks. In this way, with very little effort, fast accurate editing of numbers can be achieved using only the two control knobs. The best way to learn how this works is to practise; after a short time, it should become second nature.

The number buttons

As an alternative to turning the knobs, you can also press the number buttons for direct entry of data. Use the [+/←] button to position the cursor at the left of a numeric field, and the [-/→] button to highlight digits to the right, one at a time. Pressing a number on the number keypad will enter that number at the rightmost highlighted position and move the cursor one position further to the right. When you know the exact number you want to enter (eg a program number), this can be faster than using the CURSOR and DATA knobs, but when experimenting (eg setting loop points), the knobs may be faster than the number keypad. You'll probably discover quickly what method works best for you in each situation.

Remember, when selecting programs, you must press the [ENT/PLAY] button to confirm your selection.

The eight soft keys

As explained in the section describing the display, these buttons have no pre-defined function, but perform different jobs depending on the current state of the S1100. Common assignments for these soft keys are [SLCT] (usually [F1]), which takes you back to the previous page, [GO] (usually [F7]), [YES] and [NO].

SELECT PROG

This button is used to enter the main Program Selection page of the S1100. Turning the CURSOR knob brings the programs currently loaded in memory into view, and the DATA knob is used to select them. When in this mode, the LED on the button lights (as with all the buttons on this row when the appropriate button is pressed), to remind you of the currently-selected mode.

EDIT SAMPLE

This button is used to enter the main page for editing (including recording) samples.

EDIT PROG

This button is used to enter the main page for editing keygroups and programs.

MIDI

This button enters the main MIDI parameter page. A number of different MIDI-related settings can be made here.

DISK

Though some disk operations can be carried out from other pages, this button enters the page where most disk operations are carried out.

MASTER TUNE

Allows transposition and master tuning of the whole keyboard, as well as allowing a user-defined temperament to be set up.

DRUM

When used with one or two AKAI ME-35T audio/MIDI trigger units, the S1100 is capable of controlling them, making the S1100 the basis for a very sophisticated electronic percussion setup.

UTILITY

This button is used to access the timecode-based cue list facilities of the S1100.

MARK/JUMP

These two grey buttons to the right of the number keypad are used in conjunction with each other. If you are carrying out editing operations which require changing display pages a lot, these can save a lot of time and effort. Pressing the [MARK] button when the cursor is on a field will cause the S1100 to remember the position of the cursor, and pressing [JUMP] will take the cursor back to the MARKed position from any other page. Pressing [JUMP] again will take you back to the page you were at before you JUMPed.

You can reset the MARKed position at any time. This position is lost when the power is turned off. At power-on, this position defaults to the program select field in the initial SELECT PROG page.

NAME

When samples, programs or drum input settings are changed, they should be given a name for easy reference. Pressing the [NAME] button in certain pages will enable you to name the data. Letters (uppercase only) are entered by pressing the front panel buttons. Each button has a letter following its primary function (eg [DISK/M], [2/X]), and when entering names, pressing the [NAME] button will switch the function of the number buttons between letters and numbers. The CURSOR knob moves the cursor around inside the name field when naming a sample or program.

As an example, after positioning the cursor on a name field, the following buttons should be pressed to enter the name "BASS2": [NAME] [F2/B] [F1/A] [9/S] [9/S] [NAME] [2/X] [ENT/PLAY]. When entering names in letter mode, the [+/→] and [-/←] buttons work as backspace and spacebar buttons respectively (when in number mode, they enter the "+" and "-" characters, and the [MARK] and [JUMP] keys enter "#" and "." respectively). The last button enters and confirms the name, as described below.

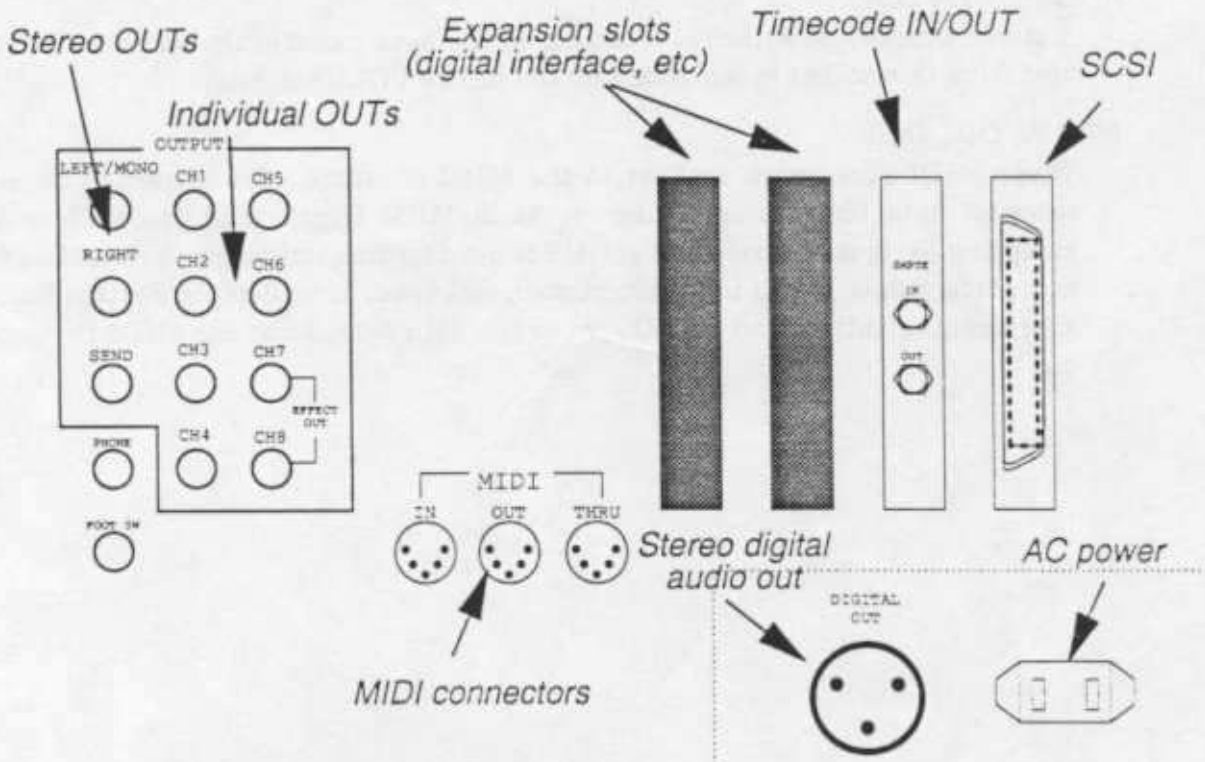
ENT/PLAY

This is a dual-purpose button. When naming samples, programs, etc, pressing this button will end the naming process. When editing samples, however, pressing this button will play back the sample at its current stage of editing, without your having to set up a keyspan for the sample and find the correct key on a keyboard. The default note played when this button is pressed will be C3 (middle C) at a velocity of 127, but this can be altered in the MIDI TRAN page.

This concludes the tour of the front panel. It may seem rather brief, but bear in mind that many buttons have many functions, and interact with each other in different display pages. We have judged it better to give this brief description here, and concentrate later on the function of each button in context.

The Rear Panel

By comparison with the front panel, the rear panel is refreshingly uncomplicated, consisting mainly of input and output connectors.



Audio OUTPUT connections

There are ten audio connectors provided (all unbalanced 1/4" phone). The simplest way to connect the S1100 to a mixer or amplification system is to use the LEFT/MONO and RIGHT stereo connectors (if you want to make mono connections, use the LEFT/MONO connector only).

Use of the channel connectors (CH1 through CH8) allows much more flexibility and control (but of course, this will take up more input channels on the mixing console). Programs can be assigned to any one of these output channels (stereo programs should be assigned to the stereo OUTs for the full stereo effect) and effected separately.

You will note that when the internal effects are switched on, individual outs 7 and 8 are used to send the effected signal and so only outputs 1-6 are available to send programs through. If you need to use individual outputs 7 and 8 then the internal effects must be switched off.

EFFECT SEND

A mono effect send (unbalanced 1/4" phone) is provided for use with an external signal processor such as the AKAI AR900 digital reverb processor. A global ambient reverb could be added to "dry" drum samples prior to sending them to the mixing desk, for example. The effect send can be switched ON or OFF for each sample in a program (the hi-hat could be left "dry", and the toms set up to be "live", for example).

FOOT SW

The FOOT SW connection is used for a press-to-close (non-latching) footswitch which may be used to start the recording process when sampling.

HEADPHONES OUT

A stereo headphone socket is provided on the back panel of the S1100. The volume from this socket is controlled by the MAIN VOLUME knob.

MIDI IN, OUT, THRU

These MIDI connectors confirm to the MIDI standard. IN is used to receive external data (from a sequencer or audio/MIDI trigger unit) as well as for accepting System Exclusive data, OUT is used for transmitting Note On/Note Off and performance (pitch bend, aftertouch, etc) data, as well as for System Exclusive communication, and THRU echoes the data received at the MIDI IN terminal.

Setting up the S1100

This short section tells you how to get the S1100 "up and running" fast. For full details of other operations, refer to the appropriate explanation in this manual.

Connections

Start by placing the S1100 on a firm level surface or in a 19" equipment rack. Remember to leave adequate space for airflow above and behind the S1100 if putting it in a rack (a 1U space above the S1100 is adequate).

For now, you'll probably want to connect a MIDI controller, such as the AKAI MX76 master keyboard. Connect a MIDI OUT of the controller to the S1100's MIDI IN connector. The power-on default of the S1100 is OMNI ON, so you can leave setting MIDI channels till later. However, unless you want to play through headphones, make some audio connections. Using the LEFT/MONO and RIGHT stereo outputs will probably be sufficient at this stage, so connect these to two channels of a mixing console, and set the gain appropriately (the standard output level is -3dBv and the impedance is 600Ω). Set the pan pots for the channels to hard right and hard left so that you get the full benefit of the stereo capabilities of the S1100. Connect the power lead to the AC supply and to the S1100.

DO NOT SWITCH ON THE S1100 YET!!

The S1100 produces a definite power-on "thump", so make sure that the channel faders, master faders, or amplifier controls are set to the minimum level before turning on the S1100. In addition, before switching on, if you are loading a later version of the operating system from disk, take the *Operating System* diskette and insert it in the drive so that the latest version of the operating system will be loaded when you turn the power on. Now you can turn the power on.

2 Sampler functions

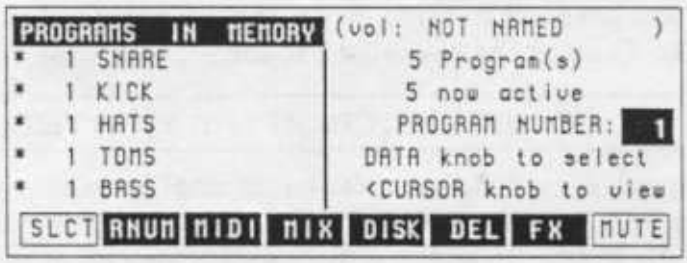
This section deals with the sampler functions of the S1100. If you are unfamiliar with the terminology used by AKAI for their samplers, or the general method of operation, and you have not read the *Glossary* or descriptions of the controls, go back and read these sections now. It will save you a lot of time later on.

SELECT PROG

Unlike a synthesizer, you cannot play the S1100 straight away — you must load samples, keygroups and programs from disk first.

Getting started and checking out — playing supplied factory samples

When the operating system message has cleared from the bottom line of the display, you will be in the main SELECT PROG page (the [SELECT PROG] LED will be lit) and you will see the following display:



This page is where you can do many things, such as select programs to play, set up multi-timbral configurations, renumber programs, layer programs, delete programs and set up effects. Before you can do any of this, however, you need some sounds to work on so insert one of the supplied sample disks. Now press the **DISK** button ([F5], not the [DISK] button on the bottom row). After a short time, the words "LOAD FROM DISK" should be displayed at the top left hand corner of the page. A list of all the programs and samples on the disk will be displayed on the left side of the page, which extends below the bottom of the screen. You can scroll through the list (for information) using the CURSOR knob.

To load the entire contents of the disk, you will have to use one of the soft keys — in this case [VOL] ([F8]). When you press this button, you will be asked to confirm this (press [F8] — YES) — the disk drive LED will come on, and you can see the bottom line of the display showing the programs and samples being loaded. All samples and programs currently in memory will be erased. When the disk drive light has gone off, eject the disk, and keep it with the rest in a safe place (not near magnetic fields such as speakers, power supplies, TVs or transformers, and away from where some careless person can spill coffee over it!!).

Now press the **SLCT** button ([F1]). Underneath the "PROGRAMS IN MEMORY" at the top of the page, you will see a list of the programs you have just loaded from the disk. As the page tells you, you can see them all by scrolling through with the CURSOR knob, and select one by using the DATA knob (the number on the right

side of the page changes, and an asterisk is displayed next to the selected program). Alternatively, use the number buttons to make a direct selection, followed by [ENT/PLAY].

Now play the keyboard and listen. Remember, what you're hearing are edited samples — if you don't like these programs, you can go back to the raw samples, trim them, add loops, resample at different frequencies, and then using the EDIT PROG mode, add filter, aftertouch modulation, alter the EG settings, add in other samples, etc ..

This is where your creativity comes in. The hard work of assembling a string section in a top studio and recording them playing one note has been done for you.

A powerful (and useful) feature of the S1100 is its ability to continue sounding a sustained note of a program, even when another program has been selected. With most synthesizers and samplers, changing a patch or program automatically stops the sound from the machine until a key is pressed. The S1100, however, continues to sound the release or sustained portion of a program during and after program changes. This makes for "seamless sound" when sequencing with a lot of Program Change messages.

Renumbering

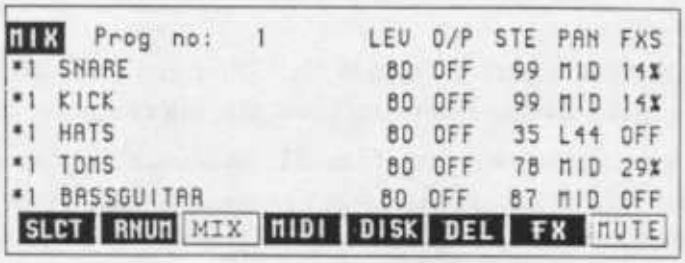
On the S1100, program numbers correspond to patch numbers on a synthesizer. When a MIDI Program Change message is received, the appropriate program is selected. However, to match S1100 programs with the patch numbers on your synthesizer, you may want to renumber the programs, so that selecting a brass sound on the S1100 will call up a similar (or complementary) patch on a remote synthesizer module. To do this, press the **RNUM** button. As the screen informs you on this page, you select the program to be renumbered using the CURSOR knob, and alter the current number to the new number using the DATA knob. You can also use the number pad for this, setting the program number to a value of between 1 and 128 (these are MIDI specification limits). When you have altered the number, press [GO]. The programs in memory will be resorted according to the new number. Carry on renumbering programs until you are happy with the final result, and then press **SLCT** to return to the main SELECT PROG page.

Programs with the same number

Most synthesizers do not allow you to assign the same number to different patches. However, the S1100 allows you to have many programs with the same number. This is not an oversight, but is a way of allowing you to select more than one program simultaneously with one selection procedure or Program Change command. Each program could be set to a different MIDI channel for multi-timbral work with a sequencer, for instance, or different programs could be split over the keyboard or layered for live work. Bear this in mind when renumbering — it's a very powerful feature of the S1100.

Mixing sounds on the S1100

The S1100 is equipped with a 'virtual mixer' - that is, you can set up mixes of programs with any number of mixer 'channels'. This is done in the MIX page of SELECT PROG. To access this, press MIX — (F3) and you will see the following display:



On this page you may set, from left to right across the screen:

prog no:

This shows the number of the program selected in the main SELECT PROG page although you may select another program or group of programs in this field.

LEV:

This sets the overall level for the program as it appears at the stereo output AND the individual output and could be regarded as similar to the gain control on a mixer. Please note, however, that if this parameter is set to 99, then you will lose control over velocity sensitivity of loudness. The default is set to 80 which gives a healthy output level and a good degree of velocity sensitivity.

O/P:

This allows you to assign any program to an individual output should you wish to mix the program using an external mixer. This output is a "base" number which may be altered in the SMP2 page of EDIT PROGRAM so the results may not be exactly what you expect.

STE:

This sets the level of the program as it appears at the left/right stereo outputs of the S1100. This is normally be used to mix the levels of different programs and is the equivalent of a mixer's fader control. It is possible to send programs to individual outputs but, by mixing them out of the stereo outputs by setting this parameter to 00, you remove them from the main mix. In this way, for example, you could send individual drums to separate channels of an external mixer for more elaborate level and tonal control whilst other instruments appear only at the stereo outputs of the S1100. In this way, very complex mixes can be set up. Another method may be to send, say, snare, kick and hi-hats to individual outputs (but take them out of the stereo mix) and just have toms and percussion in a stereo image coming out of the main stereo mix. In this way, you save channels

on your external mixer as well as freeing up the S1100's other individual outs for maybe piano, bass or whatever other instruments you may have in a multi-timbral setup.

PAN:

Fairly self-explanatory - this sets the pan position of the program in the stereo outputs and the range is L50 through MID (00) to R50.

FXS:

This abbreviation of "effects send" allows you to set the level of the program going to the internal effects or to an external effects unit via the effects output jack. This parameter is set in seven steps expressed as a percentage and the range is OFF, 14%, 29%, 43%, 57%, 71%, 86% and MAX.

You will note that this parameter above is a pre-fade effects send and so, even if you set the STE parameter described above to 00, the program will still be sent to the effects. If you wish to turn down the stereo level AND effects send, change the LEV parameter.

All these parameters are available for each and every program and in a layered or multi-timbral setup, you can set levels and effects sends very precisely and the only difference between the S1100's mixer and a 'proper', external mixer is that the S1100's mixer does not have any EQ facilities for affecting the tone. If you feel this is necessary, then you may use the individual outputs to send certain programs to an external mixer for more elaborate level and tone control and, of course, it is possible to use a combination of the external mixer and the internal mixer using the individual outputs in conjunction with the main stereo output.

MIDI

Pressing F4 — MIDI will display the following screen:

This may be regarded as a 'MIDI mixer' as it follows a similar layout to the MIX page described above. This page allows you to set various MIDI parameters for every program. The parameters are:

prog no:

This shows the number of the program selected in the main SELECT PROG page although you may select another program or group of programs in this field.

CHA:

This allows you to set the MIDI channel for any program and the range is OM (omni) through 1-16. This parameter allows you layer programs together (i.e. set two or more programs to the same program number and set the MIDI channels the same) or allows you to set up sophisticated multi-timbral configurations (i.e. set several programs to the same program number and assign different MIDI channels to each program). You may also layer two or more programs within a multi-timbral configuration of course.

RANGE:

When two programs are given the same program number, it is possible to set up sophisticated keyboard splits by setting the note range of the programs. This parameter ignores each program's keygroups settings and simply imposes a range on the whole program. In this way, you can quickly set up very complex keyboard splits and layers without having to concern yourself with the intricacies of setting keygroups within a program itself.

POL:

This is an abbreviation of POLYPHONY and allows you to limit the polyphony of a program. This is sometimes desirable in certain types of programs such as hi-hats, for example, where you want a closed hi-hat to shut off an open hi-hat. In this case, you would set the polyphony to 1. Similarly, you may wish a monophonic bass part to have a restricted polyphony.

PRI:

This is an abbreviation of PRIORITY and allows you to set how notes will be 'stolen' by other programs if the 16 voice polyphony is exceeded at any time. There are four settings: LOW, NORM, HIGH and HOLD. If the program is set to LOW priority, then notes from this program will be stolen first. If set to HIGH, then notes from other programs with lower priority will be stolen first before they are stolen from this program. NORM is, of course, normal priority and sets standard dynamic voice allocation and note stealing will take place with no particular priority. If a program's priority is set to HOLD, then notes can only be stolen from this program by the same program.

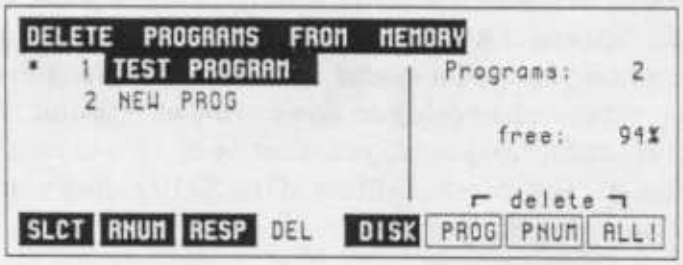
If you are playing a complex piece of music using many programs in a multi-timbral configuration, it is a good idea to set important programs to HIGH or HOLD and less important, background programs to LOW. If the piece of music is not overly complicated and polyphony is not going to be exceeded, you may prefer just to leave the priority at the default setting of NORM.

OC:

This is an abbreviation of OCTAVE and sets the basic octave range for the program. The range is -2 to +2

Deleting programs

Programs and their associated samples may be deleted from memory in this page, which is accessed by pressing the DEL button. When this page is displayed, the cursor will highlight a program. Highlight the program you want to delete using the CURSOR knob. There are three soft key actions that you can take, all concerned with deleting programs: [PROG], [PNUM] and [ALL!].



NOTE: If you delete a program from memory, make sure that you really do not need that program in the future, or that you have saved it to disk first. In some cases, as explained below, deleting a program will also delete samples. Make sure these really are unwanted, or have been saved to disk before proceeding.

Pressing [PROG] will ask you if you want to `delete one program ?` Either GO or ABORT the deletion procedure. If the program is the only one in memory using a particular set of samples, you will be asked whether you want to delete those samples at the same time. Press the appropriate soft key if you are sure that you want to delete the program and its associated samples.

The [PNUM] button will delete all programs which have the same number as the highlighted program. You will be asked if you want to proceed with the `bulk program delete !?`. If these programs are the only ones using particular samples, you will be asked if you want to delete the samples as well.

[ALL!] is, of course, the most drastic of these three options. If you answer GO and YES to the question regarding released samples, then all programs, except for an S1100-generated program (TEST PROGRAM) and samples will be deleted. Deleting samples and rearranging memory space will take a little time, so be patient while this takes place. Obviously, this is an option to be used with some caution.