

y Power User

YAMAHA A-SERIES PRO SAMPLERS

A-Series User Guide

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Ease and elegance are the first two words that come to mind when working with and getting to know the A4000/A5000. The A-series is truly as at home with traditional musical instrument "multisamples" as it is in the world of techno/hip-hop and dance "loops" – break beats. The capability to expand the on-board RAM to 128 MegaBytes with on board effect processing at this price point is a breakthrough (MSRP is \$1595/\$2295). This is a very big deal for those that understand, in sampling or computing - you can never have enough RAM or processing power. And the capability of burning your own music to CD or creating your own CDRom Libraries makes these samplers very creative (and profitable) tools.

Compatibility

Usually, the first questions you will receive are about compatibility and library. The A4000/5000 is compatible

with Akai (disk/SCSI). Roland and Emu via SCSI. It will load A3000 data directly. And can import RAM samples from the EX-series and the SU700 Loopfactory sampler. It will support (import/export) AIFF (Mac) and WAV (PC) samples. This means that there is a way to convert almost anything. You can also 'import' TX16W waves. The A4000/A5000 comes with 9 native CD-ROMs and an additional Tools CD with software and audio material. And they support MIDI Sample Dump Standard. More on compatibility issues in the FAQ section.

What's in the box

- 1 A4000/A5000 Professional Sampler
- Owner's Manual
- AC power cable
- Ribbon connector for internal Hard drive
- Power cable (long) for mounting (optional) Internal Hard drive. HD Drives up to 8 gigabytes can be used.
- Power cable (short) for mounting (optional) ZIP or IDE drive
- 9 CD-ROMs. The CDRoms include a native format Library: Piano/Keyboards, Guitar/Bass, Brass/Wind Instruments, Strings/Choir, World/Latin Instruments, DJ/Producer Tool Kit, Syntraxx/Loops, Real Drums and Standards. Accompanying booklet.
- 1 Tools CD with PC/Mac software and audio data. The Audio portion of the Tools CD is chock full of loops, hits, sound effects and all the stuff that samplers are so good at doing – break beat material.
- 4 Floppy disks – Demos. The disks are auto load so that when the power is turned on the unit automatically loads the diskette.

A-series Terminology

The basic recording is called a **Sample**. On most conventional samplers, a "sample" is waveform data only. An A-series 'sample', however, can contain information like its key mapping, MIDI channel, filter, envelope, LFO and MIDI channel. Each sample has its own sweepable parametric EQ (32Hz-16kHz). Samples can be (if it is convenient) grouped into objects called *sample banks*. Samples in the same bank can be treated as a single sample. This is great for multisampled instruments like pianos, drum kits or a map of break beats where you want to treat a *group* of samples all together – instead of repeating the same operation to each sample. This is very convenient. However, if you need to edit individual samples that are contained within a sample bank, the A-series provides a method to do this, easily.

Next up the food chain is a **Program**. A Program is an organization of samples and related

settings into a playable sound or set of sounds. In fact, you do not play samples directly, you play samples that have been placed in a Program. In a Program you can make any of the samples (or sample banks) active by simply assigning them a MIDI Receive channel for that sample (or bank). When you select [PLAY] mode, [SAMPLE] function, SMP SEL Sample Select screen, and use the associated knob, it conveniently lists all of the samples currently in memory. You can view this list at anytime by pressing KNOB 1 (Tree). A sample or sample bank (reverse video "B") can be activated for the current program by turning Knob 3 and selecting a (Rch Assign) Receive channel Assign. A Program can be a single sample or an entire multi-timbral ensemble. A Program can also include an A/D input (microphones, CD player etc.) routed through the Effects Processor (you can process incoming analog audio in real-time utilizing the on-board processors). In fact, the unit makes a very powerful stand alone audio effect processor.

Samples and Sample Banks are activated via the Sample Select screen into *Programs*. You can have 960 samples and 128 Programs. At the top of the food chain is the **Volume**. A Volume is, simply put, *everything* in the sampler. When you save a Volume to disk it stores all the Programs and all the samples that make them up. For example, on your CD-ROM the Acoustic Piano Volume contains several different Piano Programs, each made of individual samples.

Operating System

The front panel is straightforward. Here's how it works: On the right front panel you have a Matrix (a grid). With 5 MODES listed *vertically*, each with a green LED select button (these also blink in response to various incoming MIDI messages). There are six FUNCTION keys, *horizontally* [F1-F6], each with a red LED above it. Use the Mode buttons first to select the editing area in which you want to work, then use one of the six Function keys to choose the particular feature. Repeatedly pressing the Function Keys or Mode buttons is a method for scrolling through the various pages of that function. (See the **Navigation** section, below, for other tips).

The 5 Modes are Play, Edit, Record, Disk, and Utility. To make and enter selections (and this is elegant) you use the 5 wonderful knobs under the screen. These knobs are continuous turn. They also have a push function that allows you to *select* and *enter* commands. When an inverse video box is shown above a knob it can be pushed to select a sub function. Most knobs can always be turned to effect the parameter listed directly above it. Knob 1 is the 'page navigation' knob, in that it will take you through the various pages of that Function.

This interface is very fast, and within minutes you are right at home with it. You will quickly see that the 5 modes and the related Functions are logically grouped. For example, if you want to record a new sample. You select row 3: Record Mode. Your six Function keys are Record, Setup, Trigger, Effect, External Control, and Monitor. Basically, everything you need to execute a sample session.

In this article I will refer to each particular screen via its **Mode, Function and page (screen name)** in that

order: [MODE] [FUNCTION] Page. Press the MODE button first, followed by the Function Key, then via either multiple presses of that Function key or via turning Knob #1 you can navigate to the particular line or screen in question.

Navigation

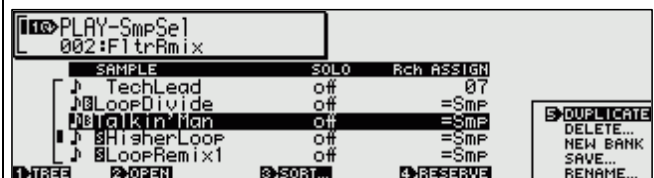
Get accustomed to selecting the Mode first. The Mode buttons are the vertical green switches / LEDs in the center of the front panel.

Knob 1, can be turned to select additional pages. There is a small ruler that will scroll as you move from page to page. Scrolling through screens can be accomplished by successive presses of the Function button (red LED) to go forward (down) through the lines/pages, while pressing the green mode LED will take you backward (up) through the lines/pages. Both the Function button and the Mode LED will wrap-around as you scroll the screens. Knob 1 does not wrap-around.

A Knob with a function written directly above it can be pushed to active it. This can be to either select another page or to execute a task. For example, pressing Knob #1 from all screens of the matrix will take you to a screen where you can see and sort a list (TREE) of all samples, and sample banks, and where you can activate or de-activate the "MIDI → Smp" (MIDI to Sample) functions. (See sections below).

Getting Started

When you first load in one of the supplied Demo disks, the sampler will show you the [PLAY-SAMPLE-Sample Select] screen. You will see a list of samples and/or sample banks that are currently in memory. Load Demo disk #1.



The screen above shows a Sample Select screen from Program 002: FltrRmix from Demo Disk #1. You can see a partial list of samples. Turning Knob 2 will let you explore the list.

- The musical note icon indicates samples currently active in this Program.
- The sample 'TechLead' is assigned to MIDI channel 7.
- The sample bank (inverse video "B") called 'LoopDivide' is assigned to the default channel of its original samples (Smp). This sample bank actually contains 14 samples). You can view them by pressing Knob 2 to "OPEN" the bank list.
- There are two other individual samples currently in view: 'HigherLoop' and 'LoopRemix1', both are stereo samples, as indicated by the inverse video "S" just prior to their names.
- Push Knob 1 to see a graphic reference view (tree) of where on the keyboard the samples are assigned and their original pitch

- Push Knob 2 to 'open' a sample **bank** so that you can view the individual samples within it. If you were to press it on the "Talkin'Man' bank, you would see the 19 individual robot-voice samples that narrate the demo. Remember, a sample bank is a collection of samples that we wish to treat as a group.
- Push Knob 3 to 'sort' the samples alphabetically and/or by MIDI channel
- Push Knob 4 to execute the 'Reserve' feature. This will effectively turn the sample off without having to change the value. Useful when editing/comparing and when temporarily altering the setup. Think of it as preserving the setting yet muting it.
- Knob 5 gives you 5 options. Turn it, to select the option: *Duplicate* – create a clone without using additional sample RAM. (see section on Duplicate) *Delete* – remove entirely. *New Bank* – create a new bank. *Save...* – takes you to the save option screen where you define what to save. *Rename...* – launches the naming utility. After selection Press Knob 5 to execute the option.

DISK Mode Issues

If you are using a CD-ROM drive, external hard drive, etc., you will need to configure the SCSI/IDE bus. Navigate to the DISK-DISK page. Here use Knob 2 to scan the various SCSI ID numbers, drive manufacturer, and name. You should see a listing of the ID's for all the various connected devices. Of course, each SCSI device should have a unique ID. You must set IDE drive as Master or Slave. Set the [MOUNT] parameter to ON on all appropriate devices.



On the A-series you 'point' or direct the software at a particular target device or floppy drive by turning Knob 4 to select the device. Objects on the right side of this screen are properly mounted devices. If no floppy disk is in the drive you will not see the "FD" listing, or if a device is not mounted it will likewise not appear. If a device has multiple partitions you will see each one listed. In the above example, the Quantum Viking 2 internal SCSI drive, ID #5 has 3 partitions named, New Partition, New Partition 1, and New Partition 2. The unit recalls the last device with which it has communicated. Internal drives up to 8G can be used and partitioned into eight 1G regions. Turn Knob 4 to select Partition or FD (floppy drive – which will appear at the bottom of the list, if a disk is present).

Creating a new sample:

Let's go through a quick sample session. Let's assume you are recording a portion of audio from an audio CD as the source. If it is a SCSI CD-ROM player you can utilize the external control (EXT CTRL) features to cue the CD and start and stop it, remotely. If not, no big thing, you just have to operate the CD via its own front panel controls.

The following outlines a *quick* sampling session from and audio CD source: All action takes place on the RECORD row.

1. **CONNECT:** Make your audio connection from the CD out to the A/D inputs on the A4000/A5000 front panel. Press [RECORD] mode: [F6] MONITOR function: Mon&Click page: OUTPUT should be Stereo, and MONITOR should be switched to ON to hear the sample. Press Knob 2 to activate the Monitor (speaker icon appears).
2. **TARGET:** [F2] SETUP function: RecSetup page. RecType should be NEW and MAP TO should be PGM. The default name of the sample will be "_NewSample".
3. **SET UP:** Use Knob 1 to highlight the next line, MAP. Set MAP parameters as you like. Now select the Input line, AD L/R as the INPUT, STEREO as the S/M (stereo/mono), and 44.1k as the FRQ. You can select 22k, 22k lo-fi, 11k, 11k lo-fi, 5k, or 5k lo-fi.
4. **SET LEVEL:** Check the record level. Press [F3] TRIGGER function: Trigger page. Use the REC LEVEL knob control to set the level. An inverse video "C" indicates clipping. Set the level just below clipping. Choose a trigger type. MANUAL (you start or stop the record process) or EDGE/MANUAL (you start or stop the record process but the sampler cues the start or end point to the edge of audio activity). Recommended: Start=EDGE/MANUAL; Stop=MANUAL.
5. **RECORD:** You are ready to record. Press [F1] RECORD function: Record screen; The screen shows a summary of all your settings. Press Knob 5 GO to start and again to FINISH sampling.

Once you have completed your recording you can immediately check it by returning to PLAY mode. The new sample can be triggered via the front panel AUDITION key or via the MIDI note assigned as original key in KEY RANGE (C3 is default). The new sample will be found on the list when you view the Sample Select page. If it is a keeper you can rename it via Knob 5.

Real-time Loop Start and End point designation via push knobs:

The simplicity with which you can create *perfect* music passage loops is a very effective demonstration. It shows some of the new thinking that went into the A-series for break-beat users. The unit lets you use the Knob controls like Punch in / Punch out buttons on a tape recorder to define the Loop Start and Loop End points. For example, if you are going to create an 8 bar loop, your recording should be perhaps, 12 bars: at least 2 bars out front and 2 bars extra at the end. EDIT mode: TRIM/LOOP function: Waveform page. Set AUTO to ZERO. You will be reading the sample in 'Address' units, which lets you see the number of samples taken (alternatively you can read the samples in Length, Time, or Beat). The Zero parameter means that when you 'step' through the individual samples it will only land on zero cross points. You could alternatively set AUTO to SNAP. This will only allow

loops where the level of the loop end matches the loop start. These make for perfect loops without those annoying clicks or pops at the joint.

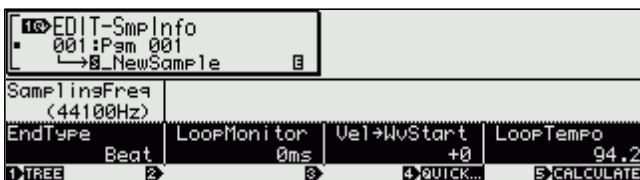
[EDIT], [TRIM/LOOP] function Waveform page: shows the entire length of the recorded sample. (The 4464 start point represents the start point of your recorded data. The pre-trigger parameter defaults to record 100ms of data before the Start Point – at 44,100 that's approximately 4,410 samples. You can set the pre-trigger from 100-500ms.

[EDIT], [TRIM/LOOP] Waveform page shows the Loop status. Use Knob 1 or press [F1] to select the bottom line. Turn Knob 3 "LpMode" or Loop Mode status to loop the entire wave: " →0" Use the AUDITION button to play the entire wave. It does not necessarily work musically. (Set the AUDITION button to 'toggle' the sample ON or OFF from UTILITY-SYSTEM).



Move the cursor (turn Knob 1) to the 'Lp' or Loop line. Here, by pressing or "punching in" the **S-CATCH** KNOB 4 you can define the loop start point and then with the **E-CATCH** KNOB 5 you will "punch out" the Loop End point during playback. While the sample cycles around via the AUDITION button and all in one pass, press the Start and End knobs on the beat (beats 1 and 9) and create your perfect 8 beat loops. It continues to play and as it comes around you hear a seamless musical loop! Just like punching in on an analog tape deck, you need only be consistent about your timing. That is, land on the same spot just prior to the down beat for both 'in' and 'out' points. (If you miss the "perfect" loop, you can undo your work and try again or use the Step feature to search the nearest "zero cross point" by turning the knob.)

Note: Turning Knob 4 will set the resolution of the Start and End Address amounts. In the graphic above you can see the units digit highlighted. By moving knob 4 you can change this to tens, hundreds, thousands, 10 thousands, 100 thousands, etc.



[EDIT], [TRIM/LOOP] Sample Info screen. (Use Knob 1 to see this screen). Set the End Type to BEAT. Loop Tempo can be calculated in BPM by pressing KNOB 5. The Loop Monitor parameter let's you hear just ahead of the loop start point – push and hold it to preview the data up to ½ a second (500ms) – it plays the lead in data only once. Now return to the previous screen. Your defined loop will be displayed in terms of Beats (close to

8,000). This is a reading based on the number of samples between the start and end points as defined by your loop.

The Loop Modes explained

To truly understand the sampler it is necessary to get the difference between Wave Start / Wave End Address Points and what are Loop Start / Loop End Address Points. Basically, **Wave** here refers to the audible portion of the recorded data. In other words, the Wave Start Point is where in the recorded data you have determined the first useful sound data begins. The Wave End Point is the last bit of useful data. Meanwhile, the Loop Start and Loop End Points are pointers that tell the sampler to play the data located in between again and again until either note off or until the envelope ends the sound. Notice that the Loop Start and End points must always lie inside the Wave Start and End points.

[EDIT] mode: [TRIM/LOOP] function: Waveform screen

The "LpMode" or Loop Mode parameters are as follows:

- **Ⓢ** means the sample will play forward once; from Wave Start to Wave End Points. Following the envelope settings. Typically, it behaves like a keyboard note-on. Lift your finger and the sound stops.
- **ⓈⓈ** means the sample plays forward, and will loop the sections defined by the Loop Start to Loop End addresses. It will follow the envelope release settings and fade out on that loop section.
- **ⓈⓈⓈ** will play the sample forward from the Wave Start Point, and will loop the sections defined by the Loop Start and Loop End address. It will remain in the loop section until note off, when it will continue on to the Wave End Point. For example, you record yourself counting "1 – 2 – 3 – 4 – 5". Your Wave Start point would be just prior to the word "one". Your wave End point would be just after the word "five". If you set Loop Start just prior to the word "two" and Loop End just after the word "three". When you press a note-on you would get: "one, two, three, two, three, two, three, two, three...(etc)" until note-off when you would hear the final "two, three" complete playback, followed by "four, five." (Assuming the release envelope allows for the decay.)
- **↔** means the sample will play in reverse once; from Wave End to Wave Start Points. Following the envelope settings, like a keyboard sound.
- **One→** or **One shot** is different from the above in that it will complete playback in spite of note-off. Typically, used as a drum trigger.
- **↔ One** plays in reverse like a drum pad triggered sound. Ignores note-off.

You may think that missing from this list is **Ⓢ↔**, which would represent a reverse loop. Does this mean the sampler does not do reverse looping? No, to create a reverse loop you will have to create a reverse version of the recorded data. This is accomplished by pressing the [COMMAND] button from the TRIM/LOOP screen and

using Knob #1 to navigate to the [PROCESS] selection. Press Knob #2, then turning Knob 2 to select Process Type: Reverse. Press Knob #1 to execute.

DUPLICATE

The A-series allows you to "Duplicate" any sample without using additional sample RAM. The Duplicate feature will duplicate the name and add an asterisk (*) for the first duplicate, 2 asterisks (**) for the second and so on. You can create as many duplicates as you need. You can redo the Wave Start and End points, you can redo the Loop Start and End points, retune, filter, EQ, redo the key range, effects, etc., etc., all without using additional sample RAM memory!

You can use several duplicates of the same sample in a single Program. The same sample can be used in as many Banks as you create. No matter how many times you duplicate the wave, it never uses additional sample RAM. The A4000/A5000 just stores a new set of "pointers" to the sample data and adds an additional asterisk to the name. Those of you familiar with random access hard disk recording systems are familiar with the concept of a digital recordings being stored on the hard disk and then accessed and addressed via control data. In such systems you create and store a playlist, which is basically small packets of control information about when to start and stop playback of each sound file, how loud to play it, panned to a particular channel, etc. You can access the recorded data again and again with different start and end points; you can play it over and over, each time with a different effect or EQ. You can even access it multiple times, simultaneously, tuned differently in each duplicate. The A-series treats the **sample** in a similar manner; the parameters you attach to it are similar to the packets of information that control a sound file in a random access scenario. You create a new set of "pointers" to the sample waveform when you duplicate it. This is a non-destructive edit.

A destructive edit like the Extract function causes additional sample memory to be used. The Extract job allows you to isolate particular data and throw the excess away. If you attempt to Extract data from a Duplicate, the unit will then create a new sample before it discards the excess. You never touch your original when editing a Duplicate. Extracting data will use additional sample memory. But since you can start each Duplicate from any Start Address (an address is an individual sample point), it is actually unnecessary to Extract data. For example, you have a 4 bar loop, create a Duplicate, turn the Loop OFF, redo the Wave Start and End Addresses so that you isolate a single snare drum hit. Now you can tune, effect, redo the key range and otherwise torture this snare drum Duplicate to your hearts content. Your original sample loop remains untouched, and you have not used any additional sample RAM.

You can find the Duplicate feature from the [PLAY]: [SAMPLE]: area. Select the sample you wish to duplicate from the sample list or trigger it via MIDI, use Knob 5 to select and execute the function. It automatically names the duplicate by adding an (*) asterisk to the original name. You can rename it, if you wish.

Record a beat, make a bunch of duplicates that you slice up via the Wave Start and End points, into individual events or hits. You can tune, EQ and filter these smaller hits and then add them back into the mix to reinforce the main loop, accenting selected beats. Or create unique stutter steps with them. You can reverse the hits and superimpose them on the forward playing hits to create a wacky inside-out/outside-in effect. Send some of them into a special effect you've set up. Let your imagination run wild.

Effects

The A5000 has six effect blocks while the A4000 has three effect processors each with 96 algorithms. These are not your run of the mill 24-bit effect processors either. There are plenty of **brand new** algorithms developed specifically for this product series: Scratch – a programmable digital scratch; Auto Synth; Techno Modulation; Noisy delay; Flanger Pan; Radio; LoFi; TurnTable – programmable record surface noise; Beat Change – modifies the waveform length in real time. Change the length without changing pitch- typically assigned to a controller like mod wheel (you **will** want to demo this feature – explained below); a new 2 way Rotary Speaker; Vocal Cancel – for removing vocals from a stereo source; Enhancer; the brilliant Guitar Amp Simulator w/ Noise Gate; all manner of distortions and touch sensitive wah combinations; Compressor; Vintage Distortion, many Tempo driven effects and all the other great ones you've come to expect with a Yamaha product.

Real time Beat Change:

This was the single biggest wow getter with the A3000 and is back in the 4000/5000. What is it? Among the effect algorithms is Beat Change. This effect, which is typically used in the 100% Wet balance position, takes incoming signal and allows you to adjust the tempo without effecting the pitch. This, of course, defies physics. It works by altering the pitch then re-harmonizing the result. Later in this article we will set up a loop to run through this very powerful effect. One of the advantages of using this effect is that it works in real time (no waiting for the recalculation of the waveform). And you will find it better than many recalculating algorithms. And, of course, you can re-sample the results if you need to print a new waveform.

There are 9 programmable parameters in the Beat Change algorithm, as follows:

Beat Change (Ctrl) – effects the tempo directly or you can leave this parameter set at 0 when using a controller like modulation wheel to change the beat.

Beat Range – amount of overall tempo change (playback speed)

Pitch Change (Ctrl) – effects the pitch directly or you can leave this parameter set at 0 when using a controller to make the changes

Pitch Range – amount of overall pitch change

Accuracy Type – weights the result toward sonic or rhythmic accuracy

EQ Frequency – 100Hz- 10.0kHz

EQ Gain - +/-12dB

EQ Width – 1.0-12.0 (wide to narrow)

Dry/Wet Balance – keep totally Wet for full effect or mix in some Dry signal to create a harmony part.

Beat Change can also be used to change the Pitch without changing the tempo. This is accomplished by making the assigned controller change parameter 3 rather than parameter 1.

Assigning Beat Change to a new sample:

You can assign the Beat Change control to any physical MIDI controller or to a front panel knob via a control change assignment. Let's say you want Beat Change to be controlled by Knob #2. The steps to assigning Beat Change as the effect and Knob #2 as the controller are as follows: Create your sample loop.

1. Select your sample loop via the "PLAY-SmpSel" Sample Select page.
2. The sample defaults to Stereo out assignment. There are 2 ways to route your sample to the Effect processor(s). Either at the Sample level or at the Program level via the Easy Edit functions.

Sample (EDIT mode) Level: Each sample can be stored with the Output routed to the Stereo outputs, individual assignable outputs, digital outputs or the EFFECT(S). On the EDIT mode level, select the MAP/OUT function: MIX&KEY page and set the OUTPUT1 to EFFECT 1. [EDIT] mode> [F2] MAP/OUT function> MIX&KEY page].

or

Program Level: The data stored at the sample level can be offset or overridden at the Program level via the Easy Edit functions. This allows each sample to be used entirely differently in each Program without having to duplicate the wave data. To route the active sample to the EFFECTS enter PLAY mode. Select the EASY EDIT functions. Turn Knob 2 to scroll to your sample. Use Knob 1 or press the EASY EDIT button to select the OUTPUT1 parameter screen. Set it to EF-1, EFFECT 1.

3. Press the [PLAY], [F4] EFFECT, EfSetupA screen. Choose the BEAT CHANGE effect #007 for processor 1. Turn KNOB #2 to select the Beat Change algorithm.
4. Assign a device to control the tempo change. [PLAY] mode> [F6] CONTROL function> "PgmCtrl A" page. This Controller Matrix allows you to assign a MIDI controller to change the Beat / Pitch Control features of the Effect. When you select this page you will note that the default setup is to control

EFFECT 1, parameter 1, Beat Change. This happens to be what we want. Set the number under Device Knob to an appropriate number (001 for example would allow the modulation wheel of your keyboard controller to change the beat). To set this device simply press the Knob below the word "Device" making the word MIDI blink, then move the controller you want to assign. Its control change number will appear in the screen. Press the Knob again to lock it in. You can also control the Beat Change with any Knob: Press the UTILITY mode button: PANEL PLAY function: KNOB SET page. Set Knob #2 as follows: CTRL TYPE = ON; MIDI Ch = 1; Device = 001/ModWhel (for our example).

5. Turn Knob #1 to select the KNOB CTRL page: each of the knobs will have a graphic above it, amount 064 (center of 0 – 127). Turn Knob 2 above 064 will increase the Tempo, below will slow the Tempo, however, the pitch should remain the same!
6. You can use the Function keys to trigger samples. [UTILITY mode: PANEL PLAY function: Fkey SET page]. Set Function key #1 to trigger the note to which you have assigned your sample; C3 is the default assignment.
7. Use the ASSIGNABLE key (lit) to convert the Function buttons to triggers. This is set via [UTILITY mode: SYSTEM function: KEYS SET page]. Set ASSIGNABLE Key Function to "Knob & Fkey on/off". When the ASSIGNABLE key light is lit no other functions work but the Function keys can now send note ons to the assigned samples and the Knobs will send their assigned controller message. Depending on the sample LOOP parameter you can have the full sample playback from a single touch (Shot →) or you can have it turnoff when you let go.

Changing the tempo with this effect is very much 'by-ear'. Want to know at what BPM your loop is now playing back? – see FAQ section.

Assigning Samples to the Function keys

[UTILITY mode> [F2] PANEL PLAY function: FKEY SET page]. On this page you can set up the front panel Function Keys as sample triggers. You can define the Transmit MIDI channel, the MIDI Note, and the Velocity. These can be defined by turning the knob underneath each parameter or via MIDI. To program the values via MIDI simply press the KNOB making the word 'MIDI' flash – then send the data via MIDI touching a note will define its channel, its note number and its velocity.

The [ASSIGNABLE] button can be setup to toggle the Trigger Function keys on and off from any screen at any time.

Panel Play

[UTILITY mode> [F2] PANEL PLAY function> Knob Set page]. Here is where you can define control change numbers (called Device) for knobs 2,3,4 and 5. Set up the MIDI Channel, On/Off condition, and the Device (or

controller number). As with the Function keys above, you can set the values manually or via MIDI. When you select the [KnobCtrl] page you see the MIDI channel and the controller value – A value of 64 is center for controls that run from 0-127.

As with the Function keys as triggers above, the [ASSIGNABLE] button can be set to select Knob Control at any time.

A/D Input to process “live” sound

The A/D inputs on the front panel can be used to process “live” signal, while the A4000/5000 is playing back your Program data. [PLAY mode: SETUP function: AD INPUT page]. Turn the AD Input to ON and route Output1 to an appropriate EFFECT processor. This means the sampler can be used as an effect processor live on stage while it is playing all of your prepared data. When a Program is defined it is described as having sampled data and/or an A/D setup active. So certain of your Programs can be microphone or CD setups.

Keep a microphone handy to show off the effect processors – this makes a very effective demonstration.

Resample: Time Compression / Expansion

The Resample routine [COMMAND] allows you to adjust the length (longer or shorter) of the playback time (Time Stretch) without affecting the sample's pitch (Pitch Convert). You can select the following conversions: Time Stretch Tempo; Time Stretch Length; Time Stretch Time; Time Stretch Beat or Pitch Convert. Beyond a certain point stretching becomes an *unusual effect*- but that's just fine. You can weight the results toward rhythmic accuracy or sound quality. You can time stretch to a specific tempo or number of samples or beats. You can calculate any exact time or tempo you need. An interesting thing to note is that you can **audition how the Time Compression / Expansion or Pitch Conversion will sound before you execute it** by simply pushing and holding the (AUDITION) knob after you select the change parameters. You can, of course, change the Pitch without changing the tempo. You don't have to wait and then decide that it is not worthy of keeping you will know how it sounds before you execute the process. Pitch convert is read out in musical keys.

The RESAMPLE routine is found under the COMMAND key. This routine actually re-writes the sample data.

Smart handling of Volume / Program / Sample data

The target device is defined on the [DISK mode: DISK function screen]. This defines how data is to be saved or loaded. For example, pointing this page to the SCSI hard drive then allows you to view Volumes on that drive. Once you have selected a Volume you can load it – [Disk mode: Volume page] – replacing the entire current memory. However, there may come a time when you wish to load a single Program from within that

Volume. This is accomplished by pointing to the desired Volume on the Volume page, then selecting the Program function [Disk mode: Program function] and selecting the Program. Since the A-series stores all Programs with the Program number memorized, if you wish to load it to another numeric location simply turn Knob 1 to select the LOAD TO location and use Knob 2 to select the program. You now can redirect the program to any location in the current memory. This is how you build a custom set of Programs from various Volumes. The A4000/5000 is “smart” in that it will know if the samples for a particular program are all ready in memory or if they need to be loaded. You can also load individual samples or sample banks from the [Disk mode: SmpLoad page].

MIDI Indicators:

The green mode lights flash to indicate incoming MIDI information as follows:

Play mode -----	Note on
Edit mode -----	Control Change
Record mode -	Pitch Bend
Disk mode ----	Aftertouch
Utility mode --	Program Change

Customize the Program “Inits”

The A-series has the ability to memorize (or *register*) your favorite settings and will make these the system defaults (the status when reset or “initialized”). You may wish to use a certain configuration of the effect processors, or a particular system setting may be to your liking, or you may have a favorite controller setup that fits with your particular keyboard controller. These settings are stored in non-volatile memory and are not lost when you power down. These custom Program “inits” are found when you press [COMMAND] and navigate to the [REGISTER] Screen. You can register your initialized setting for either the PROGRAM level or the SAMPLE level.

- Press [COMMAND] (red)
- Use Knob #1 to select REGISTER
- Press Knob #2 GO
- Turn the parameters you wish to customize to “ON”
 - For Program: Effects, Setup, Controllers.
- **Press Knob #1 to execute** the settings, followed by Knob #5 to confirm.

When executing the [REGISTER] function the A4000/5000 will memorize the current settings as the Initialize defaults. This means that when you initialize a Program, your favorite settings will be in place.

To fully understand what is going on here consider this. The [PLAY] mode has the following categories: Program, Sample, Easy Edit, Effect, Setup and Control. Any item that you set in ‘Effect’, ‘Setup’ and/or ‘Control’ is memorized by the REGISTER feature and will be recalled whenever you Initialize a program or turn the unit on.

For example, you have a project where you need the effects to default to EFFECT 1 = Hall; EFFECT 2 = Chorus; and EFFECT 3 = 3Delay; simply set up a Program with these 3 effects in place and then execute

the steps above. The keyboard you use to control the sampler has sliders that you have programmed to send Control Change messages 12, 13, 14, and 15. You can set the defaults of the Control Matrix to be the standard controls for any of the destinations. Now whenever you power up or use the INIT Program or INIT All Program commands, the A4000/5000 will recall your effect and controller settings.

Customize Sample "Inits"

There is also a Sample level "register" function, which allows you to set up default settings for a particular sampling session. Let's say you are working on a project that will entail you working with a Low Pass filter, you can setup a sample the way you like and then store that as the sample init. Each sample taken after this point will inherit whatever settings you wish.

This function is found when you press [Command].

- Press [COMMAND] (red)
- Turn Knob #1 to see the [REGISTER] line highlighted
- Press Knob #2 GO
- Select Register Type = Sample (Knob 3)
- **Press** Knob #1 to **execute** the settings, followed by Knob #5 to confirm.

Although similar in nature to the Program Inits described above, these sample level inits are designed to make a particular sample session easy for the type of sampling you are doing. For example, when you are sampling series of data for mapping as a musical instrument you may want to have the LowPass 1 filter automatically in place set for velocity sensing. Or you might have a basic envelope type automatically applied. Or have your controllers automatically mapped a specific way. Registering inits will apply your settings to every sample, as you sample them, greatly easing the task of instrument creation. Of course, you can change them later.

As you get to know how you like to work you will really appreciate the Register features. They make your particular way of working part of **your** A-series' operating system.

MIDI ® Smp

Short for MIDI to Sample. This useful function comes in very handy when you are handling lots of samples in memory. When activated any incoming MIDI signal that triggers a sample will automatically recall that samples data to the visible edit buffer. This means, "what you hear, is what you are editing". It means you never have to guess what sample's data you are viewing. Simply touch your MIDI controller, if the sample is audible, you are seeing its data in the screen. This function can be found by pressing Knob #1 from all (mode) screens. This view is called TREE. Turn Knob 4 to select MIDI→Smp. There are 2 settings **upper** and **lower** – you will see a little icon indicating upper and lower. Upper is the sample bank level, while lower is the individual sample (even when within a sample bank). Pressing Knob 2 will

open or *close* the Tree –useful when samples are grouped in banks.

When MIDI → Smp is active and UPPER is selected, touching a note on your MIDI controller will call the BANK to the edit buffer. If LOWER is selected then touching a note will call the individual sample to the edit buffer.

Hint: There is a shortcut for activating this feature: Hold [COMMAND]+[F2].

SmpSolo

Short for Sample Solo. This function is found on the Sample Select screen between the sample name and its receive channel (Knob 3). This useful function will allow you to isolate a single sample. This is very useful in a situation where you are working with many sounds. For example, you may have several sounds layered on a key or across the keyboard. When you activate the "SmpSolo" function on a sample it will be the only one heard. This function is used while working and only momentarily, when necessary, like a solo button on a console.

Burn Your Own CDs

One of the great extras that you get with the A4000 or A5000 is the ability to burn your own CDs. This is a great way to make your own archives for long-term (safe) storage. Hard drives come with a specification called MTBF, Mean Time between Failures. It is not a matter of *if*; it is a matter of *when* a hard disk goes down. And one wise person said, "There are 2 kinds of people those who back up their data and those whose hard drives crash." A CD-R or CD-RW (purchased separately) such as the Yamaha CRW4416SX can be used to backup your sampled data. The real nice extra is that you can also burn redbook CDs (audio CDs that will play on any standard CD player). The A4000/5000 will let you write files directly from an A4000/5000 formatted hard drive to CD.

This makes a great addition to any project studio and will allow you to create demo CDs to hand out to your friends and as business cards to promote your work. You can even go into business for yourself making your own custom (native format) voicing and samples.

Reset

To reset the A4000/5000 hold [F1] + [Assignable] buttons down simultaneously and power up. The unit pauses momentarily goes through its normal boot up. All memorized system parameters are reset to factory defaults. This includes the parametric EQ, and any Registered settings - memorized controller, effects or setup settings. This will also require you to remount SCSI devices. To do this: Press [DISK] mode: [DISK] page; select and remount any attached SCSI devices.

FAQs:

Can I use the A4000/5000 like a regular tone module where I can send program changes to it on any MIDI channel and change a single sound to another sound?

Yes, this feature has been added since the A3000. You can choose to set up what is called a MULTI Program. This will allow you, for example, to have a Piano on channel 1, a bass on channel 2 and a Drum kit on channel 3. You can send a Program change message on channel 1 that changes the Piano to an Organ. You enter this MULTI Program Mode from the main PLAY-Program screen – Turn Knob 4. Each Program now can be access by a program change on the appropriate MIDI channel.

How do I create a new bank?

While in Play mode press the [SAMPLE] button then turn Knob #5 to navigate to the <NEWBANK> selection. Push the knob to execute.

How do I create a Volume?

A Volume contains all the data in RAM at the current time. To create a new Volume : press the DISK mode button followed by the 4th Function button to select Volume screen. Press Knob 2 >NEW VOLUME to create a new Volume. You can name the new Volume using the Rename routine. Once your New Volume is named, return to the main PLAY mode: Program function screen and execute the save ALL. The screen will ask if you want to replace everything in the Volume – this is why you must be sure you are 'pointing' at your NEW Volume during a Save routine or know that you are replacing the current Volume.

How do I load a disk – I can't seem to find the floppy drive page?

This is an important thing to learn about the A3000: you must select the Disk that you are going to use from the [DISK mode: DISK page]. Navigate to the "(FD 2HD)" screen. If a disk is in the drive it will be listed on the right side of the screen. From this screens you can view all your connected SCSI devices. There must be a diskette in the drive for the unit to look it. Turn Knob 4 to point to the Floppy Drive, you can then utilize the Disk, Volume, Sequence, Sample, Program, or Import functions to load specific data or format the disk.

Can I Re-sample through the effect processors?

Yes, **Resample with Effects:** Prepare the sample, apply the effects in PLAY mode, as normal. You can utilize any or all the effect processors in any manner you wish. When you have the data the way you want to have it, navigate to the [RECORD mode: REC SETUP page. Set the INPUT to ST OUT (Stereo Out). This connects the Stereo output, which contains your effects, to the record input via internal routing. You can use either triggered record or manual record as the method; the unit will resample the data and create a new sample. You can even resample at a lower or higher sample rate.

(Nothing need be set on the [RECORD mode EFFECT function] page – RecEfSetup is forced to **off** – it is for original recordings, only).

Can I set the effect processors up in series and/or parallel?

The six/three on board effect processors include some radical new algorithms designed specifically for the A-series Professional Sampler. There are 96 algorithms per unit. The effect processors can be setup for use in series: 1→2→3 or in parallel: 1 / 2 / 3 or series/parallel combinations 1→2 / 3, 1 / 2→3 or 1→2←3. In the A5000 (six effect processors) you can additionally route the output of any processor 1, 2 or 3 to the input of any processor 4, 5 or 6. Important to mention here is that each sample (at the sample level) can be routed to a particular effect. Depending on the routing selected, you can route particular samples to an individual effect. The routing can be very complex – use your imagination and good common sense.

When using the Beat Change effect you do not get a BPM read out like you do when you RESAMPLE, how can you know what the new tempo is?

You can use this trick to figure the actual tempo when using the Beat Change effect. Route the output of the Beat Change Effect into the input of the next processor set to effect algorithm #88 Tempo Delay. You can use this effect to determine the tempo created by the Beat Change effect.

Set up the new tempo using the Beat Range and Beat change parameters. Now when the loop is triggered you will hear repeats that are out of tempo with the basic loop. The Tempo Delay effect bases its BPM on the setting of the Programmable LFO found on the [PLAY], [CONTROL] PgmLFO page. On this page set SYNC to MANUAL and use Knob 4 to increment the tempo until the repeats are exactly in step with the groove. You can choose to use the Tempo Delay effect or reassign it as to your needs.

There is a brief pause when I hit the DISK mode button, what gives?

Each time the DISK mode is selected a request goes out to scan the SCSI chain and check the floppy disk drive, as the unit orients itself to what items are present and available to load. Often these devices go into a 'sleep' or low-energy state and must be revived for communication. You will see a metronome while communication is re-established. For example, it is possible to have several external SCSI hard drives, an internal SCSI drive, a CD-ROM player and a diskette all on the system. The unit will remember the last device that it was requested to access. In fact, it is necessary to appropriately point the sampler at the device you wish to access. When you want to load from diskette make sure the DISK: DISK page is pointing to "FD".

How do I load my favorite Programs from several different Volumes into the sampler, it seems that a Volume wants to replace the current Volume?

This is true. By definition a Volume is the entire contents of the sampler. You can, however, load any combination of your favorite Programs into the A4000/5000. To load a single program from a Volume to a specific location:

- From the [DISK]:[DISK] page verify that you are pointing to the appropriate drive device containing the Volume.
- Press the [VOLUME] function button to view the Volumes on that device and point to the appropriate Volume.
- Press the [PROGRAM] function button to view the Programs within that Volume and point to the appropriate Program.
- Use Knob 4 to select the Program and Knob 1 to point to the LOAD TO parameter. Now Knob 2 will let you set the Program number you wish to load. This will allow you to redirect the Program that you have selected to any Program location in the current RAM.
- Press the Knob 4 LOAD
- Repeat until you have assembled your favorite Programs.

It is highly recommended at this point you create, name and save this as a New Volume. See instructions in the section on New Volumes, above. The unit will load only the samples that are necessary. It will determine which samples need to be loaded for the selected Program and if those samples are already in memory it will not duplicate the data (unless you want it to).

Q. What can I expect when a format is called "compatible"?

A. Usually, when a sampler claims compatibility with a particular format you can expect the basic sample data to either load or be imported into the sampler. This will include the sample key mapping and the loop point. It is 100% infallible? Of course, not. Should you expect the envelopes, filters, etc., to be the same? Of course, not. Sample data that is native for a particular format sampler is probably always going to be your best bet. Be prepared to do at least some tweaking in any "compatible" situation. Many end users mistakenly believe that when you load or import "compatible" data that it will make the sampler from one manufacturer, the sampler from the other manufacturer. That is a lofty idea but then why would the company put out the product. Think about this: if you design a sound in the A4000 or A5000 utilizing all the unique functions, how well do you think a "compatible" competitor will deal with the A-series' radical effect processors? Your right, they will not. They can't. Each manufacturer has its own operating system, filters, envelopes, LFOs, etc., etc. Do not over-estimate what "compatibility" means. Think about it – how many customers thought that if they could only get that DX7mkII disk in their sample playback synth, they could get the sounds of the DX7 from their keyboard or vice versa. (NOT!) Never happen! If you are dealing with audio break beats compatibility **will** work for you, because most beats do not have complex envelopes or filtering.

That said, you will be amazed at the ability of the A4000 and A5000 has in importing and *improving* the sound of other native formats: Akai, Emu, Roland, Yamaha, AIFF and Wav.

Compatibility details (import):

- Akai S1000/S3000 via FD/HD/CDROM import w/mapping
- Emu E111x via HD/CDROM import w/mapping
- Roland S760 via HD/CDROM import w/mapping
- AIFF via DOS FD/HD/CDROM import/export, CDROM import only*
- WAV via DOS FD/HD/CDROM import/export, CDROM import only**
- EX via FD/HD import w/mapping*
- SU700 via FD/HD import w/mapping**
- TX16W FD import sample
- A3000 files **load** directly

*Non-LPC only

**Single FD diskette (not from multiple floppy volumes)

Sometimes a parameter I want to edit is not available, why?

Usually this occurs if you are attempting to edit a sample bank when you are on the sample level or you are attempting to edit a sample from the sample bank level. This is easily rectified from the [PLAY], [SAMPLE] SmpSel screen. Use Knob 1 to select either the SmpSel or SmpBank screen. Designate (highlight) which sample or sample bank you wish to work with before proceeding to EDIT or EASY EDIT. Remember a bank is a group of samples that you want to effect all together – like when sending all samples together to an effect or when you want to make an instrument mono, assign MIDI, etc.

For example, you attempt to go to the EASY EDIT parameters to make a quick change but the "Select Sample (Bank)" error message is showing: Simply go to the PLAY, SAMPLE area and make your selection. If your sample is in a bank and you want to effect the entire bank, make sure you are selecting a bank (inverse video "B"). If it is an individual sample you wish to edit, you would highlight the sample (no inverse "B") before proceeding. And, yes, you can edit an individual sample while it is contained in a sample bank.

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