Prophet - 3000

Operation Manual

SEQUENTIAL

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PROPHET 3000

16-BIT STEREO SAMPLING SYSTEM

OPERATION MANUAL

by

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Radio Frequency Interference (RFD Notice

This equipment generates and can radiate radio frequency energy and if not installed and used in accordance with the instruction 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 of 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.

Acknowledgements

San Jose State University Music Department

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Every attempt at accuracy has been made. However, specifications and operations are subject to change without notice.

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CHAPTER 1

BASIC PLAYING

Overview

The Prophet-3000 sampling system embodies some of the finest thinking that has been done about performance and studio sampling. It has all the signs of becoming a coveted instrument. But in any event, it is just plain incredibly fun to use. The smoothness of the user interface sucks you in. In no time, you are creating your own sampled presets and customizing their response to your controllers. No function is ever farther than a few touches away, as the programmable function switches guide you through an extraordinary offering of editable parameters and processing functions.

But enough hype. Okay, you bought it. Now what?

After some words from the legal department, you'll find the minimum instructions needed for loading disks and playing factory presets. These are followed by a more complete discussion of everything you need to know to basically play the Prophet-3000.

CAUTION! The line voltage of your unit should already be set for operation from your country's power source. However, to be sure, please check the line voltage selector on the back panel.

WARNING! CHANGING THE VOLTAGE SELECTOR MAY REOUIRE THE USE OF A DIFFERENT LINE CORD OR ATTACHMENT PLUG, OR BOTH. A DIFFERENT FUSE MUST BE USED. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, REFER SERVICING TO QUALIFIED PERSONNEL.

Instant Gratification

If you have some experience and just want to know how to get some sound:

- Hook everything up and switch power on. (Always a good start.)

- Insert any factory disk marked “1 of 2” and wait a few seconds.

  When you see “NO PRESETS”, press the second switch (DISK), then the first switch (LOAD).

- When prompted, insert the “2 of 2" disk.

  In some cases the system may request that you re-insert the “1 of 2” disk.

- After the disks load, play your controller.

- Select presets by turning the dial or sending preset selections from the controller.

Setup

Since “instant gratification” may not do justice to the system, let’s begin a more methodical account of preset mode.

- With power off, connect:

  the Prophet-3000’s remote control to the chassis front panel,

  your performance controller to the Prophet-3000’s MIDI IN,

  the Prophet-3000’s audio output(s) to your monitor system,

  and power, last.

More information on installation can be found in Chapter 3.

Load the Operating System

Power is on, but before you can do anything else, you must load the operating system -- which actually creates the Prophet-3000 sampling instrument. The operating system is contained on each "1 of 2" disk in a two-disk set. The reason for this is that it makes it very tough to find yourself stuck somewhere without a system disk.

- Switch power on.

  The display blinks “Please insert system disk.”

- Insert any system disk (for example, GRAND PIANO 1 of 2).

  The system automatically starts loading, displaying the version and its creation date.

If a system disk is in the drive when power is switched on, it will load automatically. If a non-system disk (2 of 2) is in the drive, then the display will ask you for a system disk.

After a few seconds the main menu displays "NO PRESETS". This means that the system is loaded but the sound memory is still empty. Your options now are to either load all or one preset(s) from a disk (the DISK switch) or record a new preset (the RECORD switch, see the next chapter).

Load All Presets

To fill the standard RAM requires loading two disks.

- If the current disk is not desired, remove it and insert the first disk of the desired set.
- From the main menu, press DISK.

  The disk page appears. ALL PRESETS is initially selected as the data type.
- Press LOAD.

  This starts loading all presets.
- Observe the countdown timer.

  Each decrement is about 1/2 second. The first disk takes about 20 seconds to load its sound data.

When prompted, remove the "1 of 2" disk and insert the "2 of 2" disk.

- Wait while the second disk loads.

  The second disk takes about a minute.
- In some cases the system may request that you re-insert the "1 of 2" disk.
- When the disk page returns, press EXIT.

  This returns you to the main menu. At this point the name of the current preset appears in large letters in the display. The default preset is the lowest-numbered (1, usually).
- To load a new disk, just return to the disk page and press LOAD.

  You will be warned that memory is occupied. Press CONTINUE.

Play and Select Presets

- With all presets loaded, you should now be able to play the Prophet-3000 from your controller, and hear the current preset.

  The factory disks are in MIDI Mode 1 (receive any channel), so your controller channel doesn't matter. If necessary, check MIDI cabling or routing and system volume adjustments.

  Note: If you are having trouble, there is a MIDI Status display which shows what notes are being received in which channels, and to what voices they are being assigned. To see this display, press MIDI, then STATUS (and EXIT out).

- To select other presets on the Prophet-3000, turn the dial.

  The number of presets varies with the disk set. For example, the piano set has just a few presets, but the rock ensemble set has about 30. These are two good examples of opposite ways in which the sound memory can be utilized: one set is all multi-samples basically supporting one preset -- acoustic piano. The other set has dozens of different timbres which you can program as multi-presets in Mode MIDI 4, or later grouped into multi-timbral combinations and played in Modes 1 or 3.

Display Preset List

To suit either performance or studio settings, the main menu can be switched to display one large preset number and name, or a list of up to five consecutive presets -- the current one plus the two above and two below.

- To change the display mode so that it lists up to five of the presets currently in RAM, press LIST.

- To switch back to the single-preset name display, press LARGE.

  In either display mode, you can select presets using the dial.

Adjust Master Tuning

To raise or lower the pitch of the Prophet-3000 against another instrument (typically, a piano):

- From MAIN, press OTHER.

- Press TUNE.

- Play while turning the dial.

  The range is +/-99 cents.

- To enable the tuning reference, press the A-440 switch. It toggles on/off.
- When done tuning, press EXIT.

Note that this fine-tuning adjustment is temporary, unless you specifically save all presets to disk (as explained in Chapter 7 Disk Operations).

MIDI Options

All data such as the full MIDI note range, preset selections, and wheels, are recognized by default of the factory disks. Pressure is recognized but may or may not be routed through the modulation matrix, depending on the specific current preset.

If you want to experiment with the MIDI options, for example, Mode and Channel, you can find them under the MIDI switch on the main menu. Most of the other options are self-explanatory. To edit, just cursor to the desired field, and turn the dial. For more information please see Chapter 5 MIDI Control.

Like master tuning, to permanently retain any MIDI option edits you must save all presets to disk.

Next Steps

After experimenting with the factory presets supplied, turn to the next chapter to begin recording your own presets.

Once you learn how to save to disk (Chapter 7), copy the factory disks for backup purposes.

CHAPTER 2

BASIC RECORDING

Overview

Like Chapter 1, this chapter begins with minimum hints for experienced users. Then it starts over and lays everything out more thoroughly.

The beauty of the Prophet-3000's recording system is revealed when you are multi-sampling a traditional acoustic instrument. The system includes a pitch detector which automatically locates instrument samples on the correct keys and adjusts their playback ranges. A basic release loop and envelope is also set automatically.

When starting out, it is probably best to sample a normal, pitched instrument -- not drums. Soon you will learn how all defaults can be disabled or overridden so that any custom arrangement of samples within presets is possible. There is a user-mapping mode available which is especially useful for drum work. For more information on these features see Chapter 13 Mapping.

Instant Gratification

- Clear memory by switching power off, then re-loading the operating system. (This is not the recommended way to clear RAM -- but it is quick and easy to explain.)
- Press RECORD and set up the mode (stereo/mono) and time required.
- Press LEVELS and set the input and threshold levels.
- Press ARM, then play the note.
- After processing, audition the note, then press REJECT or NEXT.
- When finished sampling into this preset, press DONE.

If these instructions didn't work, read on.

Deleting All Presets

Let's assume that you have been experimenting with the factory presets and now you want to record your own presets. The first thing you must do is clear the factory presets out of memory so that there will be room for your own.

If you switch power off, then you just have to load the operating system again.

The right way to delete all presets is as follows:

- From main, press EDIT.
- With any Single-mode preset selected, press SOUND.

  The current preset **must** display SINGLE in the Mode field. Most of the factory presets are indeed SINGLE, but if necessary, select a different preset. If the mode is not SINGLE, then the SOUND switch does not appear as a choice. (The explanation for this is in Chapter 6.)

- Press MEMORY (F5).
- Press DELETE.
- Press DELETE ALL.
- Press YES.

  You are returned to the main menu, and the familiar "NO PRESETS" display.

Setup

- Connect your mono or stereo sample input to the MIC or LINE input(s).
- From the main menu, select RECORD.

  Entering record mode creates a new preset which will hold all of the samples that you record, until you exit record mode. When you exit, the new preset will be numbered and given the name "UNNAMED".

- On the RECORDING SETUP page, check that the method is AUTOMATIC MAPPING.
- Set Mode to stereo or monaural, as desired.

Rate and Time

- Check the sampling rate, and dial up the approximate amount of time you will need.

  There is a "Time Remaining" field, which always shows the time remaining for the current mode (mono/stereo> and rate.

Levels

- Press LEVELS.
- Play the input and adjust your input levels using the knobs on the chassis.

  "PEAK" indicators are provided. When they light, clipping is occurring. (There is also a "clipping occured NNN times" report, after recording.)

- Use the dial to set the threshold to just above the "noise floor," so that the "TRIG" indicator just goes off.

  You want the threshold high enough to not trigger falsely, but low enough to not miss an important attack transient.

Real-Time Monitoring

- To hear the **actual** conversion of input through the output, press MONITOR.

  Note: If you are sampling from your system mixer, this function may create feedback. During recording, the monitor function is always enabled. It is not possible to see the levels display and real-time monitor simultaneously.

Trigger Automatic Recording

- Press ARM.

  The recorder is now waiting for input.

- Play the input. For pitch detection to work correctly, the note should have correct intonation relative to A-440.

  When the input level exceeds the threshold, recording starts automatically.

  When the allocated time has elapsed, recording stops and processing begins automatically.

  When processing is done, observe the clipping report and map display.

Audition the Recording

- When processing is done, play the sample from the controller or the PLAY switch.

  The display reports the root pitch detected and graphically shows how the sample is assigned to the keyboard. A default release loop is set automatically.

  Note: If you can't hear anything, check that the controller is sending notes in the range indicated by the map display. If desired, use the MIDI STATUS page (mentioned in Chapter 1).

PLAY Switch

The PLAY switch is provided for convenience when a keyboard isn't handy. The way this switch works is that it imitates a MIDI key hit with medium velocity (64). Therefore it always requires two presses: one for the Note On, and one for the Note Off. If you forget to supply the Note Off, the sound may drone on and on, even if you move to a different page, where there may be no PLAY switch. If totally lost, use the KILL switch which is found on the OTHER page (see Chapter 14).

Unpitched and Multi-pitched Samples

If the input is not in tune (relative to A-440), or no pitch was detected in the sample, you'll be told this and immediately be shown the default map and allowed to edit it. The assumption here is that you have a drum sample and a specific keyboard location in mind for it. For an unpitched sample, no loop is set,

If the sample input contains multiple fundamentals or significant inharmonic overtones -- for example, as do bells and bar percussion instruments -- then the results of pitch detection may be unpredictable.

Continuing

- If the sample is not acceptable, press REJECT.

  After a protection page, this option deletes the sample and its range.

  Usually the problem will be one of levels, requiring only another attempt to correct. If the default sample loop is out of tune, don't reject the sample becaue of it. You can fine-tune the loop later (under EDIT-SOUND-MAP-TUNE).

- If the sample is acceptable, press NEXT.

  You are returned to the recording setup to continue sampling.

- Record the remaining samples for this preset, similarly.
- When you have finished recording this preset, press DONE.

  You are returned to the main menu, where the preset you just created is displayed as current.

Adding a Recording

If you leave record mode accidentally, don't worry, you can still go back in and add a sample to any 'preset (assuming there is room in memory). Use the ADD-REC switch which can be found under the EDIT page 101.

Naming a Preset

To name a preset:

- Start from the main menu.
- Press EDIT.
- Press NAME (fourth switch).
- Cursor right to the first character position, and set the character (using the dial).

  The dial always starts from the character already there.

  The characters available are O-9, space, and A-Z.
- Repeat to a total of 16 characters.

  The LARGE display can't fit the last, sixteenth character of a preset name. The full name will show up on all lists.
- Press EXIT.

Saving Presets

After recording any preset that you like, save it to disk. At the very least, you never know when power or the hardware might fail or someone will kick out a power cable.

Note: New disks must be formatted and the operating system saved to them, before they can be used for saving. Then, after saving, you should do a VERIFY operation. For complete disk instructions, please see Chapter 7.

CHAPTER 3

INSTALLATION

Overview

At this point you have probably become familiar with the Prophet-3000 through the previous "Basic Playing" and "Basic Recording" chapters. This chapter discusses handling and location, and the input and output connections, in more detail.

3-1 HANDLING AND TRANSPORTING

Mounting

As you know, the Prophet-3000 has two basic parts, a chassis and a remote control panel. The chassis has all of the digital and analog electronics and the disk drive, but, thanks to VLSI, when rack-mounted it occupies only two spaces (3.5 inches). The depth of the chassis is 14.5 inches.

The chassis contains a highly sophisticated microcomputer system with state-of-the-art components. As with any other high-tech instrument, the Prophet-3000 should be treated with as much care as you would provide an acoustic instrument. Shock or vibration can damage the disk drive, and loosen internal connectors or socketed integrated circuits. Avoid temperature and humidity extremes.

For rack mounting, attach the supplied flanges. You do not need to leave extra rack space above or below the rack chassis.

For non-rack mounting, a set of rubber feet is also included. During use, the unit should be placed with all feet evenly supported. No liabilities are assumed for unorthodox mounting or inadequate support.

If you expect to transport the Prophet-3000 and it is not in a coverable rack cabinet, then it is imperative to invest in a professional "road" or "flight" case for it. Cases are made by many

manufacturers and should be carried by your music dealer. If you prefer to build your own, there are firms that sell case hardware.

Drive Head Protector

After removing the head protector from the disk drive, keep it safe and clean so that it doesn't contaminate the drive when used again.

To avoid damage to the disk drive, always transport the Prophet-3000 with the head protector inserted. Do not use a disk for head protection because disks are too thin to properly cushion the head, therefore they will be damaged. If a damaged disk is then loaded, this may injure the head.

Dust and Cleaning

In general, don't allow beverages or food around the equipment. For best floppy disk drive performance, minimize dust exposure, and vacuum the studio regularly.

To clean the cabinetry, dust or vacuum first and then use mild soap on a damp, soft cloth. Anything harsher stands a chance of removing the lettering or dulling the finish.

Disk handling is discussed in Chapter 8.

3-2 AUDIO SYSTEM

Audio Outputs

Here are some details on your output choices:

L/PHONES
This is a two-channel, tip-ring-sleeve (TRS) phone jack. The tip is always connected to the left channel. If R/MONO is disconnected, the ring of L/PHONES is the right channel. If R/MONO is connected, the ring of L/PHONES is disconnected.

R/MONO
This is a one-channel, tip-sleeve (TS) phone jack. If L/PHONES is disconnected, the R/MONO tip is a monophonic mix of both channels. If L/PHONES is connected, the tip of R/MONO is the right channel only.

VOICE OUTPUTS 1 - 8

These TS outputs allow each voice to receive independent equalization or ambience, before going to the external mixer or tape deck. Presets can play all voices left in the "dynamic allocation" pool, or be assigned to specific voice outputs. For multi-timbral MIDI Mode 4 work, you can assign specific MIDI channels, samples, or presets to specific voices.

Also, you can use both the stereo and individual outputs simultaneously, because when you insert a plug into one of the individual output jacks, that voice is removed from the stereo (and mono) mix. For example, you might use separate voice outputs 1 - 4, and leave voices 5 - 8 to be taken from the stereo mix.

The L, R and MONO outputs are relay-protected against power on/off thumps or "pops." However, the individual voice outputs are not protected. Also, the individual outputs have a significantly higher output level than the stereo/mono outputs.

The input impedance of the headphones or preamp/amp being driven basically doesn't matter. All of the Prophet-3000 audio output drivers can handle virtually any load and are fully protected against shorts.

Volume Control

For best signal-to-noise performance, set the VOLUME knob as high as possible without overloading the inputs of the monitor system, and use this control only for a temporary volume decrease. The same applies to MIDI Volume sent from a controller.

VOLUME does not affect the level of the individual voice outputs.

Monitoring Requirements

As you can see, the Prophet-3000 has a very flexible output system. For use as a keyboard sampler, using the Prophet-3000 in stereo is strongly recommended. The analog processing. section includes a stereo mixer with initial voice positioning, and pan modulation. Only a stereo configuration will be able to take advantage of the Prophet-3000's true stereo capability and dynamic panning features.

To let you monitor the sample exactly as it is being recorded, the sample input itself appears at the stereo/mono outputs, and through the individual outputs for voice 1 and 2 (if stereo). Before recording, this monitoring is optional. During recording, it is always enabled. (Due to the sampling and conversion process, there is a very slight delay on this audio.)

The easiest way to work is to connect input to the Prophet-3000 without going through the board, or, use headphones instead of routing the Prophet-3000 output to the board. Either of these setups have the added benefit of discouraging ground loops.

Of course, the simple approach may lock you out of using desired processing gear, and prevents you from doing any quick A/B comparisons -- encouraging you instead to go through the board. In this case you must realize that due to the real-time montioring, if the sample source is the board itself, then during sampling you will need to mute the Prophet-3000 output so that feedback is not created. You can either adjust your mixer manually, or let a programmable mixer do the work.

External Processors

Consider the equipment to which you are going to connect the Prophet-3000. Does it give you adequate tone control? In an ideal world, all samples would already have all their final equalization -- but often the "fit" isn't known until you assemble the whole puzzle. This is why pro boards eq each source.

A stereo digital reverb is basically expected and mandatory. Fortunately, they have also become basically affordable.

Amplifier Power

Think for a moment about your amplifier and speaker system. By converting the Prophet-3000's electrical output into the potent vibrations that you hear, the sound system really does become part of the instrument. In defining your sound to an audience, as opposed to merely another piece of gear, the amp/speaker system does essentially the same work as a piano soundboard or guitar body, and is just as critical.

Of course you can use anything you like or can afford. But obviously an instrument of this caliber should not be constrained by a weak amplifier and muddy speakers. Sixteen-bit sampling calls for a dynamic range of over 90 dB. Noise and weak amplification can easily limit your effective range to half of that. What is the point of getting a super high-fi source like the Prophet-3000 and then swamping it with noise or clipping it?

For detailed, clear sound (in other words, to prevent clipping) extraordinary amounts of amplifier headroom are needed. Minimum requirements seem to be 100 watts per channel for a small studio system using near-field monitors. Obviously, anything above this is a question of affordability.

Speakers

Regardless of their size, speakers must be capable of handling the full amplifier power over the full audio range (20 Hz to 20 kHz) without distorting. In addition, but no less important, they must be

tough enough to withstand the kinds of accidents which typically come from equipment being disconnected while driving the speakers.

Small speakers have their place, namely, in the studio. For live performance, three-way systems using 12- or 15-inch woofers are generally favored.

CAUTION! If it is not practical to use amplifiers and speakers specifically designed for electronic instruments, or if volume must be kept low, using your home stereo system will give reasonable frequency response. But if you go this route, be careful. Continuous playing of sustained synthesizer sounds can cause component amplifiers to overheat. Also, the dynamic range of the sampler places component speakers at risk, because of powerful bass notes and transients which will damage them if the volume is set too high.

Sampling Inputs

LEFT/MONO or RIGHT MIC IN
A tip-sleeve phone jack, grounded when not in use. Mic input range is 16 to 180 millivolts rms. Input impedance is 10 kilohms.

LEFT/MONO or RIGHT LINE IN
Also a tip-sleeve phone jack, grounded when not in use. Line input range is 0.45 to 4.7 volts rms. Input impedance is 240 kilohms. Inserting a plug into LINE IN disconnects the MIC input. (Therefore you can leave a mic plugged in without worry that its signal is being added).

Level knobs are provided on the chassis.

These inputs also function as trigger inputs. For more info, see Chapter 14.

Please read the paragraph about ground loops, below.

3-3 OTHER CONNECTIONS

CAUTION! Before connecting, be sure that all equipment to be interconnected is switched off.

Remote Control Panel

The Prophet-3000 remote control panel features a large LCD, programmable function keys, and a data selector dial. It can be placed on any convenient work surface.

Connect the remote control to the rack chassis, using the included "telephone-style" cable. The cable runs from the CONTROL PANEL jack on the front of the chassis, to the left side of the panel.

A few have asked about longer remote cables than the lo-foot one provided. You can't use a standard four-wire phone cord. You need a six-wire version. The remote should work with a 20-ft cable, but we haven't tried it, and there are no gaurantees.

And, no, you cannot operate the Prophet-3000 from a distance via the phone system. If someone plugs a phone into the Prophet-3000 or its remote, even for a joke, it may damage something (and this is not covered under warranty).

MIDI

The Prophet-3000 has IN, OUT, and THRU jacks. The THRU jack may prove handy for extending the bus. The OUT jack has no function (yet).

Footswitch

This is a general-purpose tip-sleeve switch controller input. The footswitch should be normally open, and pressed momentarily to close.

The footswitch function is programmed from the "OTHER" page, and may change according to the disk. (See Chapter 14.)

SMPTE/Clock

These are for future use. Both clock jacks are tip-sleeve phone.

IN
Accepts either dc from other equipment, or ac from a tape track.

TAPE OUT
An ac-coupled clock output intended for a tape track.

SCSI

This 25-pin D-connector accepts the Prophet-3002 Small Computer System Interface (SCSI) hard disk system option.

3-4 POWER SYSTEM

Fusing

110V:	2A (fast blow)
220v:	1A (fast blow)

The fuses are the usual 3AG types. (Check your tool box for spares.)

Power Connection

Power connection is usually left to last in the setup procedure, because the power switch might accidentally be in the "ON" position.

The POWER ON/OFF switch is on the back panel. Normally, all equipment in the rack is supplied and controlled from a power strip.

About Grounding and Ground Loops

All Sequential instruments come with a three-prong power plug to ensure safe grounding with other equipment. The ground prong is connected directly to the metal chassis. To prevent potentially lethal shocks, this ground path must not be tampered with.

However, in today's complex setups, where power lines and several types of audio and control lines typically run between a dozen pieces of gear, it is easily possible to create such a large ground system, that hum and noise are created rather than reduced. The larger the ground system is, the greater of a tendency it has to develop its own internal current flows, and these cause hum and noise.

There are several approaches to alleviating this problem. First, the hum level may depend on exactly how or where the instrument and amplifier are connected to the ac power line. For minimal hum, use the same ac outlet for the instrument and its preamp and/or amplifier, and for all associated equipment, without overloading the power circuit. This will usually reduce the hum to an acceptable level.

When using "power strips," place the heaviest load (usually the amplifier) closest to the power source, and lightest loads (such as power adapters) after them. Details like this can sometimes make a difference.

Regardless of how effective common ac connections are in reducing general hum, connecting both the input and output of a sampler into the same system puts it in to the middle of a classic ground loop situation. This may make it difficult to sample sounds from the system without accompanying hum. In this case, the easiest way to defeat this ground loop is to monitor your sampling from headphones plugged directly into the back panel of the Prophet-3000.

But if you don't want to use headphones, because you must hear the sample through speakers or processing, for example, then you might need to cut the shield at one end of one or both of the audio output cables, or at the input cable(s). As long as at least one end of the coax cable is connected to either chassis, the signal inside is protected. Just be sure to mark any cable that you open! Through careful, "stat-"-grounding techniques such as this--where all grounds are referenced to only one point--it should be possible to eliminate all grounding problems.

WARNING! As a last resort, one may be tempted to trade personal safety for sound quality: it is widely known that you can quickly defeat some ground loops by using a two-prong adapter to, in effect, disconnect the ac ground. You must be aware that tampering with the ac ground in this way can set up a lethal shock hazard between equipment or between equipment and ground, and that you do this at your own risk. Sequential is not responsible for any equipment failure due to incorrect ac power connections, and is not liable for any personal injury due to electrical shocks as a result of unsafe grounding practices. It is up to you to check the power and ground interconnections of all equipment in use. As you probably know, many older buildings and clubs are notorious for their poor quality ac wiring. We therefore urge you to verify ac connections using one of the several "ground-checking" devices available on the market.

CHAPTER 4

USING THE REMOTE CONTROL PANEL

Overview

This chapter describes general operation of the remote control panel.

Main Controls

The remote panel contains the following controls and indicators:

LEFT, UP, RIGHT, DOWN cursor switches. (L/R, U/D)
To move between data fields, use the cursor switches. The cursor acts like a "tab" key between data fields. It does not act as a "character position" key. When scrolling vertically, it does "wrap around." In other words, if you are at the bottom of a column, you don't have to press UP five times to get to the top -- instead you can press DOWN once.

LCD
Eight-line x 40-character, or mixed with 64 x 240 pixel graphic display of samples, etc.

FUNCTION switches (F1 - F6)
Six, located under the bottom row of the display. Programmable.

DISPLAY ANGLE trimmer.
This adjusts the control panel view to the location. With a portable display, this turns out to be a necessity, not a luxury.

SELECT dial.
Infinite-turn, velocity-sensing. To change data values or options in a field, use the dial. The dial causes relative change from the current setting. It has no absolute position. This way, a value is not instantly edited to an arbitrary value as soon as you move the dial. The dial has two speeds: slow turning, increments or decrements; fast turning, scrolls the data quickly. There is no direct numeric entry. All numbers start with 1 (not 0). There are no leading zeroes.

The central feature of the Prophet 3000 control system is its interactive display. An LCD of this size allows simultaneous and versatile display of a variety of control parameters, plus graphic and oscilloscope functions, without the cumbersome and costly installation of an external computer or video display. With the Prophet-3000's integrated terminal, all operations are much faster than when you must transfer data back and forth between your sampler and external computer. And the system is much more portable, than when you must use an external CRT.

The control/display system has two main applications: preset mode, and programming mode.

Preset mode -- the main menu -- addresses the needs of the player/performer on stage. All system and factory disk defaults assist performing in preset mode (as opposed to programming.)

Editing or Programming mode, for creating new presets. In this mode, all parameters can be changed.

Pages

We call each control display a "page," and for reference give each a unique number in the upper right corner.

Most page changes are instantaneous. If something takes over two seconds, the screens displays "PLEASE WAIT" or a similar message. If the process takes over four seconds, an ABORT function is provided.

In general, line 1 always shows the page title and number. Line 2 almost always shows the current preset and/or line 3, the range. Prompts and warnings appear on line 7. Line 8 always defines the function switches.

Function Switches

There are several different control and display methods used in the Prophet-3000 user interface, and the function switches change their behavior accordingly.

Binary control (Yes/No)

When the options are simple, YES or CONTINUE is to the left (F2) and NO or ABORT is to the right (F5).

Programmable Function Keys

This technique is basically menu selection. The function key system builds a "manual" into the control structure, by suggesting the most

likely work path and by limiting exit paths to the most useful functions, depending on the specific context.

The function keys are generally labelled with the most-likely action placed on the leftmost switch, and lesser priorities to the right. This is done so that even if you are absolutely stumped, pressing the first switch will usually continue you along the path of normal operation. But in other cases, to prevent unnecessary motion, or just to fit all the available options, some function names may move around, depending on the specific page. For example, to continue past disk warnings you generally press the same (physical) switch that got you there.

In a few cases, where the screen is already filled, you will find some keys functioning as multiple-choice selectors. For example, this occurs in looping (AUTO/5K/1K/WORD) and in map adjustment (FIXED/AUTO). Not that in these cases, the label of the switch represents the current state, not the choice of "next" state.

Command **Buffer**

The panel includes a command buffer which stores consecutive keystrokes made while the system is processing. For example, on power up, to load all presets you can just press F2 then F1 -- you don't have to wait for the disk page to appear before pressing LOAD. Similarly, when editing samples, if you want to zoom out four times, you can press the switch four times -- you don't have to wait for each zoom to be displayed.

The function switches should be tapped cleanly. If you delay, this may be read as a second switch press on the next page.

Form-filling

You can think of all the preset data in the Prophet-3000 as an enormous spread-sheet, with the function switches allowing you to view different areas of this spreadsheet.

Each function has a display which may contain from one to eight fields of data. To move between the fields, use the cursor switches.

When you have positioned the cursor at the desired field, to adjust or set the value of a field, use the dial. Field values can be numbers, but they are just as often options described by words.

When a function is first selected, the display shows its current value. If desired, note this value before moving the dial. On the Prophet-3000, you never enter data, only change it. Therefore, with no keypad, no correction is needed for input. Likewise, there is no need for an ENTER switch.

Graphic Views

Data graphs are used for waveforms, start/end and loop points, and envelopes, for displaying and manipulating data in real time. Where screen size allows, data is displayed numerically as well as graphically. Cursoring to that value and dialing a new variable produces a real-time change in operation, and the graphic view is automatically updated.

Symbols

This display class includes drawings of keyboard maps, layers, and splits. Keyboard mapping is usually shown by drawing a horizontal bar graph above a keyboard image.

Disconnecting the Remote Control Panel

A lot of people like to leave their gear on because it generally extends component life, and in the case of samplers can save a lot of time in needless re-loading. This is no problem for the Prophet-3000 chassis. However, it may shorten the life of the backlighting element for the LCD on the remote panel.

> Note: For maximum backlight longevity, if the Prophet-3000 is going to be on and unused for some time (like, overnight), you might want to disconnect the control panel (at either end, whichever is easier). You can do this while power is on.

When you reconnect the control panel, you'll see the Sequential logo. To return to normal operation, press a function key (not a cursor>. You have to press a key that has a function on the current page.

CHAPTER 5

MIDI CONTROL

Overview

This chapter looks at the options available for controlling the Prophet-3000 over MIDI.

Table 5-l (next page) outlines the MIDI menus, showing how features are allocated to the various pages.

5-1 RECOGNIZED DATA

MIDI Mode and Channel

All of the included factory disks assume that a standard MIDI keyboard controller will be connected. All three note messages are recognized:

Note Off	8N kk vv
Note On	9N kk vv
Note On=Off	9N kk 00

The default MIDI configuration for all three factory disk sets is Mode 1 (receive any channel), with the modulation wheel routed conservatively, and all receive options enabled. (Disks may come with their own documentation.)

For your specific setup, you may want to switch the Prophet-3000 to Mode 3 so that it responds to only one channel. You can do this either from the Prophet-3000 or from the controller. From the Prophet-3000:

- Press MIDI (or MASTER) to go to p90.
- Cursor to the Mode field and set to Mode 3 or 4.
- If Mode 3, cursor to the Channel field and set as desired.

TABLE 5-1
MIDI Menu System

PRESET MODE / MAIN MENU p5 or p6

MIDI MAIN / MASTER CONFIGURATION p90
Mode
Channel
Middle C
Note Range
Controller 1 and 2 IDs

STATUS p91
Voice / Note / Channel display
(MASTER)
(MODE 4)
(EN/DIS)
(DISK)
(EDIT)
(EXIT)

MODE 4 p92
Channel / Preset / Voice Assignments
(MASTER)
(STATUS)
(EN/DIS)
(DISK)
(EDIT)
(EXIT)

EN/DISABLE p93
Preset Select
Pitch Wheel
Pressure
MIDI Controllers
(MASTER)
(STATUS)
(MODE 4)
(DISK)
(EDIT)
(EXIT)

SWITCH and PAGE names are ALL CAP.
Parameters are in Initial Capitals.
() indicates a "sideways" or "upward" path.

The Channel field cannot be adjusted unless the Mode is set to 3.

If using Mode 4, refer to the end of this chapter for Mode.4 Multi Routing. There is a separate page for Mode 4 for assigning a different preset to each channel, and specifying the voices to be used.

From the controller, send the codes shown:

Mode 1 Omni -- BN 7D 00

Mode 3 Poly -- BN 7F 00

Mode 4 Multi -- BN 7E 00

MIDI Status

When setting up and troubleshooting a system, it is often helpful to have a way of making sure that MIDI input is actually being received. To do this, press MIDI, then STATUS. The status page shows what notes are being received in each channel, and how the notes are being assigned to the eight voices.

Note: Only if the Mode is 1, does STATUS show notes received outside of the current channel. If the current Mode is 3, for notes to appear on the STATUS screen, they must be in the current channel. If Mode 4, the channels must be "on."

Saving MIDI Parameters

All of the MIDI parameters are loaded from disk. Therefore, to retain any custom settings such as mode selection and channel numbers, you must save them to disk. There is no specific disk option for handling just MIDI parameters. They are saved, verified, and loaded with "ALL PRESETS".

Selecting Presets from the Controller

Normally you'll play the Prophet-3000 from an external controller, so it will be convenient to select presets from that controller. For all factory disks, the Prophet-3000 responds to MIDI program selections (CN pp). If desired, enable these on your controller.

Prophet-3000 presets 1 - 128 correspond to MIDI programs 0 - 127.

If desired, MIDI preset selections can be disabled on the Prophet-3000 (see below).

Damper/Sustain/Hold Pedal

The Prophet-3000 responds to the pedal code BN 40 vv, by toggling between envelope rates 4 (pedal up) or 4A (pedal down).

5-2 MASTER OPTIONS

Page 90 also offers the following parameters:

Middle C

The standard MIDI note value for C4 (middle C) is 60. Your controller may have a different idea. Or, you may want to transpose the entire instrument into a different key or controller range.

Note Range

The note range defaults to the extremes of 0 and 127. There is no wraparound for keys. The Prophet-3000 plays all keys at their true pitch, presuming of course that the extreme ranges have been mapped. You can decrease the range to make the Prophet-3000 respond over a specific key range.

Control IDs

Two MIDI controllers (status BN) can be routed to any of the destinations available in the analog modulation matrix. This page defines which MIDI controllers become "Controller 1" and "Controller 2" inside the modulation matrix. For example, on the factory disks, Controller 1 is set to 1, which is the modulation wheel ID number. Controller 2 is generally left undefined. These settings hold for all presets on the disk. However, using the modulation matrix each preset can route Controller 1 or 2 quite differently.

Here is a list of ID numbers for some popular controllers:

ID	Controller
I--	Modulation wheel or lever
2	Breath controller
4	Foot controller
6	Portamento
7	Main volume (in addition to normal effect)
8	Balance
10	Pan
11	Expression controller
16-19	General purpose 1 - 4

"

While intended for use with continuous controllers (numbered through 63), switch controllers (64-121) can also be used. In this case, off equals value 0 and on equals value 127.

Recognition of all controllers can be disabled under EN/DIS (see next).

5-3 ENABLE / DISABLE OPTIONS

Page 93 allows you to enable or disable the Prophet-3000s response to:

Preset Selections	CN pp
Pitch Wheel	EN ls ms
Pressure	
Channel	DN vv
Poly	AN kk pp (interpreted as Channel pressure)
Controllers	BN cc vv

On the factory disks, all of these options are enabled. If you are not using these functions, disable them to obtain a slight increase in the Prophet-3000's MIDI response time.

5-4 MODE 4 p92

This page provides a table which allows you to assign any preset to any MIDI channel (or ignore any channel), and allocate a number of voices for each. This allows complete flexibility for multi-timbral sequencing or special controllers.

Here is an example of what Mode 4/Multi mode can do. For clarity, the example shows preset names, although these don't appear on the display:

Channel	On/Off	Preset	Voices
1	On	1 Bass	1-2
2	On	2 Slap	1-2
3	On	42 ClosedHat	3
4	On	43 OpenHat	3
5	On	50 Snare	4
6	On	18 Ster FX	5-8
7	Off		
...			
16	Off		

With both bass sounds assigned to the same voices, you can easily switch between them by just switching channels (which might be done by channelling a controller "zone"). The "hat trick" does a similar thing, except by using one voice you ensure that one sound does cut off the other. Any stereo samples must use pairs 1/2, 3/4, 5/6, 7/8. So the effect assigned to channel 6 is actually duophonic (two voices stereo equals four voices assigned).

SEQUENTIAL Prophet-3000 **Stereo Sampling System** DATE: MARCH, 1988
MODEL 3000, Level 2.0 MIDI IMPLEMENTATION CHART

Function		Transmitted	Recognized	Remarks
Basic	Default	1	1	
Channel	Changed	1 - 16	1-16	Disk-programmed.
	Default	x	Mode 1	Disk-programmed.
Mode	Messages	x	Mode 1, 3, 4	
	Altered	**********	x	
Note		x	O-127	
Number	True voice	**********	O-127	
Velocity	Note On	x	o	Programmed via modulation
	Note Off	x	o	matrix.
Pres-	Key's	x	o	"
sure	Ch's	x	o	
Pitch Bender		x	o	
Control Change				
All continuous and switch controllers.		x	o	Two MIDI controllers definable as Controller 1 or 2. These are routed via the modulation matrix.
Prog		o O-127	o O-127	
Change	True #	********	1-128	
System Exclusive		x	x	
System	: Song Pos	x	x	
	: Song Sel	x	x	
Common	: Tune	x	x	
System	: Clock	x	x	
Real Time:	Commands	x	x	
Aux	: Local On/Off	x	x	
	: All Notes Off	x	o	
Mes-	: Active Sense	x	x	
sages	: Reset	x	x	

Notes

In Mode 4, presets are assignable to channels and specific voices.

Mode 1 : Omni On, Poly Mode 2 : Omni On, Mono ********=
Mode 3 : Omni Off, Poly Mode 4 : Omni Off, Mono ********=

0 : Yes
x : No

CHAPTER 6

PRESETS AND KEYBOARD MODES

Overview

This chapter discusses the two types of presets which are available on the Prophet-3000, and the first level of editing: arranging, layering, and crossfading presets.

Table 6-1 (next page) outlines the editing functions discussed in this chapter. Table 6-2 focuses on the options available under user-defined preset combination.

Two Types of Presets

To program the Prophet-3000 you have to know only one nuance: the Prophet-3000 has two kinds of presets: low-level single-mode presets, and high-level combination presets.

A single-mode preset is what you get after recording samples. Single-mode presets can contain as few as one sample, or an entire keyboard full of multi-sampled or multi-timbral recordings. You can edit the analog parameters of single-mode presets either as a whole, or by individual sample ranges. The individual ranges can also be processed digitally (trimming, looping, scaling, etc.), Loading or recording single-mode presets generally uses a significant amount of sound RAM (unless the samples are already in memory).

In contrast, combination presets have no sound of their own. Instead, combination presets "point to" single-mode presets which do have sounds, and organize them in various ways. Because combination presets don't have their own sounds, you can't edit the sound of any of them -- and the control system prevents you from trying. To edit the sound of a combination preset, you would edit the individual single-mode presets comprising the combination. Because only a few parameters change, creating new combination presets doesn't use very much memory.

Since the two types of presets have completely different makeups, it stands to reason that editing them involves two completely different techniques. First we'll discuss what you can do to a single preset, then discuss combinations.

TABLE 6-1
PRESET AND MODE MENUS

EDIT p101 (if single-mode)
- Preset/Mode
- Fine Tune
- Transpose
- Direction

CREATE p 102
- Split Mode
  - Split At
  - Left/Right presets
  - Left/Right Transpose

CREATE p103
- Velocity Switch
  - Threshold
  - Low/High presets

CREATE p 104
- Layer
  - A/B presets
  - A/B Levels
  - Detune B

CREATE p105
- Crossf ade
  - Controller name
  - Low/High presets

CREATE p 106
- User-Defined (see Table 6-2)

DEL (if not single mode)
SOUND (see Chapter 9)
ADD-REC (see Chapter 11)
NAME
A-440
(EXIT)

The CREATE page changes with the user's choice of mode.

6-1 EDITING SINGLE-MODE PRESETS

Single-mode presets are the sonic backbone of the Prophet-3000. When you go to the main editing page, the first piece of info you see is the mode. Be aware that the appearance of this page changes, depending on whether the mode is SINGLE, or any of the combinations.

- From the main menu, press EDIT.

  The EDIT page (p101) shows the current preset name, and its mode. You can change the current preset at any time. But the mode is a report only. You can't change the mode here.

- Select a preset which is in SINGLE Mode.

  Fine-tune, transposition, and sample playback direction can then be programmed for each single-mode preset, as follows.

Fine-Tune

This preset offset adds to any master tune offset which may be in effect. Range is +/- 49 cents. The A-440 reference is available.

To adjust the tuning of individual samples, you need to first go to the MAP page. (Mapping is discussed in Chapter 13.)

Transpose

This parameter moves this preset (only) by semitones. Range is +/- 127 steps. This is very useful for positioning presets within specific key number ranges for specific controllers. However, you do not want to exert so much transposition that you exceed the range of your mapped samples. A-440 is available.

Direction

FORWARD or BACKWARD
Switches playback direction for all samples in the preset.

FORWARD is normal sample playback.

BACKWARD plays the reverse of the current playback direction for each range (to allow for multi-timbral maps). In other words, a range that is already set to "backward," in a backward preset, plays forward.

> Note: Switching to BACKWARD switches off all loops in the preset. Switching back to FORWARD does not switch the loops back on. This action (BACK-FOR) can therefore be used to

quickly switch off all loops in a preset.

Renumbering or Naming Presets

All new presets are designated "UNNAMED". Suppose you have recorded preset 1 UNNAMED, and you want to give it a new number and or name:

- From the main menu, press EDIT.
- Select the preset to be edited.
- Press NAME.
- With the cursor on the number field, dial in the next available numbers.

  If a number that you want to use is already used, there is a simple remedy. To free up the number, simply renumber the preset which is already there.

- Cursor to the right, through the name characters, and adjust them using the dial or up/down cursors.
- When done naming, EXIT.

Sound Editing

The SOUND switch is the path into the digital and analog processing parameters. This switch only appears when the current preset is in single mode. Sound editing is discussed in chapters 9, 10, and 13. For now, let's move on to discuss preset combination modes.

6-2 CREATING AND EDITING COMBINATION PRESETS

Let's assume that you have loaded the ROCK ENSEMBLE disk set. Suppose that you want to combine two single-mode presets, say, 1 ORGAN and 6 TENOR SAX. This is a good example **because** both are instrumental presets (not percussion), and their timbres are easily distinguished.

- On the EDIT page (p101), press CREATE.

  CREATE makes a new high-level, combination preset, which by default is always numbered with the lowest unused preset number.

- The cursor defaults to the Mode field, which is SPLIT. Dial "LAYER".
- Cursor to the preset A line and dial in one of the presets, such as 1 ORGAN.

  Cursor to the preset B line and dial in the other preset, 6 TENOR SAX.
- Play the preset from the keyboard, and adjust the preset levels and detuning of the B preset (sax) as desired.

  These adjustments are part of the current combination preset. They do not affect the original single-mode presets.
- To try one of the other combinations, just change the mode. I ORGAN and 6 TENOR SAX will be split or cross-faded, as you please.
- When done, exit.

  This is the basic procedure for creating any combination preset.

Modes

Here are some details on each of the combination modes:

SPLIT
One preset calls up presets designated Left and Right, and can transpose them. Transposing is very handy for centering the most played ranges in the available keyboard octaves. Up to eight keys can be played. If the voice allocation mode is dynamic (as set on the analog output page), then you can play up to eight keys per side, instead of four. This mode only controls which side of the keyboard plays which preset. It is a separate, analog operation to pan all the voices of a preset to the left or right so that they only come out of one side of the stereo mix.

VELOCITY SWITCH
One preset calls presets designated Low and High, which respond below and above the velocity set by the Threshold field. Up to eight keys are playable.

LAYER
One preset layers two presets designated A and B. Their Levels default to 50 but are adjustable from 1 - 99. The B preset can be detuned -49 - +49 cents. This is a "four-key" mode.

CROSSFADE
This is a layer mode, except that the continuous mixture between the Low and High presets is controlled by modulators such as the

keyboard, velocity, pressure, and MIDI controllers 1 and 2 (as defined on the MIDI MASTER page). With no controller depth, the Low preset plays full. With medium depth there is an equal balance. And with full Depth, the High preset plays full. This also, is a "four-key" mode.

6-3 USER-DEFINED COMBINATIONS

The modes just mentioned are good for basic keyboard performance applications. But we couldn't have slept at night without providing the Prophet-3000 with a wide open, general purpose way of mapping presets across several performance dimensions. USER-DEFINED combination mode allows you to layer up to eight presets (the voice limit) and define the range of each, so that any combination of doubling and splitting is possible, with the exact layering dependent on the note number.

But USER-DEFINED mode also allows you to set velocity ranges for each preset, so that discrete or overlapping velocity layers can be controlled by touch.

Finally, within USER mode, each preset can receive its own level adjustment, transposition, and detuning.

Table 6-2 (next page) shows the menu system for user-defined combination mode.

Adding and Removing Presets

USER mode is initialized with the two presets set for the other combinations. They become the first two presets in the USER preset list. The low and high keys of their ranges default to the extremes CO and G9.

- To add more presets, first press VIEW.

  VIEW shows the keyboard model with two horizontal bars over it. These bars indicate that the two presets range across the entire keyboard. The first bar corresponds to the lowest preset number, on down.

- To add a preset to the USER list, press ADD. After selecting the desired addition, press GO.

- REMOVE operates similarly.

TABLE 6-2
USER-DEFINED COMBINATION MODE

CREATE p106
User-Defined
Preset list
Low/High Key
VIEW p107
(LIST)

EDIT-MAP p 108
Low/High Key
Low/High Velocity
Level/Transpose/Detune
(VIEW)
(LIST)
(ADD)
(REMOVE)
(EXIT)

ADD p109
(VIEW)
(LIST)
(EDIT-MAP)
GO
(REMOVE)
(EXIT)

REMOVE p 110
(VIEW)
(LIST)
(EDIT-MAP)
(ADD)
GO
(EXIT)

(EXIT)
(EXIT)

When you have assembled all of the presets that you want in this combination, select EDIT-MAP and set the following fields for each preset:

Low/High Key
Low/High Velocity
Level
Transpose
Detune

As a simple exercise, use this mode to create eight layers of one preset, with each at a differen-t level, transpose, and detune. Then adjust key ranges and velocities, to begin mixing up the layering with different notes and attacks. While the voice limit of eight is the vertical maximum, you can combine up to 64 presets horizontally.

CHAPTER 7

DISK OPERATIONS

Overview

This chapter contains instructions for operating the disk system. The next chapter summarizes our best recommendations for day-to-day living with floppy disks.

> Note: The Prophet-3000 contains a quad-density drive which requires type 2HD disks. These can be easily identified by the "HD" logo, and additional square hole opposite of the write-protect hole. Type 2DD will not work.

Table 7-1 (next page) outlines the organization of the disk system.

7-1 LOADING THE OPERATING SYSTEM

The Prophet 3000 is a general-purpose system. So, unlike its predecessors, it contains very little ROM -- only enough to load its large RAM.

The system software is automatically loaded from disk the first time power is switched on. The version number is displayed momentarily. To save time, after the operating system has loaded once, it doesn't load again (unless power has been switched off).

In a multi-disk set, only the first disk has the operating system. Disks in multi-disk sets must be loaded in specified order.

If there is any disk error while loading the operating system, loading aborts. Try a different disk.

If you load a disk which contains a different operating system than the one currently in the Prophet-3000, it tells you and lets you choose the desired system.

TABLE 7-1
DISK MENUS

DISK p10
- All Presets
- Preset List
- One Preset
- Operating System

LOAD p15
- ABORT

SAVE p63
- ANALOG
- CONTINUE
- ABORT

VERIFY p45
- ABORT

NAME p52
- YES
- NO

FORMAT p54
- CONTINUE
- ABORT

(EXIT)

7-2 LOADING PRESETS

From PRESET/MAIN p5 or p6, press DISK. The disk menu can also be reached from several other strategic points. The disk menu is a matrixed arrangement which allows you to use the dial to select the type of data to be transferred, and then select the actual operation with a function switch. The various combinations are explained below.

The disk drive sub-system is rather smart. It corrects some types of floppy disk media errors. It always knows when you insert or remove a disk, and what the disk name is. If you are loading a multi-disk set, it provides the necessary prompts to ensure correct loading.

Load All Presets

If you have loaded any of the factory disks, then you are familiar with this option by now.

The first disk in a set contains in addition to the operating system, preset data and analog parameters, and about 20% of all the sample data. The second disk is all sound data -- the remaining 80% of full memory.

Loading Analog Parameters

The LOAD confirmation screen provides a LOAD ANALOG choice for this first disk. This is handy because it saves time when you want to restore edited parameters from the first disk and don't need to re-load the sample data (because you haven't edited it).

Disk Errors

Disks being what they are (fallible material), it is always possible (and basically inevitable) that loading errors will occur.

If a disk error occurs, you are notified of this by the fact that loading stops, and the display prompts you to press a function switch to continue loading data. Press this switch as often as required to complete the loading. If you have to intervene often, this means that the disk has been magnetically or physically damaged. Some of the sounds may now play with pops, clicks, or scratches. But the important ones could be fine.

If the disk is really bad, it may just abort and refuse to continue.

Load Preset List

Selecting this function and pressing LOAD gets the directory of the current disk. This directory is held in its own buffer and does not affect the list of internal presets.

Scroll through the displayed directory using the dial. For convenience, a LOAD ONE option is provided here. When done, press EXIT, which returns you to the disk menu.

Load One Preset

Load One Preset is an extremely useful function as it allows you to build up entirely new disks by taking individual presets from separate disks. Also of prime importance, when editing, this function allows you to quickly restore the original version of a preset that you have accidentally mangled.

All presets load into the same preset number which they already are on disk. For example, preset 12 loads into preset 12. This means that if there is already an existing preset 12, for example, you may want to renumber it before attempting the load.

When attempting to load one preset, the Prophet-3000 checks the source's size to be sure that it will fit, before allowing you to erase an existing preset in the "target" location. Error messages will appear if there is not enough memory available for the complete source preset to fit. (If necessary, go to the MEMORY area and make room . -- see Chapter 12.)

7-3 FORMATTING DISKS

The first step after obtaining disks is to format them. All new disks must be formatted by the Prophet-3000 before they can be used for saving. Formatting erases all previous contents.

Note: Use only quality 2HD disks.

To format a disk:

- Check that the disk to be formatted is not write-protected. That is, the protection window should be closed.
- Insert the disk to be formatted into the drive.
- Press FORMAT.

  As a precaution, the system will tell you if the disk has anything on it at all -- even unrecognized data.
- Press CONTINUE.

A formatted disk is totally blank and is given the label "0 of 0". When you use a blank disk to save all presets, the current operating system will first be saved and verified automatically.

7-4 SAVING THE OPERATING SYSTEM

Since the current operating system is automatically saved whenever it is needed, you don't need to worry about it. This option will prove most handy for updating older system disks.

Don't bother to save the operating system to any disk which you intend to use as a "2 of 2", since it will just get recorded over, anyway.

7-5 SAVING PRESETS

Disks must be formatted before they can be used for saving presets. When memory is over 20% full, two disks are needed.

Saving All Presets

- Check that the disk is not write-protected (window closed).
- Select ALL PRESETS, and press SAVE.
- If the current disk is not blank, you will be asked to confirm the operation.
- If a second disk is required, you'll be prompted.

  Note that, for convenience, you can use any formatted disk for saving as a "2 of 2". If the disk is unexpected, the system tells you, but allows you to continue anyway. If the disk contains the operating system, this will simply be written over with sound data.

- When saving is done, the disk page reappears.

Saving System Options

Saving all presets also saves all of the current "system-level" options, such as Master Tune, and the MIDI configuration. Specifically, the system parameters saved to disk with all presets are:

Master Tuning
Complete MIDI configuration (MASTER, EN/DIS, MODE 4)
Recording Setup
Footswitch
Trigger

Saving Analog Parameters

To save time when digital data has not been edited, it is possible to save analog parameters alone. Start to save all presets. When you attempt to save over a disk, you are warned. On this warning page there is an ANALOG option. Press it!

7-6 VERIFICATION

VERIFY is left as an option, to allow you to judge for yourself when you need to use it. However, you must realize that after saving, the only way to be sure that the data has been saved to disk correctly is to verify it by reading the disk and comparing it to RAM. This is what VERIFY does.

Verify All Presets

If the disk verifies, normal operation is resumed. Otherwise an error message will appear. If a disk fails to verify, try saving to a different disk and verifying that disk. If a disk fails to verify repeatedly, it is probably defective. (As these floppies are not cheap, it pays to buy 100% certified, guaranteed disks, and keep your receipts. The author's experience with 2HDs is that a box of ten usually contains one bad disk, and often two.)

Verification can also be used to prove that memory is identical to any disk, for example, to see if RAM and a disk have the same operating system.

7-7 NAMING THE DISK

After formatting a disk, take the opportunity to name it (up to 20 characters), and perhaps in so doing keep yourself from accidentally erasing it. To select the character position, use L/R. To change the character, use the dial or U/D.

CHAPTER 8

DISK CULTURE

Overview

Having covered disk operations, we review the basic guidelines for living with disks.

The Reason for Disks

The Prophet-3000 has two kinds of internal semiconductor memory. First, permanent read-only memory (ROM) contains the "boot" program which loads the operating system into RAM. (For the record, this name comes from the model of the system "picking itself up by its own bootstraps.")

The second type, random access memory (RAM), is used for the system and preset memory. Unlike the boot program, RAM is volatile. This means that the contents of the memory are lost when power is switched off. The reason for disks, then, is permanent and convenient storage of RAM. Of course because RAM is so easily reprogrammed, disks also give you the ability to easily update the system and to build up vast libraries of sounds.

When you consider the power and flexibility they give you, disks are a great bargain--at any price being charged today. Ultimately, the disk system really makes possible whatever you will achieve with the Prophet-3000. Be sure to keep plenty of disks on hand, so you can quickly record inspirations as they occur, as well as record versions of your ongoing work which might serve you in the future. Take the time to back-up, protect, and keep track of your disks according to whatever system works for you.

Precautions

Besides the large capacity, obvious compactness, and mechanical write protection, this disk system has the significant advantage of housing the disks in protective cartridges. This is an immense improvement on the open, $5\frac{1}{4}$-inch format, providing much greater portability and reliability.

This technical advance does not relieve you of responsibility for protecting your investment of time through correct handling and storage practices, thoughtful labelling and write protection, and systematic backup procedures.

Until you get very familiar with the Prophet-3000, you should act as if a disaster can always occur. At the very least, it is always possible for there to be a power dropout, and any such occurence will most likely erase the sound memory. You will lose any work which you did not specifically save to disk before the failure. Taking the time for proper backup is an essential part of operating all computer-based systems. Especially at first, you will rarely be sorry. After you have gained more understanding of the instrument and confidence in your operations and the power source, you will have a better idea of how much saving (and verification) is prudent.

Disk Drive Maintenance

Almost unbelievably, the best maintenance is no maintenance. Leave the drive alone. Instead of cleaning the drive or head regularly, use good practices to avoid getting it dirty in the first place. Dust is very bad for disk drive heads. Vacuum the studio periodically to minimize dust. The drive has its own door, but it doesn't hurt to cover the instrument when it it is not in use (as long as power is not on!). You can vacuum the drive itself, but only bring the hose head just up to the drive slot. Never put anything in the drive besides a properly-oriented head protector or disk.

Head cleaners should be used sparingly, and only after receiving some evidence that you need them (such as erratic disk operation, or lots of loading errors). Otherwise, they will reduce head life due to their abrasive action.

Disk Selection and Quality

The expected lifetime of these disks far exceeds the age of the marketplace, so virtually no, solid evidence of performance is available. This makes it very difficult to recommend disk brands. Comparative reviews of disk physical qualities appear from time to time in computer magazines. The most important qualities are perhaps flux density and retentivity, but uniformity, and evenness of coating are important for minimizing head wear. However, overall longevity and durability depends as much on material and workmanship as it does on magnetic properties. You may want this data ten years from now.

In other words, disks are precision devices where every part and aspect is critical. The question basically comes down to this: Is it worth a dollar or two (per box) to risk damaging your drive and losing your sounds or sequences by using low-grade, "no-name" disks? It is true that often the differences between disks are only in the packaging, as there are many more labels than true manufacturers.

But the problem is that there is at least an equal chance that "no-name" disks will be quality rejects from a name manufacturer, as there is that they will be a genuine bargain.

What is often forgotten is that reliable suppliers and dealers are at least as important as the manufacturer or the label. There is nothing on a package to tell you a box hasn't sat baking in a warehouse or store room for a month. This suggests buying at higher-volume retailers.

Handling

The disk is protected by the cartridge, but it is not invulnerable. Treat it like an audio master.

If you want to keep your disk drive and record/play head clean (and of course you do), you have to keep the disk cartridges and disks you put in it clean. This means keeping your hands clean, and being careful where you set disks. You may be performing thousands of disk operations, so for best performance strictly minimize contact with dirt, dust, smoke, ash, liquids, foods, magnetic fields, temperature extremes, and direct sunlight. When disks are not in immediate use, box and cover them. They should be stored vertically.

> Note: It is not a good idea to leave disks in the drive overnight, for example. This is because doing so leaves the shutter open, allowing dust to enter. Eject the disk so that the built-in door can cover the drive.

The recommended operation and long-term storage temperature range for these disks is a rated 50 - 140 F (10 - 60 C). For temporary storage for transportation, do not expose below -40 F (8 C).

Do not routinely slide open the protective shutter to play with the disk inside nor try to clean the disk itself. If the shutter has been damaged or is missing, or if there is any blemish on the disk surface, discard the disk, as any contamination of the disk surface may damage the recording head.

There are correct ways to label, too. Always put the correct-size or smaller label within the location outlined on both sides of the disk. Don't layer labels: use only one thickness on a disk or you may cause misalignment of the cartridge in the drive, or cause the cartridge to stick in the drive. Write on labels with soft felt pen. Don't use pencil, and don't use erasers (because they leave particles).

Stray Magnetism

There is a lot of unnecessary panic about stray magnetism. The flux density at the disk recording head is very powerful and very localized. It does not even penetrate half the thickness of the disk material itself--which is why you can have double-sided disks. It is

highly unlikely that your disks will ever see this amount of concentrated magnetic power outside of the drive.

On the other hand, anything can happen, and it only takes one altered bit in just the right place to throw everything off. The following have been mentioned as possible sources of significant magnetic disruptions:

Power transformers (basically, all electronic equipment)
Loudspeakers (magnets)
Tape decks (the erase head)
Telephones (the earpiece and bell)
Power cables
Tape demagnetizers
Televisions and CRTs
Airline X-ray equipment

You will have to decide to what extent these items can or need to be avoided. It basically depends on your level of paranoia. For example, if you are really that concerned about your speaker cabinet, or the transformer in your power amp, try passing an extra copy of a disk directly over it and see what happens when you load it. Try leaving a spare next to your CRT for a week. Odds are there will be no change or additional degradation. (Knowing this may serve as a stress relief.)

Write Protection

Looking at the top of the disk, the square hole at the lower left is the write protection window. Turning the disk over, you find a sliding tab which is used to close and open the window. This slider makes it easy to protect and unprotect disks. No more stickers to bother with.

To enable recording on the disk, close the protection window by pushing the slider up.

To protect the disk from recording, open the protection window by pushing the slider down.

It may help to remember that this system works exactly like audio cassettes: opening the window protects the recording. (You may need to use a pen-point to move the slider.)

Backup and Verification

If you are going to be able to go back to any stage of work, you must save data along the way. You don't have to have final sounds before saving. Save anything you have done which might not be easy to replace.

It is good practice to use at least two backups, alternately saving to one then to the other. This protects you from failure of a backup (or loss of attention to what **your** are saving over).

> Note: The importance of following a Save with a Verify operation cannot be overemphasized. It is the only way to ensure that what you have saved to floppy will load without error. Previous successful saves to a disk do not guarantee that future saves will be error-free. A single bad bit caused by a **dust** speck or spot defect on the disk surface can render a stored sound unusable. There is no way to detect such errors during the save process. To be sure they did not occur, you must verify.

In the excitement of creation it is often difficult to take the time to properly identify, document, and back-up your disks, but this type of organization will save you much more time overall and is very important if you are going to make full **use** of the Prophet-3000. Constantly trying to think of names and descriptions is often distracting, so you might just note the date and possibly the approximate time, before getting on with what you were doing. Instead of writing on the disks all the time and constantly replacing labels, it is usually more practical to give each disk a code number, and update the disk descriptions on a separate card or definition form of your own design. This will really help keep things straight, and enable you to keep track of more sounds without accidentally erasing ones you had wanted to keep.

Maintain a set of your most important disks in a safe place, away from your studio, possibly even in a different county. If something happens to your Prophet-3000, you can at least in principle replace it. **But** if your custom disk collection is stolen or burns up in a fire--now that really hurts.

On at least a yearly basis, it is a good idea to check that your important backups load with minimal errors.

Loading Errors

In a complete disk loading, several million bits are transferred. With the number of disk operations that you will be performing, it is statistically inevitable that an occasional bit will be lost. When data has actually been lost, loading is stopped and the error message appears. Since one or even a few word errors on a disk may be inaudible, or may not affect all samples, you are allowed to continue loading. Loading will proceed, until another "data lost" error is encountered or the load is completed. Even if there are a lot of errors (indicating that the disk was damaged), you can complete the load. This makes it possible to at least load whatever data remains on a problem disk. Some samples may have "clicks" in them, which are caused by the missing sample data. **But,** sometimes this is better than nothing.

It is normal for error-detection to occur periodically. But if the error-detection pattern of a disk suddenly becomes erratic, this indicates that the disk has degraded. If you have reason to think the degradation may have been caused only from magnetic interference, after copying the disk (for safety), reformat it and see if it then saves, verifies, and reloads. Otherwise, the disk may be suffering from a physical defect and should not be used more than necessary to determine that it is bad.

CHAPTER 9

ANALOG PROCESSING

Overview

This chapter discusses the analog "macro" processing functions and supporting parameters. The macros can be thought of as presets whose scope are limited to each of the three main modules: filter, amplifier and modulation. Individual macros can be edited at either the preset or sample level. So, we must begin by discussing how to choose between editing complete presets or individual sample ranges.

Table 9-l (next page) outlines the analog system.

9-l BASIC SOUND EDITING

Entering Sound Edit Mode

Recall from the previous chapter that only single-mode presets contain sounds which can be edited. Therefore, to do any analog editing:

- From the main menu, press EDIT.
- Select any preset which is in SINGLE mode, as shown on EDIT p101.
- Press SOUND.

  SOUND only appears as an option when you have selected a single-level preset.

  You are now at EDIT SOUND p112. Notice that at this point you are only allowed to select presets which are in SINGLE mode. In this mode all combination presets are ignored, because it only makes sense to edit the sound of single-mode presets. To edit preset combinations, you must EXIT out to the sound edit page, and use CREATE.

TABLE 9-1
ANALOG MENUS

EDIT p101 (single mode)

SOUND p112

ANALOG p113 (either all or single ranges)
Preset
Range
Filter (detail) p 114
Cutoff
Resonance
(AMP)
(MOD)
(ENV-1)
Amp Envelope (detail) p 115
Levels 0 - 3
Rates 1 - 4A
(FILT)
(MOD)
(ENV-1)
Modulation (detail) p 116
Source (nine sources)
Source Amount
Destination (sixteen destinations)
Route
ENVELOPE 1 p117
(same as Amp Envelope)
LFO-1 p119
Rate
Shape
Delay
Sync
Fade-In
Fade-In destination
LFO-2 p120
DETAIL
COPY p122
Destination Preset
Module
Source preset
PLAY
GO
(EXIT)
OUTPUT p121
Level
Initial Pan

(EXIT) **

How to Edit the Analog Parameters of a Preset

Let's assume that you have loaded the factory piano disk set. 1 GRAND PIANO is current. You have pressed EDIT, then SOUND, to get to EDIT SOUND p112.

The Range field says "ALL." On the right of the same line is a report of the total sample time this preset uses.

The display shows a keyboard with multiple bars above it. These bars represent each of the sample ranges which have been recorded into this preset.

On the bottom line, just the ANALOG editing switch appears. This is because only the analog processing section allows you to simultaneously edit all ranges in a preset.

So, press ANALOG and you will enter the analog section. We will get to the nut and bolts of analog editing in a moment. **But,** before proceeding, we must discuss the very important Range field, if for no other reason than that it might be edited by accident and you will need to know how to set it for the desired result.

How to Select Ranges for Individual Editing

A preset can contain from 1 through 64 ranges ("multi-samples," if you prefer). The Range field determines whether you edit an entire preset (all ranges), or each of the individual sample ranges. With the cursor on the Range field, adjust the dial, or play the keyboard. Ranges are numbered in the order they were recorded or inserted. The dial selects ranges consecutively. The keyboard selects the range played by the last key.

As mentioned, in the case of the analog system, you can edit parameters for all ranges or for individual ranges. But for digital processing, you can't process all ranges. For example, it makes sense to adjust the cutoff of an entire preset or of any range, but it doesn't make sense to talk about looping entire presets; you only loop individual ranges.

So, the main difference between setting a range of ALL and setting any individual range is that only when an individual range is selected can you enter the digital processing menus. When an individual range is selected the EDIT SOUND page number changes from 112 to 133. The Range field shows the number of the range, the root key, sampling rate, and sample time -- all handy information. The keyboard map shows only the current range. Also, on the bottom line, SAMPLE, MAP, and DSP switches are added as entry paths into the digital or individual range editing functions.

In summary, remember that when you are in the ANALOG editing section, you can switch between ALL and individual ranges at any

time. So there is some room for confusion here if you don't keep track of which range you are working on.

9-2 MACRO-EDITING

Returning to our example, we are on page 112, the current preset is 1 GRAND PIANO and the Range is ALL or as desired.

- Press ANALOG.

  You now see the MACRO page, which shows the current macros for the Filter, Amplifier Envelope, and Modulation modules.

- To see how the macro system works, just play your keyboard (or whatever) while switching among the available macros, or use the PLAY switch (hit it twice).

Filter Macros

The filter macro sets a basic tone. You can select bypass operation (fully open), bright, warm or dark tone, with no or medium resonance.

Amp Envelope Macro

You can quickly hear what any preset sounds like with different instrumental envelopes. "Default" is the basic open envelope already given by post-record processing. Above this, all of the standard instrument envelopes are available: Piano, Organ, Brass, String, Clav, Drum, plus an ascending ramp, on, and off (which can serve as a programmable mute).

Remember that this macro can only do its work if the sample contains enough sound material in the first place. For example, if the sample has a slow attack, then the percussive macros won't be very effective.

Modulation Macro

The modulation macros implement some useful and interesting expressive effects, from simple velocity implementation to pitch-modulated panning or MIDI-controlled filtering.

How to Edit the Macros in Detail

The macros are a great way to quickly try different processing ideas. For the hard-core sound editor, they also serve to initialize all of the parameters in the module to useful combinations which serve as starting points for further, custom editing.

To see what specific parameters comprise each macro, select one of the three macro module lines (filter, amp, mod) and press DETAIL. This will show the current parameter values which comprise the macros. For example, in the case of the amplifier envelope, you'll see a graph of the current envelope shape. For the modulation section, DETAIL brings you right to the modulation matrix, where you can select the sources and examine their destination routings.

When you edit a macro at the parameter level, the macro description for that module becomes "USER".

> Note: If you do some custom editing and like a sound, save it. Or at least "save analog." When you go back to the macro page, be aware that if you change the macro from "User" to any of the other options, then you will clear all of your user settings.

The specific analog paramters are described below.

Copying

This function allows you to copy by module any analog parameters from ALL or any range of one preset, to all ranges of another preset. You can duplicate any user macro which you have created. Examples of use would be to initialize all presets to a specific modulation configuration of your choice, or to impose a uniform envelope over different percussion ranges.

The modules selectable are filter, amplifier envelope, envelope 1, modulation, LFO 1 or 2, ALL, or KEYBOARD. This last choice allows you to copy only the KEYBOARD modulation routing, so that you don't have to specifically patch keyboard cutoff tracking in each preset, for example.

9-3 ANALOG PARAMETERS

To access any of the following parameters, first select a module then press DETAIL.

Filter p114

Cutoff 0 - 99
Our old friend, the basic tone control for subtractive synthesis.

Resonance 0 - 99
Filter character control.

Note that cutoff pitch tracking is a modulation function (keyboard to cutoff). That must be specifically patched for each preset. Of course, it is included in all of the modulation macros.

Amp Envelope p115

Graphic editing of this envelope (and Envelope 1) is provided. The graph changes shape in real-time as you vary the level and rate parameters. There are four linear segments, plus an exponential release (and alternate release engaged by local footswitch or MIDI pedal).

Modulation p116

The modulation system is a general-purpose matrix allowing extensive expressive options.

Physical or electrical modulation sources
KEYBOARD (PITCH)
VELOCITY
PRESSURE
ENV 1
LFO 1
LFO 2
MIDI CTRL 1 (defined under MIDI MASTER p90)
MIDI CTRL 2 "
PITCH WHEEL

Source Amount +/- 99
For each source. LFO 1, 2 are 0 - 99.

For the PITCH wheel, amount is in tones: semi, whole, minor 3rd, ... through a 5th.

Parameter Destinations
PITCH
'CUTOFF
RESONANCE
PAN
AMP ENV RATE
AMP ENV DEPTH
Routing velocity to this destination gives your basic keyboard dynamic. By using less than maximum velocity sensitivity, you can achieve a form of dynamic compression which can actually make mixing easier.
ENV 1 RATE

ENV 1 DEPTH
LFO 1 RATE
LFO 1 AMOUNT
LFO 2 RATE
LFO 2 AMOUNT
SAMPLE START POINT
Only velocity can control this destination.

Route OFF/ON
Opens or closes the modulation path defined by the source and destination.

output p121

Because it is so simple, this module has no macros. **But** it does have its own access switch on the macro page.

DYNAMIC, or voices 1-8
This field only appears when the range is not ALL.

The setting here depends on your application. For standard, stereo keyboard work, the DYNAMIC option is generally preferred. With dynamic allocation, each new note steals a voice from the oldest note. This makes the most efficient use of the voices and produces a full stereo effect.

The disadvantage of dynamic allocation is that it makes it impossible to predict which voice will play a given note. (Well, it's possible, but not worth it.) **But** this only becomes a problem if you require external processing of the invidual voice outputs.

In multi-timbral applications it may be more important to control the voice output routings for individual equalization and processing of each sample range as it is being sequenced. Then the choice is to assign presets to specific voices. The drawback here is that if a note in a certain preset can only play a specific voice, then it may cut off the note that preceeds it. This will occur even though other voices may be lying around unused. Also, if simultaneously-playing presets are assigned to the same voice, then these presets won't really be allowed to play simultaneously, because of excessive voice stealing. So, for best results, this mode of operation may require a bit of deliberation. To prevent glitches in multi-output work, the bottom line is that you can't send a new note until the old one has completely released. The maximum playing rate will therefore be a function of your release times.

Level O-99
If some presets or ranges seem to be too quiet, or not there, remember that each preset can have its own level, and each sample range within each preset can have its own level, and then there are

for some of the preset combination modes even more level adjustments.

Initial Pan L-R
This positions the monophonic range within the stereo field, from which it can be moved via modulation. For a stereophonic preset, this parameter acts as a balance adjustment.

When a preset pan is modulated fully to one side, it stays there until modulation "pulls it back" -- the voice doesn't wrap around.

This parameter has no relevance to the individual outputs.

CHAPTER 10

DIGITAL PROCESSING

Overview

This chapter covers the digital real-time and non-real time functions. These types of edits do not apply to presets, only to individual sample range recordings.

Remember that the digital functions can only be entered when 1) the current preset is in single mode, and 2) the current preset range is not ALL. Furthermore, unlike the analog system, once you have selected a range and entered digital processing mode, you can't change the range. Instead, you must exit out to the EDIT SOUND page to change the range. This "lock-out" is intentional to protect your sample length and loop point settings.

Table 10-1 (next page) outlines the menus discussed in this chapter.

10-1 SAMPLE START AND END TRIMMING

Let's assume 1 GRAND PIANO is current. To get to this page from the main **menu:**

- Press EDIT.

  Notice that this preset is in SINGLE mode.

- Press SOUND.

- Pick the desired range, using either the dial or the keyboard (controller).

Viewing A Sample

- Press SAMPLE.

  You now see the waveform display, with the start point located on the line just above the second switch.

TABLE 10-1
DIGITAL MENUS

EDIT p101 (single-mode preset selected)

SOUND p133 (Select to edit one range)
Range/Root

SAMPLE START/END p134 (single range only)
Horizontal/Vertical expansion
Vertical Offset
Time
Start/End
PLAY
AUTO/WORD/1K/5K

ZOOM p135
PLAY
H-IN
H-OUT
V-IN
V-OUT
(EXIT)

SLOOP p136
Start/End
PLAY
AUTO/WORD/1K/5K
(ZOOM)
(RLOOP)

PROCESS p 142
X-FADE p 145
Mode
Length
Crossfade Type
Start/End
(EXIT)

RLOOP p138 (similar to SLOOP)
(EXIT)
MAP (see Chapter 13)
ANALOG (see Chapter 9)
DSP
MEMORY (see Chapter 12)
(EXIT)
SCALE
Amount
PLAY
WORD/AUTO
ZOOM
GO
RELOAD
(EXIT)

This EDIT START/END p134 is a great place to see the sample waveform. It offers an oscilloscope-type display of the vicinity near the start and end points, and separate horizontal and vertical zoom modes.

On this page, when the Start field is selected you see the beginning of the sample, and when the End field is selected you see the end of the sample. To select start or end, use the L/R cursors.

To survey a sample, locate the cursor on the Start field, and turn the dial (clockwise). With each click, the editor will search for the next zero-crossing (by default). This is AUTO mode.

The U/D cursors can be used to vertically offset the image so that the baseline doesn't interfere with it.

The Time field gives you an absolute reading of the distance from the beginning of the recording to the current start or end point, whichever is currently selected.

The "coarseness" of the sample point adjustments are controlled by F2, which sets the horizontal cursor to move to the next zero-crossing (AUTO), by individual sample words (WORD), or in 1024-word (1K) or 5120-word (5K) increments.

Start and End are initially set by the recording process. But if you can shorten a sample even further and use custom looping to extend its effect, then you will be able to fit that many more samples into memory at once.

The sample start point can be modulated by velocity through the analog modulation module.

Limits on Start and End Points

In most cases you will find that you cannot raise the start point all the way to the end point, or lower the end point all the way towards the start point. This occurs whenever a loop is set -- which is just about always. The locations of all edit points are maintained in order and not allowed to cross. In other words, the points must be :

Sample Start
Sustain Loop Start
Sustain Loop End
Release Loop Start
Release Loop End
Sample End

Therefore, if a loop is on, you will not be allowed to send the sample length pointers into the loop range (which would be an illegal condition).

If you switch the loop (or both loops) off, then either the sample start or end points can be adjusted over the full sample range. However, the loop points are destroyed when you do this -- they are automatically kept within legal range.

Zoom Mode

While looking at the start point, for example, press ZOOM, then H-OUT several times. You will see the individual waves turn into an overall envelope of the sample. Neat, eh? To reverse the zoom press H-IN an equal number of times.

Zooming works independently in either the horizontal or vertical dimensions. The V-IN and V-OUT switches control the vertical resolution.

You can press the number of zooms you want repeatedly. You do not have to wait for each zoom-out or zoom-in to be processed. (As mentioned above, there is a "command buffer.")

Once you set the zoom size or view that you desire, return to the START/END or LOOP pages and continue editing.

By switching between Start and End and adjusting their values, and adjusting the zoom view, you can easily survey the entire waveform. With just a little practice, you'll be having more fun editing than you probably thought possible -- and without all the hassle and delay of transferring the data to and from a slow, general-purpose computer.

1 O-2 LOOPING

Basically, loops allow you to preserve memory and control samples from the keyboard by recirculating sample material instead of recording redundant cycles. However, to be successful, the exactly right cycles must be selected. This is a true art and skill. While the ear rules, being able to visually correlate complex waves allows the eye to help fill-out intuition: for a loop to be non-detectable, the jump must take place between waves that look as similar as possible.

When a sample is recorded, a basic release loop is set (unless the sample is noise). This is done for convenience: due to the unpredictable nature of audio, there is no pretense made that the automatic loop is the best possible one. In a number of cases the default loop may be quite usable. But there is probably always room for improvement, especially if you want to squeeze the most sound into memory.

SLOOP and RLOOP stand for sustain and release loops. The loop points are edited in essentially the same way as the sample start and end points. An additional field at the right of line 7 holds the loop status: OFF, FORWARD, or BACK/FORWARD.

Note: If their modes are FORWARD, both the sustain and release loops can be used. But if the mode is BACK/FORWARD, then only one type of loop can be used. The other is switched off automatically and kept off until you switch the first one to FORWARD.

Sustain Loop p136

The sustain loop repeats the designated sample segment while the key is held. When the key is released, the loop is exited. Any portion of the sample beyond the loop, will play during the release period. To obtain this effect, at least the amplifier envelope release time must be set long enough to allow you to hear the release material.

Release Loop p138

The repeat loop keeps going even though the key is released. The sound during the release period is looped continuously (rather than just played once, as with a sustain loop). To prevent droning, the amplifier **must** have an appropriate release time.

Options and treatments are the same as for the sustain loop.

Loop Tuning

In this version we have added a great new feature, loop tuning. Before, you might have to discard an otherwise good loop because of detuning. Being able to **tune** the loop to the sample makes it easier to find a usable loop. To get to the loop tuning page, do SOUND-MAP-TUNE.

Loop Crossfading p145

To smooth the endings of loops, Loop Crossfading mixes adjustable portions of the loop material just after the start point and just before the end point. This changes the sample recording in RAM.

The crossfade type of FORWARDS or BACK/FOR is meant to match the loop type, but it doesn't have to. In a forward-only crossfaded loop, the two loop points merge to become one splice point. The BACK/FOR type has two splice points (start and end), which may require separate treatments.

Linear or Equal-power mixing is available. Linear crossfading maintains the same amplitude throughout the loop. This is usually best for regular sounds like sustained tones. Equal-power crossfading is recommended for sounds that are irregular, for example, beats, chorusing, or reverb.

The crossfade Length can be at maximum the difference between the current loop start and end points.

Successful loop crossfading has proven to require a lot of trial-and-error. So, only if enough memory exists, an UNDO switch is provided after the crossfade operation, for restoring the original sample. (If there is not enough memory available for the UNDO function, you will not be told before processing -- in these cases you can "undo" by re-loading.).

After crossfading, the sample file is modified near the specific loop points which you selected before the crossfade. As a result, if you change the loop points after a crossfade, the result probably won't be very good in terms of realism -- but it could be quite interesting in itself.

10-3 DIGITAL SIGNAL PROCESSING (DSP) p151

Only one option:

SCALE p157

MAXIMUM
Automatically scales the recording to maximum level without clipping.

10 - 250 %
Divides or multiplies the sample level.

Note that due to round-off errors, if you, for example, multiply a sample by 50% then by 200%, you do not end up with exactly the same sample.

Over-multiplying a sample will cause clipping and distortion -- which sometimes might be exactly what you want!

The UNDO switch is also available (if there is enough free memory).

CHAPTER 11

RECORDING

Overview

The analog and digital editing features discussed in the last two chapters determine the specific timbral qualities of the ranges in a preset, either collectively or individually. Using them, you can begin to transform the factory presets into your own sounds.

In contrast, this and the next two chapters cover how the ranges are created, arranged and managed, in the first place. These operations free you from the factory preset sound base, to compile your own library of custom sounds.

Chapter 2 provided basic recording information. This chapter looks at details and options in the process. Table 1 l-l (next page) shows the recording menus.

A word about input fidelity: The Prophet-3000 is capable of virtually transparent reproduction. However, in almost all real cases this capacity will be somehow compromised by the quality of the input signal. Achieving the finest input signal is an art which generally requires equipment and expertise comparable to a professional studio. For detailed acoustic sampling, you at least need a superb studio mic (or pair) -- they can sometimes be rented, if not borrowed.

Making Room

The main method for obtaining memory time -- deleting presets -- was discussed in Chapter 2. The more subtle way -- recovering -- is discussed in the next chapter.

For flexibility and to make recording easier, it is always possible to record into otherwise empty memory, edit down the presets to the space available, and then load other desired presets from disk. This kind of strategy is generally easier than trying to record with only the final amount of memory available.

TABLE 11-l
RECORDING MENUS

RECORD SETUP p200
Method
Mode
Rate
Time
Time Remaining

LEVELS p202
Input Levels
Threshold Level
Peak and Trig Indicators
ARM
GO

RECORDING DONE p208
Preset
Range
PLAY
REJECT
NEXT
ADJ-MAP p212 (see Chapter 13)
Low/Root/High
CONTINUE
DONE
(SETUP)
(MONITOR)

MONITOR p201
(ARM)
(GO)
(SETUP)
(LEVELS)

U-MAP p213
First Note
Note in Octave

EDIT (not if "NO PRESETS")

MEMORY"

Entering Record Mode

From the main menu, press RECORD.

Each time you enter RECORD mode, a new, blank preset is prepared. As long as you are in RECORD mode, each recording that you do not REJECT will be automatically mapped into this preset. To create a different preset, exit RECORD, then re-enter.

Method

Mapping is the manner in which samples are assigned to the keyboard. As part of the preset recording system, automatic or semi-automatic (user) modes are available. After recording, any maps can be edited manually.

In automatic mode the pitch detector is activated and samples are automatically mapped according to their detected pitch. A basic release loop is automatically set. If samples are detected at a pitch which has already been recorded, you are allowed to reject one of the samples or adjust the map. If a sample is too noisy to be pitch-detected, it is mapped to the keyboard arbitrarily. The user can adjust the mapping of any sample either just after recording it, or later, in EDIT mode.

The alternative to automatic mapping, user-mapping is discussed in Chapter 13.

Mode

MONAURAL / STEREO

I doubt we need to discuss the difference between mono and stereo. But it may not be totally obvious that with a stereo sample you don't just get a second sound, you get an image. Also, don't rule out the creative possibilities of sampling two channels which aren't necessarily stereo.

Of course the downside of stereo sampling is that it takes twice as much memory as mono, and for playback it requires two analog voices per note. (For a stereo sample range, the voice outputs are always paired as l-2, 3-4, 5-6, and 7-8.)

Rate

16 / 32 / 44.1 / 48 kHz

The display shows the sample rate, and the computed sample time in seconds and tenths. To accept the default 44.1 kHz bandwidth, do nothing. Otherwise, cursor to the rate value and adjust it.

There is a tradeoff between sample bandwidth and total time. For a given amount of time, the higher your sampling rate, the more memory is used, therefore the less memory remains. This is directly analogous to tape recording: a higher speed gives better fidelity, but uses more tape. (Unfortunately, RAM is not yet as cheap as tape.)

Having a variable sampling rate let's you decide what "speed" to run at, so you can optimize memory relative to the bandwidth requirement of each recording.

Anytime you can use a lower rate, you will save memory. A lower rate reduces high frequency response, but it does not increase noise. (Having 16 bits instead of 12 is what keeps the noise down.)

For best fidelity, set a rate of 48 kHz. In this case the bandwidth will be 19 kHz. To save memory, in most cases you can get by with 44.1 kHz -- which has a bandwidth of 16.5 kHz. In many applications, you may be surprised to find the 32-kHz setting quite usable, with its bandwidth of 12 kHz. The rate of 16 kHz (6 kHz bandwidth) is also available, for voice or special effects.

Time

Set the time to be a little longer than you think you will need, so that an important attack or release is not missed. After recording a sample of a given length, you cannot edit the length **just** by changing the time here. That would make it too easy to destroy samples. Excess and unused recording time can be isolated by editing the sample start or end points, then recovered into free space. To lengthen a sample you **must** re-record.

Time Remaining

Time Remaining is shown for the current mode at the current rate, and changes when the mode or rate change.

If there is not enough time, or no time available to sample, then you have to make some room either by deleting presets or recovering memory.

Recovering won't help you much on factory disks, because they are already recovered pretty tightly.

Levels

. Connect inputs to MIC or LINE.

. Press LEVELS.

. At RECORDING LEVELS p202, play input and adjust the input level knobs by referring to the horizontal bar-graph.

"PEAK" indicators are provided.

Real-Time Monitor

In record mode the input signal can be monitored from the Prophet 3000's stereo and mono outputs, or voice **output** #1/2. The input signal is passed directly through the audio path: ADC-RAM-DAC-VCF-VCA. This feature allows you to monitor the sample exactly as it will be processed with the current input level, at the chosen sample rate. For example, if you have a high-frequency sample, you will hear exactly how much "aliasing" occurs.

. If desired, press MONITOR.

Note: If your mixer is the **source,** this may create feedback.

Prior to recording, you can either see the levels display or hear the input monitoring, but not both.

Threshold Adjustment for Automatic Recording

Automatic recording is convenient for most sampling. It is easy to do: the procedure only asks you to set a threshold level which, when exceeded, triggers the recording.

To record automatically, adjust the selector dial to set the threshold point for the trigger. A mark slides across the bar graph to indicate the current threshold setting, and when the threshold is crossed by either the left or right input, a TRIG indicator blinks.

When the dial is lowered fully, TRIG lights. This indicates that you have set the threshold below the “noise” floor. This is undesired. The optimum setting is usually slightly above the noise floor, although you may want it or need it to be higher. You want the threshold to be high enough so that noise does not cause recording to trigger falsely, and low enough so that an important attack is not missed.

To catch desired attack transients, it is not necessary to set the threshold to the lowest possible level. This is because the block of samples (1K words) occurring just before the threshold is retained at the beginning of the recording. If these sample words are silent, then the recording processer sets the sample start point beyond them. They can be reached by going into edit mode and lowering the start point.

Arming Automatic Recording

To "arm" the recording trigger, press ARM.

If using a microphone, keep quiet until you want recording to start.

Note: If IN PROGRESS appears, this means that the threshold is set so low that noise has caused recording to start already. Reject the recording, raise the threshold, and try again.

Automatic Recording

After "arming," the system waits for input exceeding the threshold.

To start recording the sample, after the threshold has been set and armed, play the sample source.

Recording starts automatically when the input exceeds the threshold. When this occurs, IN PROGRESS appears.

Manual Recording

To start recording manually, instead of ARM, press GO. You can use this to catch material "on-the-fly."

Auditioning the Recording

RECORDING IN PROGRESS is displayed. Recording stops automatically after the allocated time. After a brief delay, you see a report of the amount of clipping which occured during recording, and the pitch detected.

- To hear the recording, play it from the MIDI controller, in the range indicated by the map; Or, on the remote, press PLAY.

All pitched samples are automatically located on the keyboard. Start and end points are automatically located to the first and last zero-crossings -- for glitch free gating. A basic release loop is set. Some analog parameters are optimized (such as amplifier envelope).

The size (width) of the playback range of each recording depends on how many samples are recorded and where they are recorded, and is adjusted automatically.

If the sample has more noise than pitch, then it will be located on the keyboard arbitrarily (and you can change it now or later).

If the sample level seems a little weak, don't worry too much about it. There is a neat editing feature, SCALE, that can digitally raise (or lower) the level.

Pitch Detection

The pitch detector assumes that the external instrument is being played in tune with A-440. To the extent the note is flat or sharp from this, the detector may call it noise. If you are working with a different standard (e.g. A-4421, then you will get best results if you record in A-440 and alter the playback pitch using Master Tune.

With tuned input the detector works quite well and can tolerate a good deal of "wow and flutter," and noise. But it is possible for the detector to be fooled. This is most likely to occur with samples that have strong second harmonic energy, resulting in an octave-detection error.

Root detection error can also occur when the input has strong inharmonic overtones: these produce "resultant" fundamentals which may not be harmonically related to the root. For example, the author sampled middle C (C4) of a toy piano, only to find the pitch detector hearing it as A6.

Another area for unexpected results is where there is a very gradual release of a tone down into the noise floor. If the sound is not long enough to establish a pitchy trend, then the detector may be forced to search through a bunch of noise, looking for correlating periods. In borderline cases, you can sometimes change the performance of the detector by changing the recording level slightly, and changing the time of the recording. For example, if you can limit the recording time so that the end is still inaudible **but** this fuzzy release is eliminated, then the detector will only have good solid data to work with.

Keeping the Sample or Re-sampling

If you don't like the sample and/or want to substitute a different note, press REJECT. This clears the sample and frees-up its memory. After answering "yes" to the "Clear sample?" prompt, you are returned to the Levels page, since clipping is most often the reason for rejecting, and it is assumed that you probably won't be changing the basic setup. If desired, the SETUP switch takes you there.

If you like the sample or think it has promise, press NEXT. This will install this sample in to the current preset and returns you to SAMPLE RECORDING SETUP, in preparation for the next note. Every sample of a different semitone is automatically mapped.

If you record a sample which is detected at a pitch which has already been recorded into the preset, you get the option of using either, or of manually mapping the new recording to a different key.

Editing

When done recording notes into a preset, press DONE. The new preset is given the lowest unused number and added to the preset list, and can be edited.

When you have created a usable preset, save it to disk.

After recording samples into a preset, you will usually want to go to the EDIT area and customize the sound. Refer to chapters 9 and 10.

As mentioned in Chapter 9, the main EDIT page allows you to set a range of ALL or of any single range.

To adjust analog parameters, select SOUND, then ANALOG. ANALOG can be performed on either the complete preset, or on ranges, selected on line 2 of EDIT SOUND p133.

ST/END and LOOP can only be performed on individual sample ranges.

To trim samples, select SOUND, then SAMPLE, then ST/END.

To loop samples, select SOUND, SAMPLE, then LOOP (SLOOP or RLOOP).

Adding a Recording to a Preset

If you press DONE accidentally, don't worry. ADD-REC is an option on the EDIT page which gets you back into record mode for the current, single-mode preset.

CHAPTER 12

MEMORY MANAGEMENT

Overview

As you record single-level presets, or create combination presets, you will eventually come up against the limits of the sound RAM. To get the **most** sound out of the Prophet-3000, you must take an active role in memory management.

There are three basic strategies for preserving memory space:

delete unused presets,

delete ranges which are not being played by used presets,

trim samples to their minimum effective length, set a good loop or two, then RECOVER the unplayed memory.

This chapter discusses these operations, as well as those available for building up new presets out of memory alone -- COPY and INSERT. Table 12-1 (next page) shows the memory management menus.

Memory Status

If you have ever deleted all presets in preparatian for recording, then you have seen MEMORY STATUS p124. This page shows how **much** memory any preset or range uses, and what remains. The sum of the individual memories used may be over 100%, because the estimated size of each preset includes all data (but the data is not in fact redundant).

Deleting Combination Presets

When you have enough presets to think about custom arrangements, the ability to delete individual presets from memory is very handy.

Combination presets can be deleted at any time. EDIT p102, which appears whenever a combination-mode preset is selected, includes a

TABLE 12-1
MEMORYMANAGEMENTMENUS

EDIT
SOUND
MEMORY STATUS p124
Preset/Range
Memory Used
Memory Remaining

PLAY

DELETE p125
EXECUTE
DELETE ALL
(EXIT)

RECOVER p128
EXECUTE
RECOVER ALL
(EXIT)

COPY p131
Source Preset
Source Range
GO
(EXIT)

INSERT p132
Source Preset
Source Range
Destination Preset
GO
(EXIT)

(EXIT)

DEL option which can be used to dispose of any combination preset, without your having to enter the MEMORY area. However, because combination presets don't use very much memory, deleting them doesn't get you very much memory back.

Deleting Single-mode Presets

Here is where your knowledge of the two different kinds of Prophet-3000 presets really pays off: you can only delete a single-mode preset if that preset is not being used in a combination preset. This is done intentionally to prevent you from accidentally destroying desired combinations.

So, what this means is, to delete a single mode preset, you must first delete any combination presets that use it, or edit those combinations so that the undesired single-mode preset is also in fact unused.

For single-mode presets, the DELETE ONE PRESET option is the same as the path to the DELETE ALL option with which you are presumably already familiar. Range should be left set to ALL. You simply press EXECUTE instead of DELETE ALL.

The amount of memory you gain by deleting a single-mode preset will vary, depending on how many other presets use the same samples. For example, suppose you have a piano preset with several copies that edit just the analog parameters (such as the factory piano disk). Then, deleting one or two of the copies won't get you very much memory. Only when the the last preset which uses those samples is deleted, will the memory-hogging samples actually be deleted.

Deleting Ranges

Deleting unused ranges is another way to gain memory. On the memory status page, just change the Range field from ALL to the desired (undesired, that is) range. After deleting a range, there will be a gap in the map. You can fill the gap either by inserting another range (see below), recording into it (ADD-REC), or by adjusting the adjacent ranges manually (MAP). These kinds of things are nailed down in Chapter 13.

Recovering Memory

You do not need to think about recovering unless you are recording or creating your own presets. And if you are doing that, then you must think about recovering. Otherwise, you will waste a lot of memory space and thereby not get the best results.

> Note: Because recovering is not reversible or "undo-able," it is always good practice to save and verify, before any recovery operation.

RECOVER collects unused memory and recycles it for new samples. The idea is that you first go through each range of each preset and trim up the sample so that there is no dead space at the start point, and so that it doesn't go on any longer than it needs to for you to extract a decent loop. After you make this length adjustment, have made a satisfactory loop or two, and played and lived with the sound for a while, then any samples existing in front of the current start point and beyond the current end point are wasted. RECOVER finds all this material and returns it to free space.

Notice that after you recover memory for a sample, you can't readjust the start or end points back into those recovered areas, because they don't exist any more. This is why you want to save before recovering.

After recovery, trimming and looping pointers will be recalculated relative to the new start point. For example if you have a start point at 100 and an end point at 1000, after recovering these point addresses will be 0 and 900, respectively.

You can RECOVER all or any ranges of a preset, or RECOVER ALL presets in exactly the same way as you you DELETE or DELETE ALL.

Copying Presets

The Prophet-3000 is very smart about its sample memory. If you copy a preset, it doesn't duplicate sound data: only the parameters which are different take new space. So, you can have lots of presets which use the same basic samples and process them in various ways, without it wasting memory with redundant sample data.

The way COPY works is that you select a source preset and any range or ALL, then press COPY. The source is copied to the lowest available preset number. From that point, of course, you can renumber it.

Inserting

You can select any range of any single-mode preset, and insert it into any other existing single-mode preset. This is a memory-mode version of recording: the inserted range will appear in the destination preset just as if you had recorded it there on the root key. The range of the insert will be adjusted accordingly.

CHAPTER 13

MAPPING

Overview

Mapping is a subject left to nearly the end of this manual because the whole point of much of the Prophet-30005 user interface is to free you from having to think about placing specific samples on the keyboard. The requirement for user mapping was a main drawback of second-generation samplers.

However, from the sound designer's view, the opportunity for user mapping is a required experimental power, and is retained in the Prophet-3000. Most defaults assume the Prophet-3000 will be replicating traditional acoustic instruments. But there are several different ways to throw off the mapping defaults and strike out on your own. After recording, you may not like what the auto-mapper does. Maybe you sampled using a user-map, which you now want to change. Or perhaps you just want one extreme preset with up to 64 ranges -- perhaps with a different syllable per key. That is what this section is about.

13-1 BASIC CONCEPTS

Range Mapping

Mapping is used to adjust samples within one single-mode preset. No vertical overlap or layering is available. For layering, you must use combination presets.

Preset mapping may use as few as two or three samples or as many as 64. All you have to do is record the samples desired, and their ranges will be adjusted automatically. The minimum size of a map range for a sound is one key, and the maximum size of the map range is 33 keys (36, for 16 kHz rate).

Playback of a sample or sound is fully polyphonic throughout its mapped range. In other words, as long as the range itself is large enough, you can play up to eight keys within that range, and they will all be heard (assuming normal voice allocation).

When used normally, as a keyboard instrument, the Prophet 3000 is generally multi-sampled. In a multi-sample map, samples from the same instrument, or other similar timbres, are lined up next to each other in adjacent ranges of the keyboard and the objective is to have smooth transitions between the ranges. This is the method chosen for recreating pianos and continuous string or brass sections.

It is also possible to use the Prophet 3000 as a multi-timbral drum machine (where "drum" is understood to mean any sampled sound). This means that the sounds are distinct timbres and possibly different instruments or different phrases of music or speech. The difference between the sounds is intentional and meant to be complete.

No parameter determines whether the map is multi-sample or multi-timbral: the character of the map is determined solely by the selection and arrangement of samples. Part of a map may be multi-sampled, the other may be multi-timbral.

Root Key

Maps are created by recording a sound, having the system detect its pitch, if possible, and define the low and high limit of the sample playback range. The root key is the key at which the sample plays back at its original, recorded pitch (as corrected to A-440 by the master tune offset.)

If the preset is a normal instrument, and pitch detection is never fooled, then the detected pitch and the root key will be equal. However, if it is a noisy sample, there is no detected pitch, but the sample must still be assigned to the keyboard. Here is where the root pitch field becomes very valuable for editing. It is what allows you to place the recording on any key.

In a single-mode preset, two samples cannot be assigned to the same root key.

Maximum High/Low Keys

The playback range above and below the root depends on the sample rate:

Rate kHz	Max High	Max Low
48		
44.1	+9	-24
32		
16	+24	-12

Tuning

From EDIT SOUND p133, MAP then TUNE takes you to EDIT SAMPLE TUNING p171. This is where you can tune or detune individual sample ranges, as well as their loops.

Level

To balance ranges, edit the ANALOG Output Level parameter for the desired range.

13-2 MAP ADJUSTMENT METHODS

This section presents all of the opportunities you have to mess with maps, in ascending levels of complexity.

Map Adjustment After Recording

If you are in normal, automatic recording mode and you give the Prophet-3000 a noisy or badly mistuned sample -- one in which a pitch cannot be detected -- you will get a special report page. This pages identifies the noise sample and tells you where it has been initially (and arbitrarily) located on the keyboard. You can adjust the root, low, and high keys at this point, then continue. For noise samples, no loop is automatically set.

Map Adjustment of an Existing Preset

Now let's suppose you have a preset that you just want to rearrange a bit. Perhaps you want to change a pair of root keys and limit the ranges here and there.

- With your preset current, press EDIT, then SOUND.
- Select the range to be adjusted.
- Press MAP.
- Adjust root, low, and high keys on this page.

AUTO mode is the default. In this mode, as you move a root key, the high and low keys will readjust themselves, depending on what is happening in the adjacent ranges.

In FIXED mode, the range size stays locked at whatever it is, and will not change as you move the root.

If you have moved one range across another, then you may have to manually readjust those edges where automatic adjustments were made.

User Mapping Prior to Recording

On the RECORD SETUP page, instead of AUTOMATIC MAPPING you can select USER-DEFINED. For cases where you are not working on normal pitched instruments, such as drums, comparing many samples of the same pitch, sound effects, or dialogue, this option allows you to disable the pitch detection system. Instead, your samples will be place on the keys you set under the U-MAP switch (which is currently displayed).

There is a First Note field which says where you want the first sample to go. Then, for each note you can say whether it will be mapped, by cursoring across and dialing in an "X". For example, you might select just C, or C and F#, C E G, whatever you need to provide enough ranges for the number of sounds you intend to sample into the preset.

Creating New Presets via Memory Mode

As mentioned in Chapter 12, you can delete any range of a preset. A gap will be left which you may want to fill.

If you have extensive mapping changes that you want to make, the best strategy is to simply use the memory INSERT function to assign recordings to different ranges of a new preset. The preset created in this way will not cause redundant sample memory.

Shifting to Preset Mode

You can also use INSERT to turn any range or group of ranges into a new preset which can be part of a standard or user-defined combination preset as discussed in Chapter 6.

In some cases, the keyboard modes allow you to do exactly the same thing as sample mapping. For example, if you wanted sixteen timbres across the keyboard you could either record or insert them into one single-mode preset, or build a 16-split user-combination preset.

Which way is best? There are two main factors. First, is the number of control channels you are using. If all the samples are in one preset, then they can all play from the same channel. On the other hand, if they are each in their own preset, then they can play from different channels, in MIDI Mode 4.

The second main factor is layering thickness. Within a single preset, all samples are arranged “horizontally.” There is no overlap of samples. The only way to achieve layering is by combining presets. Using the normal modes, you can layer two presets. But using a user combination, you can combine up to 64 presets -- although you are still limited by the number of voices (eight).

CHAPTER 14

OTHER FUNCTIONS

Overview

On the main menu, F6 is marked OTHER and takes you to a secondary row of miscellaneous functions that are placed here for quick access in performance. OTHER also takes you back to the main menu.

KILL

Shuts off all voices, including A-440. This is the panic cure for stuck notes (lost MIDI Note Offs).

TUNE **p250**

As mentioned under basic operation, this parameter raises or lowers all presets by +/- 99 cents. The master **tune** setting is saved to and loaded from disk with All Presets.

TRIG **p252**

The TRIG function allows you to use any pulse or audio input signal to trigger a specific note in a specific preset.

Reset

DISABLED
Trigger function is off.

PRESET nnnn
Preset to be played by the trigger.

Input Jack

RIGHT or LEFT

Note

C-l - G9

Velocity

0 - 127
Velocity at which triggered note plays.

Threshold On

0 - 99
This is the level which the input must exceed to trigger the sound.

Threshold Off

0 - 99
This is the level under which the input must fail so that re-triggering can occur. The maximum "off" value can be one less than the "on" value.

FTSW p253

Function

PRESET INCREMENT (default),
DECREMENT, TRIGGER SOUND, ALT RELEASE

The ALT RELEASE option allows you to use the Prophet-3000s footswitch for sustain pedal control, if your control doesn't include this.

Note

C-l - G9
Note played by footswitch (if TRIGGER SOUND).

Velocity

0- 127
Velocity at which triggered note plays (if TRIGGER SOUND).