

Metatrak™ II
A multi-track recording system
for the alphaSyntauri® digital synthesizer



Syntauri

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METATRAK™ II

USERS MANUAL

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Metatrak basic code was compiled using the "Integer Basic Compiler" by Synergistics Software, Renton, Washington.



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I. METATRAK OVERVIEW

A. General Description

Metatrak is one of the most valuable compositional tools a musician can use: a synthesizer-based multi-track recorder. Metatrak allows you to orchestrate a composition by simultaneously recording numerous performances varying in instrumentation. The end result is a quick and cost effective recording that can be used for compositional arranging, recording studio preparation, background to live performance, or simply for listening pleasure at a later time.

An advanced software product for the alphaSyntauri digital synthesizer, Metatrak offers a number of features specially geared towards live performance and recording situations:

- * A 16 track synthesizer recording system
- * Conventional recording controls: record, play, erase, fast forward, punch-in/punch-out
- * Independent track control over instrument, vibrato and volume
- * Special record modes: sequencing, playback speed adjustment and built in metronome/click track
- * Special performance modes: split keyboard, ensemble, and transposition
- * Drum machine and Sync-to-Tape interfaces
- * Instrument definition capability and compatibility with alphaPlus preset masters (instrument banks)

B. How to use this Manual

This manual describes the proper operation of the Metatrak operating system software. It is divided into nine main sections covering all aspects of the Metatrak system. In addition, the appendix offers additional information which you will find useful. These sections are referenced in the Table of Contents.

C. Metatrak and alphaPlus

Although not mandatory, you should first get familiar with the alphaPlus operating system before going on to Metatrak, since much of the fundamental operation is similar. Also, alphaPlus has complete waveform creation capability which may make it more desirable for defining instrument sounds. In fact, the two software packages are best used in conjunction. Think of alphaPlus as your primary instrument development software and Metatrak as your advanced performance and recording software. The two in combination make the alphaSyntauri system a powerful general purpose synthesizer.

II. GETTING STARTED

A. Set-Up

Metatrak software must be used with the alphaSyntauri synthesizer system (see Figure 1). The system configuration for Metatrak includes the following components:

- * Metatrak (V2.0) operating system software on floppy diskette
- * AlphaSyntauri interface card, cable and four or five octave keyboard
- * Mountain Hardware MusicSystem cards
- * Apple II Plus 48K RAM computer with 16K RAM card (not ROM card)
- * Disk II disk drive and controller card
- * Video monitor (or TV with RF MOD)
- * Analog control paddles
- * Audio system or headphones

In addition to the above list, the alphaPlus software and any diskettes containing preset masters will be useful if instrument sounds are to be modified. Also, have an extra diskette handy for storing recordings (see Appendix A for instructions on initializing a new disk). Before using Metatrak be sure to **MAKE A BACK-UP COPY** of the Metatrak diskette (see Appendix A for instructions on copying diskettes).

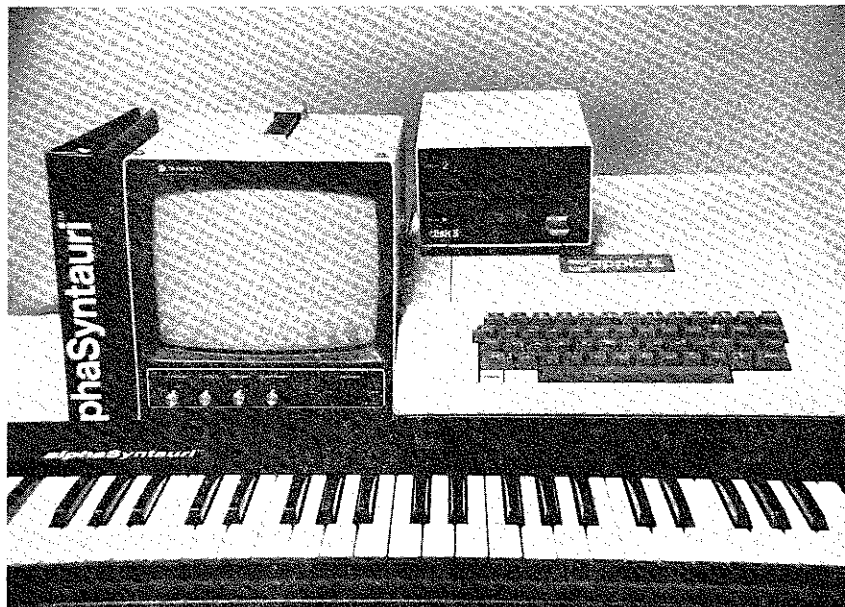


Figure 1: The alphaSyntauri Synthesizer System

II. Getting Started

To begin, follow the set-up procedure for the alphaSyntauri system as explained in the alphaSyntauri users manual. Once correctly set-up, turn off the Apple power first, then insert the Metatrak software diskette into the disk drive and turn on the power switch of the Apple. This will "boot-up" Metatrak software. Make sure your audio system volume is down until the boot-up is completed.

During boot-up a Metatrak set-up display will appear showing default conditions for initial preset master, master volume and card slot positions (see Figure 2). Make sure that these conditions correspond to the way your alphaSyntauri is set up; specifically, the slot numbers of the Syntauri interface card (set for slot 2), and Mountain Hardware MusicSystem cards (set for slots 4 and 5; make sure the card with the audio cables is on the left side). If your configuration varies from this, make the appropriate changes as asked below the set-up display. Note: once properly configured, the set-up program can be bypassed for future boot-up (see Appendix B).

```
          METATRAK SETUP PROGRAM
-----
KEYBOARD PROGRAM:  MET A
PRESET MASTER FILE:  METATRAK.L
SYNTAURI KEYBOARD SLOT (1-7):  2
M. C. SYNTHESIZER SLOT (1-4):  4
SYNTHESIZER VOLUME (1-255):  127

DO YOU WANT TO CHANGE ANY OF THE ABOVE?
(PRESS 'Y' OR 'N', <RETURN> TO CONFIRM)
```

Figure 2: Set-up Screen Display

B. The Screen Display (Live Mode)

Once the Metatrak diskette has completed boot-up, the "live" mode screen display will be seen as shown in Figure 3. Playing any notes on the keyboard will cause a response both audibly and visually.

The upper portion of the screen dynamically displays each note played with a rectangular bar. The bars are arranged horizontally in octaves of C. Besides having a hypnotic effect, the display is useful for analyzing keyboard technique. It also helps keep track of the total number of simultaneous notes while recording (this is covered in more detail later on).

II. Getting Started

On the lower portion of the screen are various parameters for Metatrak live mode, including: current instrument name, split instrument status, vibrato and master volume controls. (Detailed usage of these parameters will be covered in their applicable sections).

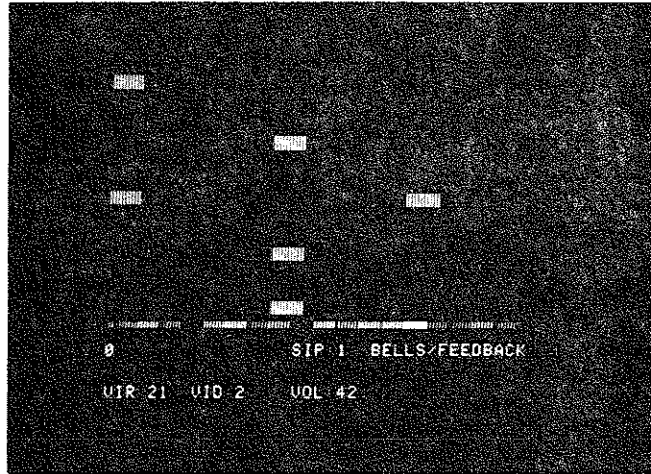


Figure 3: Metatrak "Live Mode" Screen Display

C. Instrument Selection (0-9,U)

Any one of the ten instruments in the current "preset master" can be selected as with alphaPlus. Additional preset masters can be loaded or created as explained in section III. Type any number between 0 and 9 on the Apple to change the entire keyboard to a new instrument. In Metatrak, instruments can be changed instantly whereas it takes approximately one second with alphaPlus. By typing the "U" key, the name of the instrument will be updated on the screen. Other parameters are also updated, as detailed later in this manual.

D. Commands and Files

There are many commands and files used throughout Metatrak. **A list describing all Metatrak commands is provided in Appendix B, and file type descriptions are covered in Appendix C.** Reviewing both these sections will help to give you a general perspective of the Metatrak software and serve as a quick reference guide once you understand its operation. More detailed descriptions of Metatrak commands and file types are covered in applicable sections of this manual.

E. Demonstration Recording

A Metatrak demonstration recording is provided on your Metatrak diskette. Listening to it will give you an idea of the capabilities and potential Metatrak offers. **To hear the demonstration recording, follow the step by step instructions in Appendix D.**

After you are through listening, resume reading the manual to learn how to properly use Metatrak for your own recordings.

III. INSTRUMENT MODIFICATION AND CONTROL

Metatrak provides control over all the instrument definition parameters that are in alphaPlus (with the exception of waveform creation), and many other sound modification parameters that are specifically useful in performance and recording situations. To acquire a thorough understanding of how instruments are defined using the alphaSyntauri synthesizer, please refer to the alphaPlus tutorial manual. The following explanations on this subject will not go into great detail but will be general, specifically covering access to the parameters available in alphaPlus.

A. The Preset Master (CTRL-P,?)

As referred to earlier, a preset master is a bank of ten instruments that can be created using the alphaPlus or Metatrak software. Only one preset master can be resident at a time. To load a new preset master or to save one that may have been modified, hold down the "CTRL" key while typing "P". Doing this will cause the following prompt to appear:

```
"PRESET MASTER
L)OAD OR S)AVE      WHICH?"
```

To load a preset master from disk type "L" followed by "RETURN". The following prompt will appear:

```
LOAD PRESET MASTER:
```

Type the name of the new preset master you wish to load from disk followed by "RETURN". The disk will be accessed to acquire the related files for the preset master and then the system will return to live mode with the new instruments. If CTRL-P is typed and RETURN is immediately entered, the system will resume live mode.

To examine the contents of a diskette for loading a preset master, type "?" any time during live mode or at the first letter of a preset master (or other file) load or save. The actual preset master name on the diskette will be preceded by "PRESET MASTER:". Included on the Metatrak diskette are two preset masters named METATRAK and ALPHA PLUS. As specified in the set-up program, METATRAK is automatically loaded from boot-up. Other preset masters are available from the "Preset Masters" diskette product from Syntauri.

Similar to loading a preset master, it can also be saved using "CTRL-P". Typing "S" for save followed by "RETURN" will cause the following prompt to appear:

```
SAVE PRESET MASTER:
```

To save a preset master to disk, type the desired name followed by "RETURN". This will cause the current state of the ten instruments to be saved to disk.

III. Instrument Modification and Control

Be cautious when using any file save command since you might accidentally write over an existing file with the same name. If you wish to protect this from happening use the DOS "lock" command explained in Appendix A. A number of the files on the Metatrak disk are locked including the Metatrak preset master.

When a preset master is loaded or saved it actually loads and saves three files; the PRESET MASTER, WAVEMASTER and LFO MASTER. Each of these files contain a portion of each individual instrument in the preset master.

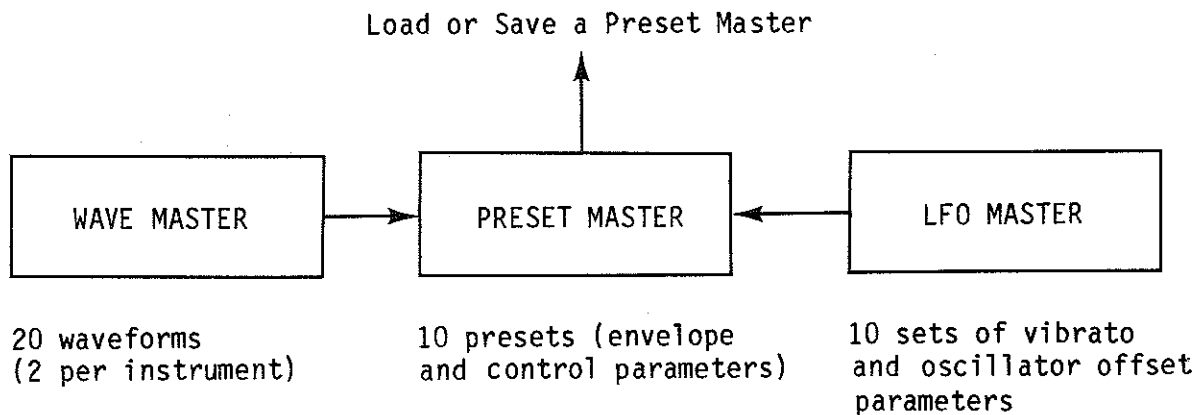


Figure 4: The preset master and related files

Individual instruments can not be saved or loaded in their entirety as occurs with the preset master. There are, however, certain portions of each instrument that can be saved and loaded via disk: waveforms and presets (envelope and control parameters).

B. Presets (Envelopes and Control Parameters) (CTRL-E)

As in alphaPlus, Metatrak has complete control over the preset (envelope and control parameters) for each instrument. This is extremely useful when tailoring instruments to a compositional orchestration. A preset of any instrument can be loaded, saved or defined by holding down the CTRL key and typing "E".

The following prompt will appear:

```
"PRESET (ENVELOPES)
L)OAD S)AVE OR D)EFINE    WHICH?"
```

If none of the options are to be used simply type "RETURN". To define the envelope and control parameters type "D" followed by "RETURN". The screen should be similar to the following list of parameters.

III. Instrument Modification and Control

BELLS/FEEDBACK INS.#:0

PR:11	}	ENVELOPE RATES
FR:45		
AR:189		
DR:19		
RR:68		
PV:222	}	ENVELOPE VOLUMES
FV:0		
AV:227		
SV:0		
RV:0		
PC:1	}	CONTROL
FC:54		
AC:0		
ET:0		

ENTER SPACE <RETURN> TO EXIT

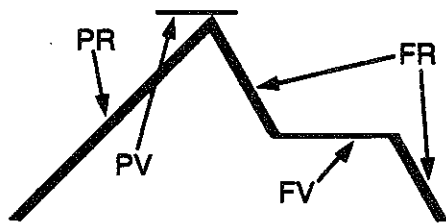
The means of modifying parameters in Metatrak is different from that in alphaPlus. Before changing an instrument's parameters, make sure you have selected the correct instrument. This can be done by typing a number (0-9) corresponding to the instrument you wish to modify. Notice that each time this is done the screen will update to the new instrument.

To change a parameter hit "RETURN". This will move the cursor down from one parameter you wish to change and type in the new value followed by "RETURN". To move around the screen the "RETURN" key can be used to repeatedly loop through the parameters. Typing "P" followed by RETURN will move the cursor to the previous value. Typing "S" followed by "RETURN" sets the cursor to the instrument number.

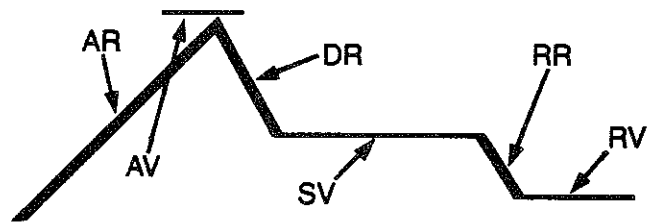
To completely leave the preset definition screen hit the spacebar followed by "RETURN". This will send you back to live mode allowing you to hear any of the changes made to the preset parameters. Figure 5 briefly shows and describes the functions of each preset parameter.

III. Instrument Modification and Control

ENVELOPE PARAMETERS



percussion channel



primary channel

Percussion Channel

PR: Percussion Rate
 PV: Percussion Volume
 FR: Fall Rate
 FV: Fall Volume

Primary Channel

AR: Attack Rate
 AV: Attack Volume
 DR: Decay Rate
 SV: Sustain Volume
 RR: Release Rate
 RV: Release Volume

CONTROL PARAMETERS

PC = Percussion Control =

	0	1	2	3
Perc. Chan.	off	on	off	on
Velocity	off	off	on	on

FC - Frequency Control =

1/4 steps; C=6,30,54,78 when A=440HZ

AC - Attack Control =

attack-decay repeat, 0=off 1=on

ET - Envelope Control =

0=Linear, 1=Exponential

Figure 5: Preset Parameters

III. Instrument Modification and Control

The control parameter, "ET" (envelope type) has the same function as the "CTRL-A" command of alphaPlus. Note that with Metatrak 1.1, 2.0 and alpha Plus 2.0, it is possible to have linear and exponential instruments in the same preset master. This wasn't possible in earlier versions. To do this, the linear envelope had to be internally altered. Any linear preset masters that were created with earlier versions of alphaPlus will have to be converted to the new format or they will not sound right. Conversion can be done by booting up a DOS 3.3 disk, putting the Metatrak disk into the disk drive and typing "RUN LINEAR-CONVERT". This is a program that will automatically convert old linear preset masters into the new ones.

Like a preset master, each individual preset can be saved or loaded. To do this use CTRL-E and select the desired function "S" (for save) or "L" (for load). A prompt will appear allowing the disk access to occur. The same conventions in loading or saving a preset master apply for the individual preset. Note: the complete individual instrument isn't saved or loaded within the preset, only the envelope and control parameters (waveforms, vibrato and oscillator offset aren't included).

C. Waveforms (CTRL-W,?)

Although actual waveform creation can't be implemented within Metatrak it does provide for loading and saving of waveforms. Thus waveforms can be created using alpha Plus or Sounds Trio and then loaded directly into Metatrak. To load or save a waveform via disk, type CTRL-W. The following prompt will appear:

```
"WAVEFORMS
L)OAD OR S)AVE WHICH?"
```

To load a waveform type "L" followed by "RETURN". The following prompt will appear:

```
"INSTRUMENT #:0"
```

Select the instrument number you wish to work with followed by "RETURN". The primary channel waveform prompt will appear first enter the new waveform to be loaded followed by "RETURN". If it is to be left as is just hit "RETURN". The percussion channel waveform prompt will then also appear. Follow the same procedure as previously mentioned for the primary wave.

```
PRIMARY .....LOAD WAVE: SINE 1 & 4
PERCUSSION .....LOAD WAVE: SINE 2
```

Saving a waveform to disk is handled the same as loading a waveform. Remember a "?" can be typed at the beginning of any file name to show the contents of the disk before loading or saving. This is very useful if you are using a previously prepared disk with many waveforms on it and you need to make reference to the correct spelling or just what is available.

III. Instrument Modification and Control

D. Oscillator Offset (CTRL-0)

Each instrument uses two oscillators, one for the primary channel and one for the percussion channel. In Metatrak, the frequency offset between the channels of each instrument can be set by holding down the "CTRL" key and typing the "0" key. The following prompt should appear:

"SET OFFSET: 2"

The current offset for the instrument will be shown. A new offset is selected by entering a number between 0 and 255. If the offset is not to be changed simply type "RETURN". The offset value corresponds to 32nd tone increments applied to the percussion channel. A value of zero will give no offset. By slightly offsetting the frequency with a value of 1 or 2, the sound will usually become much richer and full. In some cases setting the offset for tonic intervals such as a fourth (80), or fifth (112), can be effective making each note sound like a chord. A value of 192 causes an octave of offset. Changes to an instrument oscillator offset can only be saved within a preset master.

E. Vibrato (0,V,CTRL-V)

Vibrato rate, "VIR", and vibrato depth, "VID", are shown on the screen while in live mode. By typing "U", the current instrument vibrato rate and depth will be updated on the screen. To instantly turn off the vibrato, type the "0" key. Re-typing the instrument number will reinstate the instrument's vibrato.

Although each instrument in live mode has its own individual vibrato rate and depth settings, only one vibrato (frequency LFO) exists in the operating system. Thus, when using multiple instruments as with Metatrak recording or with split keyboard, the current vibrato setting displayed is shared by all.

Vibrato rates or depths can be modified. One method of doing this is by adjusting the analog control paddles and sampling their position by typing "V". Another way is by first holding down the "CTRL" key then typing "V". This will cause the following sequence of prompts to appear:

"LOAD VIBRATO WAVE: SINE"

Here, the vibrato modulation waveform may be changed to a new waveform called from the diskette. To leave as is type "RETURN". The next prompt will be:

"VIBRATO RATE: 21"

The current vibrato rate will be shown. To change, type in the new value followed by "RETURN". If no change is to occur simply type "RETURN". The last prompt displayed is:

"VIBRATO DEPTH: 3"

III. Instrument Modification and Control

Changing depth is handled as with vibrato rate. Again, typing "RETURN" will cause the displayed value to be used. After this sequence, the system will return to live mode. The new vibrato values selected will replace the current instrument's vibrato values. Note: like offset, vibrato settings are only saved within the preset master.

F. Master Volume <- ->

Master volume of all instruments can be dynamically controlled using the left and right arrow keys on the Apple keyboard. Typing the "<-" key lowers system volume by 5. Typing the "->" key raises system volume by 5. The range of the master volume is from 0 to 255.

The master volume is shown on the screen display when in live mode by "VOL". The current volume, as adjusted by the arrow keys, can be updated on the screen by typing "U" for update. The value upon boot-up will be whatever the master volume is set at in the set-up procedure.

G. Pitch-Bend (CTRL-B)

Metatrak has a built-in pitch-bend control as opposed to being implemented in an FX mod as with alphaPlus. The pitch-bend feature can be accessed by holding down the "CTRL" key while typing "B". Doing this will allow pitch control through the analog control paddle 0. When pitch-bend is selected a "PB" will appear on the screen to the right of "VOL".

Pitch-bend is normally used by controlling the paddle with one hand using your thumb, while playing the keyboard with the other. Pitch-bend is only applied to the live keyboard instrument and it cannot be recorded. To turn pitch-bend off type "CTRL" "B" again.

H. Fine Tuning

The alphaSyntauri keyboard in Metatrak is tuned to A=440HZ in an equal tempered scale. If it's necessary to change the fine tuning, the alphaSyntauri tuning can be modified with the "scale update program".

To use the scale update program, quit Metatrak by pressing the spacebar from live mode, then type "Q" followed by "RETURN". By doing this the basic prompt "]" should appear. Make sure the Metatrak diskette is in the disk drive, then type "RUN SCALE UPDATE" followed by "RETURN".

After the program is loaded from disk, a prompt will appear on the screen specifying the current frequency of A above middle C. To change the value enter the new frequency in HZ followed by "RETURN". Note: for reference, when A=440HZ, A flat=415HZ and B flat=466HZ.

After selecting the frequency, a prompt will appear for specifying intervals per octave. Standard equal tempered scale is twelve intervals per octave. In Metatrak, any value from one to fifteen

III. Instrument Modification and Control

intervals per octave can be selected. If this is not to be changed, simply type "RETURN". The scale update program will then load and run Metatrak again.

Note that pitch-bend can also be used as a fast, although temporary, method of tuning to raise the pitch in 32nd tones. Pitch-bend, however, will only affect the live keyboard; tuning of recordings will stay as specified in the scale update program.

Coarse tuning for transposition of key or octaves can be controlled within the instrument definition or by using the transpose.

I. FX Mods (CTRL-F)

The Metatrak software has a special feature that allows "FX mods" to be loaded off diskette and into the main program loop. FX mods are small assembly language programs that serve specific functions for sound modification.

There are several FX mods available on the Metatrak diskette for immediate use. The FX mods included are individually described in Appendix F. Future software releases from Syntauri will include additional FX mods for Metatrak.

An FX mod can be loaded by holding down the "CTRL" key while typing "F". A prompt will appear:

```
"MFX MODE
L)OAD, S)AVE OR O)FF:"
```

By typing "L" the following prompt will appear:

```
"LOAD MFX MOD:"
```

Type the name of the FX mod desired followed by "RETURN". (Note: the "M" in MFX is to distinguish a Metatrak FX mod from an alphaPlus FX mod. The two file formats are different and cannot be mutually used.) After the FX mod is loaded another prompt will appear:

```
"LOWEST TRACK:"
```

Enter the lowest track number, (0-16) followed by "RETURN", that is to use the FX mod. By simply typing "RETURN", the track assignment will default to the track number already in the FX mod. (To fully understand the implications of this prompt, you must become familiar with the track master, explained in section V. Not all FX mods can be assigned to a track region. See Appendix F.) A final prompt in this sequence will then appear:

```
"HIGHEST TRACK:"
```

III. Instrument Modification and Control

Similar to the preceding prompt, enter the highest track number, (0-16) followed by "RETURN", that is to use the FX mod. The combination of these specifications sets up a region of tracks that use the FX mod. Those tracks outside of the region are left in their normal state. After this the system will return to live mode.

Control of FX mods varies, some may be fixed, others allow their parameters to be modified through the analog control paddles. Once a modifiable FX mod is set to your liking, its state can be saved along with the track region assigned to it. To do this hold down the "CTRL" key while typing "F", as explained earlier for loading an FX mod. This time, however, type "S" for save FX mod. The following prompt will appear:

"SAVE MFX MOD:"

By typing a new name for the FX mod, followed by "RETURN", the current state of the FX mod will be saved to disk for later use.

To turn off any FX mod hold down "CTRL" and type "F" again, then type "0" followed by "RETURN". After turning the FX mod off the system will go back to live mode.

IV. THE SPLIT KEYBOARD FEATURE

Metatrak has a powerful split keyboard capability that allows the alphaSyntauri keyboard to be sectioned with a different instrument assigned to each. Up to eight sections can be defined.

The split keyboard feature is very effective for a live performance. For example, the lower two octaves might be set for bass guitar while the upper octaves could be set for strings. Using the split in conjunction with recording makes it possible to record then play back a repeating background line while playing a few different instruments live in split mode on the keyboard.

The following sections provide information on defining a split, changing instruments in a split, and saving or loading a split master via disk.

A. Split Keyboard Parameters

Looking at the video display while in the live mode you will see various parameters on the lower portion of the screen (see Figure 6). Those specifically associated with split keyboard are in the top line. The parameters are defined as follows:

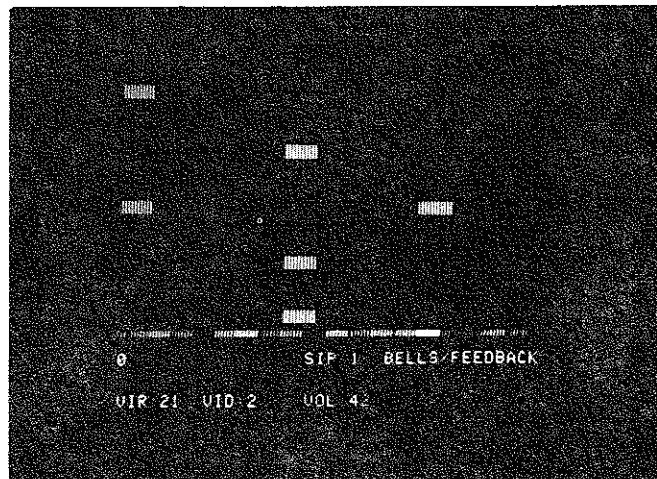


Figure 6: Live Mode (without keyboard split)

"0"

Shows that the only instrument in use is instrument number 0. Since only one number is displayed the keyboard isn't split. When two numbers are displayed there are two instruments in split mode at the keyboard, and so on up to eight numbers and eight splits.

IV. The Split Keyboard Feature

"SIP: 1"

Shows that the "Split Instrument Pointer" is set to 1. Since only one instrument is currently defined, a numeric key (between 0 and 9) struck on the Apple will change the instrument for the entire alpha keyboard. Please remember that you must type "U" to update the video screen display when you change instruments.

"BELLS/FEEDBACK"

Shows the name of the current instrument being pointed at by SIP. As previously mentioned "U" must be typed to update the screen for current status.

B. Defining A Split (CTRL-S)

Defining a split keyboard can be accomplished by holding down "CTRL" while typing "S". The following prompt will appear:

```
"SPLIT MASTER MODE
(L)OAD, (S)AVE OR (D)EFINE WHICH:"
```

To define a split type "D" followed by "RETURN". Next, a prompt will appear that asks to specify the number of splits to be used:

```
"NUMBER OF SPLIT INS. (MAX=8)"
```

For demonstration purposes, type "2". The next prompt will ask you to set the position of the split on the keyboard:

```
"HIT KEY FOR SPLIT POINT #1"
```

You can now set a split point by pressing the key on the alphaSyntauri keyboard where you want the split. Again, for demonstration purposes press a key somewhere in the middle of the keyboard. Immediately after this is done a list of all the instruments in the preset master will be displayed on the screen (see Figure 7). Below the list a prompt will ask you to assign an instrument number to a split position:

```
"ENTER SPLIT INSTR. #1"
```

Typing an instrument number will assign the corresponding instrument to the left most split. For example, type 7. The prompt will then update for assigning the next split instrument; type 5. After instrument selection the alphaSyntauri will be back in live mode. By playing the keyboard you will hear the two instruments divided by the split. Looking at the screen (Figure 8) you should also notice changes in the split keyboard parameters.

IV. The Split Keyboard Feature

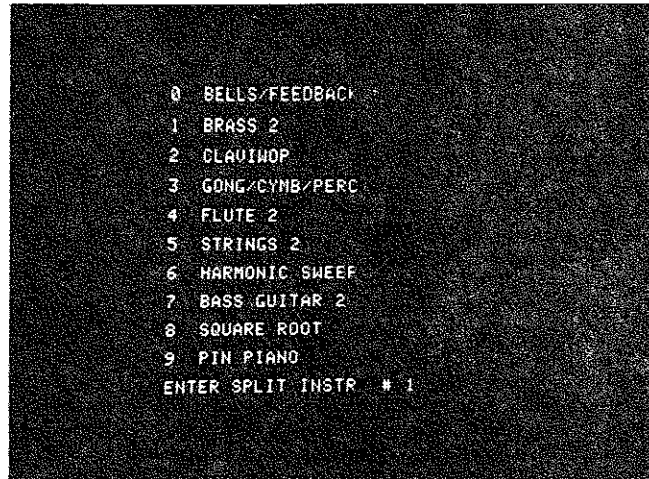


Figure 7: Preset Master list for assigning instruments to splits

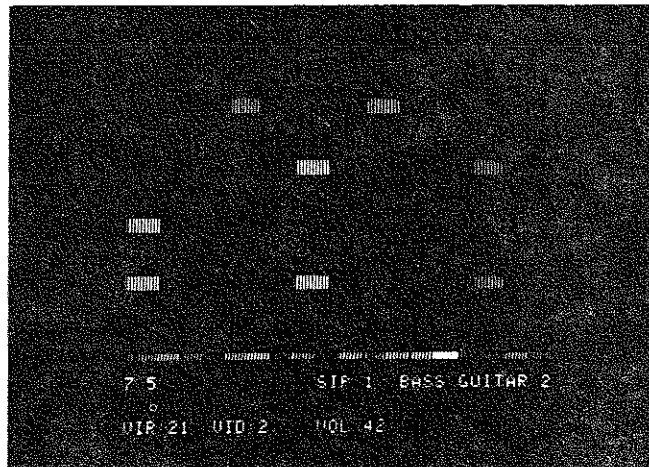


Figure 8: Live Mode with a split of two instruments

"7 5"

Shows there are two instruments on the alphaSyntauri keyboard. Instrument #7 is on the lower portion and instrument #5 on the upper portion.

"SIP: 1"

Shows that the split instrument pointer is now set for controlling the lower split instrument. Typing a key between 0-9, will change the lower instrument.

"BASS GUITAR 2"

This shows the current instrument name of the split pointed at by SIP.

IV. The Split Keyboard Feature

The preceding was a basic run through of defining a split keyboard. As you can see it is very straight forward and the more practice you get the simpler it will become. Try setting up all eight splits with instruments 0-7! To reset the keyboard back to one split, define a split of one and hit the uppermost key for the split position.

C. Changing Instruments (J,K,0-9,U)

Once a split is defined, it is possible to change the instruments associated with a split while in live mode. This is done by controlling the SIP. The number specified by SIP is the number of the split that can currently have its instrument changed. For example, if SIP=2 and there were four splits, then the second from the left split can have its instrument changed by typing a number (0-9).

To control SIP the "J" and "K" keys on the Apple are used. Typing "K" increments SIP by one. Typing "J" decrements SIP by one. (Notice that it isn't necessary to type "U" to show the current state of SIP.)

With a keyboard split of two, typing "K" will allow the upper split to be controlled, typing "J" will allow the lower to be controlled. If the instrument or SIP is changed, the correct instrument name will only be displayed by typing "U".

D. Saving or Loading a Split Master (CTRL-S,?)

Because some split keyboard definitions can become quite complex, Metatrak provides the capability for saving and loading a split master. The split master contains all the specifications for a given split keyboard definition.

To save a split master to disk, hold down the "CTRL" key while typing "S". When the prompt appears for load, save or define, type "S" for save. Next a prompt will appear:

"SAVE SPLIT MASTER:"

Type the name for the current split followed by "RETURN". Associating the split master name with the musical piece and preset master it is used with, will serve as a reminder for later use. After the split master is saved to disk, live mode will be reinstated.

Loading a split master is handled in the same fashion. When selecting the split mode type "L" for load. The following prompt will appear:

"LOAD SPLIT MASTER:"

Enter the name of the split to be loaded from disk followed by "RETURN". Remember, typing a "?" while in live mode or before entering a file name for load or save, will display the contents of the diskette.

V. THE RECORDING PROCESS: BACKGROUND INFORMATION

A powerful compositional tool, the Metatrak record feature additively combines multiple recorded performances for simultaneous playback. For example, take the creation of a composition consisting of three different instrument parts: bass guitar, electric piano and flute. Using Metatrak the bass guitar could be recorded first. Once completed, the recording is played back and listened to while simultaneously recording the electric piano. Similarly, the flute can be added while listening to the two earlier recorded parts. The result is a quick and cost effective recording which may be used for compositional arranging, recording studio preparation, background to live performance, or simply for listening pleasure at a later time.

The process of recording with Metatrak is broken down into three categories:

- * Standard Recording - Used to lay down the first track
- * Metatrak Recording - Used for adding subsequent track recordings while listening to earlier ones play back
- * Mix-Down/Playback - Used for the final review and adjustment of all track parameters

Compared with tape based multi-track recording techniques, this process is respectively analogous to "record only", "sync" and "playback only" modes.

The following sections cover these three categories and how they work in conjunction with the "track master". In addition, a comparison with tape based multi-track recording is made and other important aspects of Metatrak are discussed. For a demonstration of a Metatrak recording, see Appendix D.

A. Tape Based Multi-track Versus Metatrak

With Metatrak, each recording is associated with an individual track number of which there are sixteen available. The term "track" comes from conventional tape based multi-track recording where record/playback control over each track is accomplished by electromagnetically dividing the tape into multiple parallel sections. Each section has its own erase, record and playback heads.

Multi-track recorders started making their appearance in the late 1960s when half track (stereo) and quarter track (4 track) were commonly used. Now it is common for recording studios to have a number of multi-track recording systems consisting of 2, 4, 8, 16 or 24 tracks.

There are similarities and differences between a tape-based multi-track recorder and Metatrak. Both methods of recording have their particular advantages, but they are not the same. Similarities

V. The Recording Process: Background Information

are the provision of standard multi-track recording features such as: record, playback, erase, fast forward, punch in/punch out, click track and track parameter control.

A major difference between the two methods, however, is that a tape based recording system is capable of recording virtually any audio sound, including various acoustic instruments and vocals. Metatrak exclusively records sounds played on the alphaSyntauri keyboard. Because the alphaSyntauri implements recording digitally, it provides features and capabilities not possible on conventional tape based systems. Such features and capabilities include: changing instrumentation of an already recorded piece, playback speed adjustment without pitch change, and special sequence recording modes. Combining standard multi-track capabilities with special recording features, Metatrak proves an effective compositional tool.

B. The Track Master (CTRL-R)

Before starting to record, you should understand the concept and use of the track master. As compared to a tape based multi-track recorder, the track master acts as the control console and interconnection to the instrument being recorded. It provides all the information for assigning an instrument and controlling parameters of a given track. Its specific use and access depends on what function is being implemented, whether it be standard recording, Metatrak recording or mix-down/playback.

The track master can be accessed for viewing in live mode, by holding down the "CTRL" key while typing "R". In doing this a track master display will appear on the screen looking similar to figure 9. Looking at the display you can see that each of the sixteen tracks, plus the live keyboard (track 0) are listed vertically at the left side of the screen. Each track has associated with it a "field" for instrument number, instrument name, record status, vibrato status and volume. Below the track master display is the prompt:

"CHANGE VALUES FOR TRACK NUMBER:"

This allows you to change the track master. For now, though, let's just review the functions of the track master (detailed explanations are covered later).

V. The Recording Process: Background Information

TRK	INS	NAME	RSTAT	UIB	VOL
0	KBD				
1	BASS	GUITAR 2	PLA		
2	CONG	CYMB/PERC	PLA		
3	BASS	GUITAR 2	PLA		
4	STRNG	STRINGS	PLA		
5	STRNG	STRINGS	PLA		
6	SQUARE	ROOT	PLA		
7	HARMONIC	SWEEP	PLA		
8	IN PIANO		PLA		
9	BELLS	FEEDBACK	PLA		
10	FLUTE		PLA		
11	BASS	GUITAR 2	PLA		
12	CONG	CYMB/PERC	PLA		
13	BELLS	FEEDBACK	PLA		
14	STRNG	STRINGS	PLA		
15	CONG	CYMB/PERC	PLA		
16	STRNG	STRINGS	PLA		
17	CONG	CYMB/PERC	PLA		
18	STRNG	STRINGS	PLA		
19	CONG	CYMB/PERC	PLA		
20	STRNG	STRINGS	PLA		

CHANGE VALUES FOR TRACK NUMBER

Figure 9: The Track Master

Instrument Number and Name

The instrument field of the track master (as shown in figure 9), defines which of the ten instruments of the current preset master is assigned to a track. The assignment is controlled by the instrument number. Each track doesn't have to be different. A single instrument can be assigned to more than one track. Note that the instrumentation specified by the track master is dependent on the current preset master. Thus, to achieve the original orchestration in later playbacks, the preset master and track master used in the recording must be loaded. Loading and saving a track master is covered later in this section.

Record Status (RSTAT)

The "RSTAT" field in the track master specifies the current mode of operation for a given track: playback, record or erase. When accessed in live mode or during playback, "RSTAT" for all tracks will be set to "PLA" for playback. In standard recording the "RSTAT" field may also specify "REC". In Metatrak recording all modes are possible: "PLA", "REC" and "ERA" (for erase). Only one track can be set to "REC" at a given time (except in ensemble mode).

Vibrato Status (VSTAT)

A vibrato status field, "VSTAT", is provided for turning vibrato on or off for each track. Although each instrument in live mode has its own individual vibrato setting, only one vibrato (frequency LFO) exists in the operating system. Thus, when using multiple instruments, as in Metatrak, the vibrato setting is that of the current keyboard (track 0) instrument. Using "VSTAT" the global vibrato can be selectively applied. When "VSTAT" is set to 1, vibrato is applied. When set to 0, it is off.

V. The Recording Process: Background Information

Volume (VOL)

The last parameter field in the track master is volume, "VOL". The "VOL" setting is used especially in mix-down/playback to bring out or subdue specific instruments relative to one another. The volume range is from 0 (off) to 255 (full on). Unlike the master volume which is absolute and completely linear. The "VOL" setting is actually a limit for the maximum volume of an instruments amplitude envelopes. It has a similar effect to lowering or raising the PV, AV and SV envelope parameters.

Two things should be kept in mind when using "VOL". First, being a limit control rather than absolute volume, "VOL" will only affect volume if set below the envelope volumes as defined with alphaPlus. If set above, the instrument will stay as it was originally defined. Second, the overall adjusting effect will respond exponentially.

C. Saving or Loading a Track Master (CTRL-T,?)

The track master is an integral part in the recording and playback process. Because it will vary from recording to recording, a provision is made for saving and loading a track master via disk. With this capability a complete multi-track recording can be worked on and then saved with all the track master settings accessible at a later time. Saving or loading a track master is done in live mode by holding down "CTRL" and typing "T". A prompt will appear:

```
"TRACK MASTER MODE  
L)OAD OR S)AVE WHICH:"
```

Typing "L" followed by "RETURN" will select the loading of a track master from disk. Typing "S" followed by "RETURN" will select the saving of the current track master to disk. Once either is selected a prompt for typing the track name will appear. Enter the appropriate name followed by "RETURN". After the disk is accessed, live mode will be reinstated.

As mentioned earlier, typing "?", in live mode or at the first letter position of a file load or save, displays diskette contents. This allows viewing for track master file names which are preceded by "TRACK MASTER:".

D. Oscillators, Instruments, Voices and Tracks

Understanding the relation between oscillators, instruments, voices and tracks, will help you in preparation and creation of a good Metatrak recording. These four entities can easily be confused at first; however, each one serves an individual function. A brief description of each of these key entities is presented below.

V. The Recording Process: Background Information

Oscillators

Digital oscillators are the waveform sound source for the alphaSyntauri synthesizer. There are a total of sixteen available for use.

Instruments

Instruments are preset sounds. Each has information for controlling two oscillators per voice. Instruments are loaded into Metatrak as a preset master, a bank of ten instruments.

Voices

A voice is a single active instrument sound. Each new note played activates a voice. Since each instrument definition controls two oscillators, each voice uses two oscillators. Having sixteen oscillators available, up to a total of eight voices can be active simultaneously.

Tracks

A track is the means for associating notes being recorded with a specific instrument. There are sixteen tracks available for recording, (not to be confused with sixteen oscillators). Any track can have any instrument in the preset master assigned to it.

To summarize the above descriptions in reference to Metatrak: You have sixteen tracks available for recording. Each track can have any of ten instruments in the preset master assigned to it. Up to eight voices can occur simultaneously among all the tracks.

Considering the fact that only eight voices are available, you might wonder, "Why have sixteen tracks?" The voice limitation is eight "simultaneous" voices. This does not mean only eight instruments can be used throughout a piece. Thus, it is possible to have various instruments with different track settings, (volume, vibrato, FX mods), occurring at different places within a Metatrak recording as long as no more than eight occur simultaneously. If eight voices are exceeded, the voice with the lowest volume will be removed. The live screen display can prove useful for seeing how many voices are active at a given time.

Selecting instruments can play a very important part in the final outcome of a Metatrak recording. There are a number of preset masters available within the alphaSyntauri synthesizer software library. These preset masters may serve your initial recording needs, or you may choose to create instruments yourself using alphaPlus. Besides considering general orchestration among tracks, certain defined characteristics of an instrument will have an effect on the recording. This is especially the case with envelope parameters.

If an instrument's envelope has a long release time (the note sustains after releasing a key), it is easy to use many voices in a short period of time. Consider the situation of playing one note at a time quickly up the keyboard. If the release time was lengthy, all of the

V. The Recording Process: Background Information

eight possible simultaneous voices could be used, even though only one key was struck at a time. This occurs because an oscillator pair will stay assigned to each sustaining voice.

To maximize the number of voices available at a given time, it is best to use shorter envelope release times. Doing so will prevent clipping of notes (turning off an active voice for a new one), in case the maximum number of simultaneous voices is exceeded. If a particular instrument needs a long release time at a certain point within a recording, use the sustain pedal to accomplish this so it can be turned on or off as needed.

E. The Metronome/Click-Track (CTRL-Z)

Since Metatrak recording is an accumulative process of recording a new track while listening to previous ones, the most important recording is the first. This is especially the case for timing. To assist in recording a good first track, in perfect timing, Metatrak provides a "metronome/click-track".

The metronome/click-track is a visual and audible assistant used while playing music at a specific tempo. It serves many functions including: assistance in recording a good first track, a timing marker (click track) for subsequent tracks, drum machine tempo (see section IX) or just practice in live mode.

The metronome/click-track can be accessed in line with the record and playback commands or from live mode by holding down "CTRL" and typing "Z". In doing this, a prompt will appear asking to set the tempo at a value of 0 to 280 beats/minute (0-155 if drum interface is on).

" METRO TEMPO (0-280):"

To set a tempo, type in the desired value followed by "RETURN". A value of "0" turns the metronome/click-track off. After set, a second prompt will appear.

"METRO PRE-COUNT (0-16):"

The pre-count prompt is used to set up a preliminary count that allows you to monitor the tempo before any playback or recording starts. The most useful application for pre-count is in the Metatrak record mode since playback normally starts immediately. You probably won't find it that useful in other cases so just typing "RETURN" will ignore it. Entering a value up to 16 will cause it to count the specified number of metronome beats before playback or recording begins.

Once back in live mode, the system provides both visual and audio feedback. For visual indication a rectangular block alternating from one side of the screen to the other will appear. Simultaneously, an audible click will be heard coming from the speaker inside the Apple. In addition, the metronome/click-track signal is sent to the cassette output connector on the back of the Apple. This allows for further

V. The Recording Process: Background Information

audio amplification by connecting a cable from the output to your audio system.

Note when using the metronome while recording, it is necessary to anticipate the beat slightly to terminate properly. This is because the spacebar when pressed will wait until the next metronome beat before it actually terminates the recording. This allows perfect synchronization for using the ECHO/REPEAT feature. By anticipating the beat slightly you can be assured to terminate at the correct time.

VI. STANDARD RECORDING MODE

Standard recording in Metatrak is used for recording the first track of a multitrack piece, or simply for laying down a single track. It is very similar to recording in the alphaPlus operating system software using the record/playback menu to control the recording process. A major difference, though, is in the assignment and control of one of sixteen tracks for recording. As mentioned earlier, this function is accomplished through the track master.

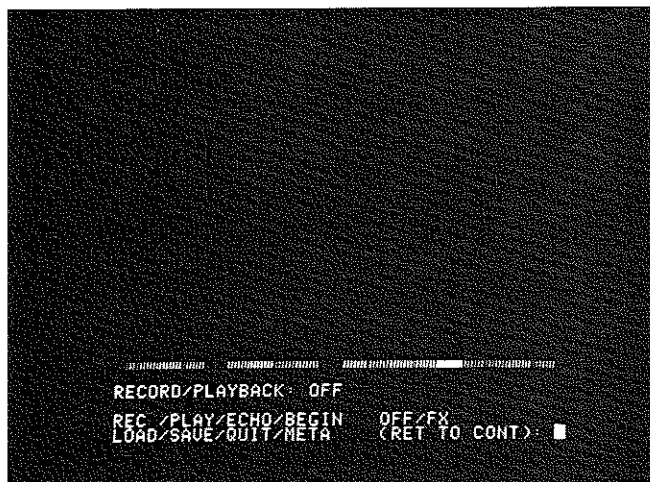


Figure 10: The Record/Playback Menu

A. The Track Master In Standard Recording

The track master is accessed in standard recording in-line with the recording process. To start a recording, the record/playback menu must be called by pressing the space bar in live mode (see figure 10). To select standard recording type "R" followed by "RETURN". The metronome prompt will then appear (see section V.) followed by the track master.

At any given time only one track can be in record mode (ensemble mode is an exception to this). The track showing "REC" in its "RSTAT" field, is the current recording track. All other tracks are set to playback, "PLA", even though they are not in use. Below the track master display is the prompt:

"CHANGE VALUES FOR TRACK NUMBER:"

If the current state of the track master is acceptable, simply hit "RETURN" to continue into the recording process. If you wish to change the assigned instrument, record status, vibrato status or volume of a track, type the number of the track you wish to change followed by "RETURN". Although not mandatory it is usually best, for the sake of organization, to use track number "1" for your first recording.

VI. Standard Recording Mode

After responding to the prompt with a track number, a cursor will appear at the instrument number of the track. To change the instrument, type the new instrument number followed by "RETURN". Notice this will also update the instrument name. If the instrument is not to be changed, hit "RETURN" to step to the next field.

The next field encountered is "RSTAT" (record status). If you wish to use this track for your first recording and "RSTAT" is already in record, simply hit "RETURN". If not, type "R" and the status will update to record mode, "REC".

Hitting "RETURN" will move the cursor to "VSTAT" (vibrato status). Vibrato status is a switch that can restrict or apply vibrato to a track. To change, enter the desired value (1=on, 0=off), followed by "RETURN". Again, if no change is required, hit "RETURN".

The last field is "VOL" (track volume). To change, enter the desired value (0-255) followed by "RETURN", or just hit "RETURN" to leave as is. At this point the following prompt will appear again:

"CHANGE VALUES FOR TRACK NUMBER:"

If the track master is set up correctly, hit "RETURN". If not, follow through as explained previously.

B. Recording The First Track

Once the track master has been set for recording your first track, the record/playback menu will again be displayed. From this point on the general recording techniques of alphaPlus are applicable. Hitting "RETURN" will put the system in live mode with the instrument name in reverse video (signifying record), and the track number being recorded displayed by "REC:" The actual recording will not start until a key or pedal is depressed. (Note: The sustain and portamento pedals are also recorded).

As explained in Section V, the metronome/click track can be used for keeping tempo or to serve as a guide for future tracks. Although the metronome/click track will serve most purposes, at times you may also want to use the first track as a "click track recording". Its primary purpose is to serve as a guide for later tracks. A click track recording will usually last the entire duration of the recording and sometimes use many voices. Once all other tracks are added, the original click track can be erased. If you choose to approach recordings in this fashion, the instrument used should be defined with envelope peak and sustain values that are relatively low compared to the other instruments. This way, even if too many voices are played the click track recording will disappear first.

It is important to remember when laying down your first track not to use too many voices. That is, playing many notes simultaneously. A maximum of eight notes (voices) can be active at a given time for all track recordings. Being conservative will free up voices for later tracks. Effective use of voices is covered in Section V.

VI. Standard Recording Mode

Another type of first track recording is the "dummy track". A dummy track is basically recorded time elapsing, without keyboard input. It can be used when you are not interested in following a first track recording while adding subsequent tracks. An example of this might be a composition that changes instrumentation sequentially from beginning to end. To record a dummy first track, simply press one of the footpedals down and up once, then let the system record time for as long as the expected duration of the piece. For example, if the length of the total piece was around five minutes, record the dummy track for five minutes then terminate the recording and save it to disk.

To terminate any type of recording press the SPACEBAR. If you are satisfied with the recording for your first track, save it to diskette from the record/playback menu by typing "S" followed by "RETURN". A prompt will appear:

```
"RECORDING COMPLETE:"  
NAME TO SAVE:
```

Type the name you wish to give the recording (not to exceed fourteen characters), followed by "RETURN".

If you wish not to save the recording, but rather start over, reset the record buffer to the beginning by typing "B" followed by "RETURN" in the record/playback menu.

Other standard functions of the record/playback menu can also be useful in assistance to the recording process. Playback of the recording is accomplished by typing "P" followed by consecutive "RETURN"s until heard. The echo feature, "E" followed by "RETURN", will allow a sequence repeating of the recording after terminated by the spacebar. If a recording that was saved to disk needs to be reviewed, the load function can be selected by typing "L" followed by "RETURN".

C. Meta Files

The length of a recording is measured by the total number of notes recorded and stored in memory. This is specified in the record/playback menu whenever a recording is terminated. The maximum number of notes allowed in basic Metatrak is approximately 3000 notes. Future product releases from Syntauri will expand the number up to 20,000 notes. The length of a recording relative to time, will depend on how quickly or slowly the notes are played.

In Metatrak the actual recording saved or loaded from the disk is called a meta file. A meta file is not compatible with previous alphaSyntauri operating system recordings, called note files. Thus, recordings saved as note files cannot be loaded into Metatrak and vice versa. The primary difference between the two file types is that Metatrak stores track information in a command byte format. A note file does not contain any track information.

VII. METATRAK RECORDING MODE

As explained earlier, Metatrak recording is the process of recording new tracks while listening to previously recorded tracks in playback. Sixteen tracks are available for recording, using any of the ten instruments of the preset master. Metatrak also has special recording operations for sequencing and adjusting the speed of tracks in playback. Additionally, many common tape-based recorder controls such as; track erase, punch in/punch out, and fast forward, are included.

Entering the Metatrak record mode can be accomplished from the record/playback menu by typing "M" for Metatrak followed by "RETURN". A prompt will appear stating:

"LOAD META FILE:"

Type the name of the meta file to be worked with followed by "RETURN". The meta file can be a first track recording or a previously worked on Metatrak recording. As additional tracks are being added, the meta file loaded will be updated unless you change the name during the Metatrak process. After the meta file is loaded the following prompt will appear:

"LOAD TRACK MASTER:"

This is provided for convenience in case a track master is to be loaded, if not, simply hit "RETURN".

A. Using The Track Master In Metatrak Recording

After the initial meta file is loaded the track master display will appear on the screen. Control of and access to the track master is handled as in standard record mode. The first step in Metatrak record mode is to select the next track for recording. If only one track, (a first track recording), was loaded chances are track 1 will be the track currently in record mode. As in the standard record mode, one track will always be set to record. To update the current record track follow through with the prompt sequence as with standard recording, section VI.

B. Recording Additional Tracks

Once the track master is set up as desired, actual Metatrak recording can begin. Prompts will appear after leaving the track master display. The first one will state:

"ECHO/REPEAT (Y/N):"

This allows the echo/repeat feature to be used. The default for this feature is "NO". For now, simply hit "RETURN". The second prompt will appear:

"METRO TEMPO (0-280):"
"METRO PRECOUNT (0-16):"

VII. Metatrak Recording Mode

This allows setting the metronome before entering Metatrak recordings. The metro pre-count will only appear if the metronome was set. The next prompt is:

"PLAYBACK SPEED (1-800%):100"

The default for this feature is normal speed (100%). For now, also hit "RETURN". Both these special features will be covered in more detail later.

At this point the system should be back in live mode, ready to record a new track while earlier recorded tracks are in playback. The instrument heard from the keyboard will be the instrument assigned to the current record track. The current record track number is indicated on the screen by "REC:". Whatever is played on the keyboard will be recorded in sync with the previous recordings. Note, the lower right side of the screen displays "METATRAK" as an indication of being in Metatrak record mode.

The recording can be terminated in two ways. The first is to let the previously recorded track complete playback. The second is to press the SPACEBAR at any given time during the process (the spacebar works slightly different with the metronome on, see section V.). Either method of termination will allow the option of saving what was recorded or disregarding it and starting over. The prompt that appears after pressing the SPACEBAR is:

"SAVE THIS TRACK (Y/N)?"

If "Y" is typed, the following prompt will appear:

"SAVE AS FILENAME:"

The name of the meta file loaded last will appear after the prompt. If you wish to keep the same name, simply type "RETURN". To change the name, type in a new name followed by "RETURN". IN EITHER CASE, THE newly recorded track combined with the earlier tracks will be saved to disk as a meta file. If the track is not to be saved, hit "RETURN". Either choice or originally typing "N" to "SAVE THIS TRACK" will encounter the prompt:

"Q)UIT OR M)ETA"

Now, if additional Metatrak recording is to be done, typing "RETURN" will cause the next prompt to appear:

"RELOAD (Y/N)?"

If "Y" is typed followed by "RETURN" it will go to a prompt to reload the new accumulative recording from disk. If "RETURN" is typed it will continue to work on the piece in memory. This function is similar to rewind on a tape based recorder. The track display will then appear on the screen waiting for the next track to be selected for record or modification. To record additional tracks follow the same sequence as previously explained.

VII. Metatrak Recording Mode

If no other tracks are to be added then typing "Q" for quit will route the system back to live mode. Before this happens though, the following prompt will appear:

"SAVE TRACK MASTER (Y/N)?"

Even though further mix-down work may be necessary, this prompt acts as a safeguard to save the current status of the track master. Typing "Y" followed by "RETURN" will allow saving the track master. Just typing "RETURN" moves the system on to live mode for mix-down of the Metatrak recording.

C. Erasing A Track

After recording several tracks you may decide to remove one completely from the accumulative recording. One quick way to accomplish a similar effect, is to zero out the volume parameter associated with the track. However, even though this removes the track's audio output, the track is still using up memory and occasionally using up oscillators that get assigned to it. If a track is no longer to be used, (as might be the case with a first "click" track recording), it is best to erase the track.

Considering how tape based recorders work, it would seem the simplest way to erase a track is to re-record on it without giving any input. With Metatrak, once a track is recorded, the recording stays even if you record over it again. The reason behind this is to make sound on sound recording possible on each individual track. So, to provide for complete removal of a track's recording, Metatrak includes an erase mode.

Any number of tracks can be set into erase mode by typing "E" after stepping to the "RSTAT" field of a track in the track master. Once set, the status "ERA" will flash on and off as a reminder that it is in erase mode. The actual erase requires going completely through the piece in Metatrak record mode and saving the track after termination. The tracks will stay in erase until reset to either play or record status. Play status can be reinstated by typing "P" after stepping to the "RSTAT" field in the track master. Erase will not affect a section of a track recording that was scanned through using the "fast forward" feature.

D. Punch-In / Punch-Out (ESC)

Being human and not a computer, we all make mistakes. Typically in the process of recording, the worst mistakes are at the end of an otherwise perfectly performed track. This is a form of "red light fever" which can be terminal to a musician in an expensive recording studio with an impatient producer hanging over him. With Metatrak it's not so bad, for like a recording studio, you have "punch-in/punch-out".

Punch-in/punch-out is an edit facility that allows selective erasing of unwanted portions of a recording. At the same time the old section

VII. Metatrak Recording Mode

is being erased, a new attempt can be made at recording it properly. Punch-in/punch-out is possible only in the Metatrak record mode.

To use punch-in/punch-out, set "RSTAT" to "REC" for the track to be worked on, (remember that re-recording over a track does not automatically erase it, but sets it up for sound on sound). Follow through the track master and record sequence until back in live mode listening to playback. When the portion to be removed approaches, type the "ESC" key once to punch-in. This will start the erase of the track. At this time the correction can be made. Notice that when punch-in active, the track number specified by "REC:" on the screen, will flash. To stop the erase, punch-out by again typing the "ESC" key.

Punch-in/punch-out can be used as many times through a recording as needed. After reaching the end of the recording it must be saved as with any new track recording. If it is not saved, the corrections made using punch-in/punch-out will be lost.

E. Fast Forward (F)

To speed up the process of adding to or correcting a recording, Metatrak provides a fast forward control. To set playback tracks into fast forward, type the "F" key. Doing this will speed playback up by eight times normal speed (800%). Fast forward provides the capability for "cueing" the playback of earlier tracks. To return to normal speed type "F" again. Fast forward will not affect the resulting tempo of the recording as other speed of playback adjustments do. Fast forward can't be used in conjunction with echo repeat.

F. Restart (R)

If while recording a new track you make a mistake or just choose to start over you can instantly "restart" the piece by typing "R". In doing this, anything just recorded on the current track will be lost. The same general function can be accomplished by pressing the spacebar, specifying not to save the track and reloading; this, however, requires a disk load which will take some time. If the metronome is on Restart will cause the metronome prompt sequence to occur. Restart will only work up until half of the total possible number of notes played, approximately 1500 out of 3000.

G. Echo/Repeat

The echo/repeat feature allows sequencing of playback tracks while a new track is added. This is especially useful when laying down a first track such as a bass line that is to continue through the entire piece. Another application might be a background progression of several tracks that repeat while adding a lead line that varies throughout the piece.

The actual process is simple. Let's say you have just loaded a short meta file for Metatrak recording. After your track master is set for

VII. Metatrak Recording Mode

recording the next track and no further changes are to be made, you will encounter the prompt:

"ECHO/REPEAT (Y/N)?"

To set echo/repeat type "Y" followed by "RETURN". Just typing "RETURN" will turn echo/repeat off. After selecting echo/repeat the playback speed prompt will appear, for now, hit "RETURN".

At this point the first track should be playing back from beginning to end then, starting over again in a continuous sequence. While this is happening the new track can be added via the keyboard. To terminate the recording press the SPACEBAR. Once saved and listened to, you will notice that the new meta file is the cumulative result of the sequenced tracks and the new track.

See appendix E for possible recording errors and warnings related to echo/repeat.

H. Playback Speed Control < , >

Another useful feature in Metatrak recording is the playback speed control. With this unique feature, playback tracks can have their tempo modified while adding a new track at normal speed. All of this is done without changing pitch, as with conventional tape-based systems. For example, you can record an extremely complex piece at a slower tempo, then modify it for the correct speed. It can also be used for adjusting a piece to fit within a certain time limit or accelerating or retarding sections of a piece.

There are two methods of playback speed control; one is used for exact pre-specification of playback before recording, the other is used for gradual dynamic speed control during playback.

To preset the exact playback speed, set up the track master and start the recording sequence. After the echo/repeat prompt is answered, the following prompt will appear:

"PLAYBACK SPEED (1-800%):100"

The default upon "RETURN" is 100% (normal speed). To change, type in the desired playback percentage from 1 to 800%, followed by "RETURN", (Note: 200% is twice the speed, 400% is four times the speed and so on). After being entered the playback track should be heard at the altered speed while the new track can be recorded at a normal speed.

To terminate, either wait until the end of the piece, (if not in echo/repeat), or press the SPACEBAR. When listened to at normal playback speed (100%), the result should be the same as when in the recording process.

There are many ways to use this feature. In some cases, it may take a couple of recordings, with modified speed, to get the desired result. An example of this situation might be, adding an extremely fast lead line to a piece at normal tempo. This can be accomplished by recording the selection prior to the lead line at normal tempo.

VII. Metatrak Recording Mode

To add the fast lead line slow the playback of the earlier tracks down to, maybe, 50% (half speed). Once the lead line has been added and the meta file saved, go back into Metatrak recording and adjust the speed to 200%. Let the piece complete recording without adding anything and then save it. The result will have all tracks at normal speed except the lead line track which will be doubled saved in the final recording.

For gradual changes in playback speed, the "<" and ">" keys can be used during playback. Pressing the "<" key once lowers the playback speed by 5%. Pressing the ">" key raises playback speed by 5%. Using these keys in conjunction with the "REPT" key will allow gradual speed transitions for "accelerando" or "ritardando". Once saved, the gradual speed changes will remain in the recording.

In either method of speed control, if you are going to use a very fast playback speed, make sure when originally recording, not to play notes too quickly. Extremely short notes that have been speeded up may seem to completely disappear. The particular envelope used also can have a big effect on the audible outcome of a recording played back at very fast speeds.

VIII. MIX-DOWN / PLAYBACK

In the conventional tape-based recording process, mix-down is the last major step before completion. In Metatrak, mix-down pertains to the reviewing process of a Metatrak recording and final adjustment of the track master before it is saved.

During Metatrak mix-down, instruments can be reassigned to different tracks, vibrato status set on or off, and most importantly, track volumes can be adjusted relative to one another. Granted, such functions can also be handled while in Metatrak recording, and in some cases should. However, the mix-down process tends to be more convenient, expedient and fail safe in standard playback.

There are various reasons why mix-down is best handled in standard playback. For one, tracks cannot be in record mode, alleviating the possibility of accidentally adding to a piece. Another reason is, the meta file doesn't have to be reloaded for each complete listening. This saves quite a lot of time when reviewing a recording numerous times. Also, playback speed can be dynamically incremented or decremented without modifying the final recording. This allows a controlled scanning through certain sections or adjusting for total time duration until satisfied with the results.

During mix-down/playback you may want to go back into Metatrak recording to modify a recorded piece. In fact, the two processes should be used interactively by using Metatrak recording primarily for adding or modifying track recordings, and using standard playback for periodic and final review for mix-down.

Exiting the Metatrak record mode will route the system back to live mode. Playback can then be selected by pressing the spacebar to get the record playback menu and typing "P" followed by consecutive "RETURN"s.

A. The Track Master in Mix-Down/Playback

After selecting standard playback, the current track master will be displayed on the screen. At this point, changes to instrumentation, vibrato status or volume can be made for each individual track. Unless you are already aware of changes to be made, it is best to start playback to review the recording. To do this, type "RETURN" until playback starts.

If while listening to playback you find it necessary to make a change to the track master, type "CTRL-R". Doing this will display the track master and allow changes to be made. Altering the track master parameters is accomplished as explained in Standard Recording, Section VI.

There are three main mix-down functions that should be adjusted as necessary during playback: instrumentation, vibrato state and track volume. The first of these to be finalized is instrumentation. Since each track recording is dependent only on the track number, any instrument in the preset master can be assigned to any given track. This also means a completely different preset master with ten new

VIII. Mix-Down / Playback

instruments can be loaded by typing "CTRL-P"; or, single presets "CTRL-E" or waveform "CTRL-W" can be loaded.

Once the instrumentation is finalized vibrato should be set. As explained in the track master section of this manual, one vibrato depth and rate is shared by all tracks. The vibrato used is that of the current keyboard (track 0) instrument. Applying vibrato to a track can be specified in the "VSTAT" field; a 1 = on, a 0 = off. Setting the global vibrato depth and rate is explained in Parameter Control, Section III. Using vibrato on a given instrument is really up to your own listening discretion. Traditional orchestral instruments, (strings, brass), usually sound more realistic with vibrato, where as keyboard instruments, (piano, organ), usually are better off without it.

As explained in Parameter Control, Section III, the "VOL" field specifies a volume limit that a track's instrument cannot exceed. The values can range from 255 (full on) to 0 (off). They also react differently if in linear or exponential envelope modes.

Setting "VOL" is done as explained in Standard Record Mode, section VI. Adjusting the volume of each track can have a great effect on the final outcome of a Metatrak recording. Proper usage of the volume control allows each track to be enhanced or subdued relative to the other.

An individual track volume remains as set throughout the entire recording. Variation of a volume for a single instrument part can be accomplished by re-recording on a new track the portion of the recording where the volume change is needed. Then the original section of the first track can be erased using the punch-in/punch-out feature. This allows the track volumes to be set as desired, having the same effect as changing volume during the recording.

In some cases you may want to completely eliminate a track. Turning the volume to 0 will audibly accomplish this. However, if the track is not going to be used, it should be erased. This is because the actual recording information is still in the meta file, thus will eat up memory for further use or disk storage.

B. Playback Reviewing <,>

It may take you several times through playback to properly mix down a recording. To speed up the process three playback speed controls are provided. Upon entering playback a speed control prompt will appear:

"ENTER PLAYBACK SPEED (1-800%):"

This prompt is handled exactly as in the Metatrak recording process. The only difference is that it won't permanently affect the recordings tempo. Typing "RETURN", without entering a value, causes a default to 100%, normal speed.

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Once in playback two other methods of speed control can be used; a fast forward control and an incremental speed control. Fast forward, as in Metatrak recording, can be implemented by typing "F". The incremental speed control can be used by holding down the shift key and typing ">", causing a 5% speed increase. Applying the "<" key in the same fashion will decrease speed by 5%. Using either of these methods makes it possible to bypass sections not requiring further review or to slow down for sections needing attention.

If a recording needs to be reviewed many times there are a number of methods to re-start playback from the beginning of a piece. First, by pressing the SPACEBAR to select the record/playback menu and then typing "B" followed by "RETURN", the meta file "buffer pointer" will be reset to the beginning. Once the buffer is reset, playback can be re-started by hitting "RETURN". Typing "R" (for restart) will accomplish the same thing. Another method is selecting "P" for playback again, re-starting the complete playback process. A third method, typing "E" for "ECHO", will cause playback to repeat automatically.

C. The Final Production (CTRL-D)

Once satisfied with all recorded tracks, the preset master and the track master, it is time to save the final production for later use. To do this both the meta file recording and its associated track master must be saved to disk. Use an extra disk for saving these files, it will help keep things organized. The recording can be saved as specified earlier in Standard Record Mode, Section VI. The track master is saved as explained in The Recording Process, Section V.

To provide a means of quick identification, it may help to name both the track master and recording with reference to the preset master that was used. For example, a track master named "JAZZ 1" using preset master "ALPHAPLUS" might be saved as "AP-JAZZ 1". The same goes for the associated meta file recording. Use whatever naming convention that works best for you, as long as names do not exceed fourteen characters. Relating file names will assure that the proper combination of track master, meta file recording and preset master will be loaded for playback at a later time.

In the final production stage you might want to clean up and organize the files on your diskette. To assist in this process, Metatrak provides access to standard Apple DOS commands by holding the "CTRL" key down and typing "D".

There are number of uses for DOS commands relative to Metatrak in the final production stage. For example, in the process of recording, files of various names may have been saved to disk. If these files are no longer needed they can be "deleted" from the disk using the DOS "DELETE" command. Besides deleting files you may want to fully protect your files from being accidentally written to by "locking" them using the DOS "LOCK" command. Another useful command is "RENAME". If you are not already familiar with these DOS commands see Appendix A and your Apple DOS manual.

IX. Additional Special Features

Outside of the recording and performance operations described so far, Metatrak offers additional special features that may be of great value to you. These additional features include:

*Ensemble - Allows multiple instruments to be sounded simultaneously per single key depression.

*Transpose Playback/Sequence - Transposes any Metatrak file being played back dynamically by using the lowest key depressed to designate key signature.

*Drum Machine Interface - Allows Metatrak recordings to be played back in perfect synchronization with rhythms programmed on various "drum machines".

*External Sync-to-Tape - Provides a synchronous interface for dumping one or more tracks at a time to a conventional multi-track tape recorder. This allows individual track post processing.

A. Ensemble (E)

By allowing more than one instrument to be sounded at the same time per key depression, the ensemble feature greatly enhance Metatrak's capabilities in performance, recording and sound definition. For performance use, ensemble gives dynamic control over the number of instruments "layered" at any time. In recording, ensemble will allow multiple tracks to be in record simultaneously. For sound definition ensemble makes it possible to create complex and fatter sounds with greater deversity in the way timbre evolves.

Ensemble is used in conjunction with the track master which can be accessed by typing CTRL-R. Before setting up an ensemble sound, decide on the instruments you wish to use from the preset master. Note: the more instruments layered in ensemble mode, the fewer the number of voices available (see Section V-D).

When using ensemble the first main instrument will be the live keyboard instrument. The others are specified in order by track number starting with track 1 in the track master. For example, if you wish to have any ensemble sound including Bells/Feedback, Brass 2 and Pin Piano, first make sure that the track master has Brass 2 in track number 1 and Pin Piano in track number 2. Return to live mode and type "0" to select Bells/Feedback. At this point only Bells/Feedback should be audible.

To enter ensemble mode type "E". The status character "EMO" will appear on the screen flashing. In ensemble mode the number keys no longer select different individual instruments but rather the depth of the ensemble (number of layered instrument) relative to the the track numbers in the track master. To get the ensemble combination that we are after, type "2". The status character on the screen will change to "EM2" and each note played will cause Bells/Feedback, Brass 2 and Pin Piano to sound. Typing "1" will remove Pin Piano. Typing "0" will bring us back to only Bells/Feedback.

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Other combinations of ensemble voicing can be approached in the same way.

Using ensemble mode for recording is similar to that of performance. The only difference is that the first main instrument of the ensemble is the instrument of the track specified for recording under REC in the track master. When using ensemble for recording specify a track that isn't used within the additional ensemble tracks. For example, if a four layer ensemble is to be used, tracks 1, 2, and 3 will be active with the record track. Thus a track number other than 1, 2, or 3 should be specified for the main record track. If the main record track conflicts with an ensemble track it will be bounced to track 16.

Although ensemble mode is set up primarily for use of one ensemble sound at a time there are ways to get around this when recording. For example, if you were interested in recording a Strings and Brass ensemble separate from a Bells/Feedback and Flute ensemble, set up the track master with the instruments in track 1 through 4 in the order mentioned. Set the volumes of the lowest two tracks to 0, select track 4 as the record track, use an ensemble setting of 3 and record. Only the first ensemble will record. To record the other ensemble, reset the volumes and move the record track to track 2 and set an ensemble of 1. This may seem a bit cumbersome at first but the results will be well worth it.

The erase and punch-in/punch-out functions in Metatrak record mode give another good reason for using ensemble recording other than just layering or making fatter sounds. With this function it's possible to record the same piece with multiple instruments and then selectively and independently erase sections at various parts of the recording. This allows precise control over orchestration and takes the burden off of the actual recording process.

B. Ensemble Sequence (S)

Ensemble sequence is a performance feature similar in operation to ensemble mode. Rather than sounding multiple instruments simultaneously though, it cycles through the ensemble instruments one at a time with each successive note played. To use, set up the track master with the desired ensemble instruments as is described for ensemble mode.

To select ensemble sequence mode type "S" instead of "E" and a status character "SMO" will appear on the screen. Set the ensemble to a number greater than 0 and the effect of ensemble sequence mode should become quite obvious after playing the keyboard. Note: ensemble sequence only works for performance in live mode and can not be recorded.

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C. Transpose Playback/Sequence (T)

The transpose playback/sequence feature provides a dynamic means of transposing any meta file in playback to a different key signature. This becomes especially powerful for performance when using short sequenced recordings and split keyboard which we'll cover shortly.

The general operation is simple: just record or load a recorded meta file from disk and set it into playback using the standard record/playback menu. While in playback, type "T" for transpose. The video screen will show a status character "TX" designating the system is in transpose mode. To transpose playback, press any key on the alphaSyntauri keyboard. The transpose interval will be upward relative to the lowest key (C0) on the keyboard. The transpose will always occur on the newest keyboard key pressed. To turn transpose off just type "T" again.

This is very straightforward if the music in playback is in the key of C originally, any key pressed will change playback to that specified key signature. For most cases though, the transpose operation should be thought of as a relative interval based on the lowest keyboard key which just happens to be C. Thus, if the lowest D is pressed, the music, regardless of what key signature it is in, is transposed upward by a MAJ 2nd. If the second to the lowest G key is pressed (G1), then the music in playback is transposed an octave and a MAJ 5th upward. It doesn't take long to get the hang of it.

Probably the most useful application of the transpose feature is when it is used with short sequenced recordings (ECHO) and split keyboard. The combination of these features allow for extremely powerful performance capabilities. The reason for this is that the transpose will solely be controlled by the lowest split freeing the upper split(s) to be used for live performance. This means an intricate bass line or background sequence can be played back pressing single keys down on the lower split while the upper split can be used for lead voicing.

Note: if the recording in playback isn't in the key of C the live keyboard voicing will most likely clash. For example, if the piece is originally in the key of D and D is pressed on the keyboard, the playback will be in the key of E (MAJ 2nd) while the keyboard voice will still be in D. There are two ways to remedy this. One way is to turn the volume of the keyboard off in the track master (CTRL-R). This works fine if only transposing playback but if split keyboard is to be used the keyboard volume must be left on. To handle this case it is best to define an instrument with zero volume or a slow attack time and assign it to the lowest split.

D. Drum Machine Interface (CTRL-I)

Although the alphaSyntauri is capable of generating percussion type sounds, doing so may use a good portion of the voices available for actual instruments. If any serious percussion sounds are necessary there are a number of "drum machines" that will handle the job rather nicely. These drum machines can be found in most music stores ranging

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in price from the low hundreds of dollars to around three thousand dollars. The less expensive models are synthesized drum sounds, where the more expensive have actual recordings of real drums.

The Metatrak software for the alphaSyntauri supports four models of drum machines: the Roland TR606 and TR808, the Linn and the Oberheim DMX. To use this feature the appropriate interface cable is necessary (this can be purchased from Syntauri). There are two interface cable types; the Roland cable which uses a 6 pin DIN connector and the Linn and Oberheim cable which use 1/4 phono plug connectors. The cable plugs into the drum machine at one end and into the game paddle socket of the Apple at the other end. Note: the game paddles can still be used with the cable plugged in by "piggy-backing" the connectors.

The function of the drum machine interface is to assure that meta files played back will start, stay and stop in perfect synchronization with the drum machine. To accomplish this the Metatrak software actually takes control of the drum machines clock for determining the tempo. The tempo is set via the metronome in beats/minute. Before the metronome can take control, the specific drum machine being used must be specified.

Selection of drum machine type is done using the "CTRL-I" command. By typing CTRL-I the following prompt will appear:

```
"ENTER DRUM MACHINE TYPE (0-3): 0"
```

Select the appropriate drum machine by number (1=Roland, 2=Linn, 3=Oberheim and 0=Off) followed by "RETURN". Just hitting "RETURN" will leave the status as it is. Once the drum machine type is specified the metronome can be set to the desired tempo enabling the drum machine to play.

Setting the metronome can be accomplished by two methods, the CTRL-Z command or in-line within the record or playback sequence. In either case the following prompt will appear:

```
"TEMPO (0-155) ? 0"
```

The desired tempos should be entered followed by "RETURN". Just hitting "RETURN" will leave the current value set. Entering 0 turns the metronome and interface off. Note: the tempo range is different when using the drum machine interface (0-155) as opposed to (0-280) the normal metronome. This shorter tempo range may require the resolution of a particular rhythm pattern to be cut in half to obtain a very fast tempo.

Before starting a recording or playback the rhythm on the drum machine should be pre-selected. This operation varies from machine to machine, for example, the Roland TR606 and TR808 require the metronome to be running in order to switch rhythm patterns where as the Oberheim DMX will allow pre-selecting of a rhythm while the metronome is off. None of the drum machines will allow a sequence of rhythms, complete "track" (Roland), or "song" (Oberheim) to be automatically restarted, only individual rhythms. Thus it is necessary to press the clear or reset buttons on the drum machine before record or playback to restart

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the sequenced rhythms back to the beginning. For more information reference the users manual for the specific drum machine being used.

Once a rhythm is pre-set, recording or playback can begin. Set the metronome to the desired tempo during the record or playback sequence. As soon as "live mode" is resumed the metronome and drum machine will start. Actual recording, in standard record mode, will not start until a key or pedal is depressed. Terminating a recording (and drum machine control) is accomplished by hitting the spacebar. Note that in order to end on the beat, the spacebar must be hit just prior to the last metronome beat. This allows for perfect synchronization for looping on recordings using the "ECHO" mode, (see Section IV-E).

After a recording that used the drum machine interface is completed it is a good idea to either take notes or indicate in the recordings name the specific tempo and/or rhythms that were used. Doing so will make preparation for playback much more organized and expedient.

E. External Sync-to-Tape (CTRL-X)

The multi-track recording functions within Metatrak make it an extremely powerful compositional tool as well as a convenient and versatile performance aid. However, when it comes to transferring the final recording to tape, the best results may be achieved outside of the system by dumping the recording to a multi-track recorder via the external sync-to-tape feature. This feature widens the range of possibilities for mixing down the final production by allowing one or more Metatrak tracks at a time to be dumped to any tape track. This makes it possible for post processing effects like reverb, flanging or delay, dynamic adjustments to the volume, frequency equalization, and stereo panned mix-down to be implemented on a per track basis.

To use the external sync-to-tape feature a multi-track tape recorder is necessary. One tape track must be used for synchronization purposes where as all others may be used for the transferring process. This means at least three tape tracks are required to do any type of stereo mix-down. The more tape tracks available the more control over the final production.

To use the external sync-to-tape a special "header-signal" must first be written from the alphaSyntauri system to one of the tape tracks. A miniture plug connector from the cassette output at the back of the Apple to the input of the designated tape track provides the necessary interface for this to be done. To initiate writing the header signal the CTRL-X command is used. By typing CTRL-X the following prompt will appear:

```
"EXTERNAL SYNC MODE          OFF
R)EAD/W)RITE(O)FF          WHICH?"
```

First, start running the tape in record. Select "W" for write followed by "RETURN". The header signal will take approximately 20 seconds to write after which the Apple speaker will beep. Make sure the signal has a high enough level on the VU meter to properly record

IX. Additional Special Features

on the tape. Once the header signal is recorded it will serve as the starting trigger for all subsequent playback transfers. Rewind the tape prior to the signal header.

To start dumping Metatrak tracks to tape first load the meta file, track master and preset master. Any tracks not to be transferred must have their volumes set to 0. Those to be transferred should be left as is or set to maximum (255). The cable must now be connected from the output of the tape track with the header signal to the cassette input. Again execute the CTRL-X command. This time select "R", for read, followed by "RETURN". The next time the system is set to playback it will wait for the header signal from the tape before starting playback. This read procedure is repeated for subsequent track transfers to tape.

Note: if you run into any problems with playback not starting, it may be due to the level going into the cassette input. This may need to be adjusted for proper operation. If you wish to get it out of the read mode at any time press CTRL-X and OFF, "RESET" or "CTRL RESET". This will reinstate the system back to normal control.

Once you get the hang of using the external sync-to-tape feature its value will become self evident. In fact it opens a whole new range of possible uses with Metatrak. For example, since a track with a 0 volume in the track master will not be assigned to any voices, it is possible to get many more voices than the current simultaneous eight by using sync-to-tape. To do this simply record one track as a click track recording to be followed by other track recordings. Then record each subsequent track individually with only the click track playing back (all other tracks should have their volumes set to 0). Doing this allows many voices to be used on each individual track. The end result after using external sync-to-tape could mean getting up to 128 voices out of a single Metatrak recording!

There are other possible enhancements using sync-to-tape. Different preset masters can be used for additional instrumentation over the standard ten. Also, the same tracks can be played back twice with slight modifications to their sound parameters causing effects such as delay or phasing.

Using the external sync-to-tape feature effectively will allow a great deal of pre-production work to be done right on the alphaSyntauri. Then once you're satisfied with what has been composed and performed a true professional mix-down is possible.

CONCLUSION

Well, if you have already successfully created a Metatrak recording or if you actually read this entire manual in preparation to do so, congratulations! From the descriptions and examples throughout this manual, it's easy to realize the value Metatrak offers to composers, arrangers, educators, recording studios, and musicians in general; and think, this is only the beginning! Metatrak will have even more features and performance power in future versions, further expanding your alphaSyntauri synthesizer's capabilities.

If you have any comments or suggestions for future enhancements, write them down and send to Syntauri with your warranty card or in a separate letter. We at Syntauri want to develop the products you want, so let us know what you think.

Enjoy Metatrak, we're sure you'll find it an effective performance and recording tool for all your music efforts.



APPENDIX A: Disk and File Maintenance

There are many standard disk and file maintenance commands and programs that can be helpful when using your alphaSyntauri synthesizer and Metatrak software. If you are not already familiar with these commands or programs, the following is a brief description of how to use a few of them. For more information reference your Apple DOS manual.

Copying a Diskette

A back-up copy of your Metatrak diskette can be made via the copy program provided on your Apple DOS 3.3 diskette. To use this program; first boot the diskette until a basic prompt ("]") appears, then type, "RUN COPYA" followed by "RETURN". The program will ask you to define the slot and position of your disk drive(s) for source and destination. If you have only one disk drive the source and destination will be the same. Once set correctly, insert the disk you wish to copy.

Initializing a Diskette

A new blank diskette can be initialized for storing files by using the INIT command. The INIT command can be entered after booting your DOS 3.3 diskette. To initialize, put the new blank diskette into the disk drive, then type "INIT HELLO" followed by "RETURN". After the disk stops swirling and grunting, it will be initialized for use.

Deleting a File

To delete a file from diskette use the DELETE command. It can be used after booting your DOS 3.3 disk or during Metatrak by typing CTRL-D in Metatrak live mode. To delete a file simply type "DELETE" followed by the full name of the file you wish to delete, followed by "RETURN".

Other Commands and Programs

There are a number of other disk commands and programs you might find useful when working with the alphaSyntauri synthesizer. Some of these include: the "CATALOG", "RENAME", "LOCK" and "UNLOCK" commands, and the file copy program "FID". See your Apple DOS manuals for further information on these commands and programs.

APPENDIX B: Metatrak Command List

Here is a list of commands entered from the Apple Keyboard and a brief explanation of what they do. This list is meant for quick reference only. Refer to the appropriate sections of this manual for more detailed explanation.

E Ensemble mode (on/off toggle).
F Fast forward (on/off toggle).
J Move the split instrument pointer down by 1.
K Move the split instrument pointer up by 1.
O Turn the vibrato off.
R Restart track record attempt.
S Ensemble sequence mode (on/off toggle).
T Transpose playback/sequence mode (on/off toggle).
U Updates the video screen.
V Sets the vibrato rate from paddle 0 and vibrato depth from paddle 1.
ESC Record punch-in/punch-out (Metatrak record mode only).
<- (left arrow) Lowers the system volume by 5.
-> (right arrow) Raises the system volume by 5.
< Decreases playback speed by 5% in playback mode.
> Increases playback speed by 5% in playback mode.
? Display diskette catalog.
CTRL-B Pitch bend on/off controlled by paddle 0.
CTRL-D Access DOS commands.
CTRL-E Load, save or define presets (envelopes and control parameters).
CTRL-F Load an Fx mod (not compatible with alphaPlus FX mods)
CTRL-I Set drum machine interface (0=off, 1=Roland, 2=Linn, 3=DMX).
CTRL-K Include or exclude set-up program when you boot up.
CTRL-O Change the offset (percussion channel tuning) 32nd tones.
CTRL-P Load or save a Preset Master.
CTRL-R Display track master for changes.
CTRL-S Define, load or save a split keyboard definition.
CTRL-T Load or save track master.
CTRL-V Load a vibrato waveform from diskette and set vibrato rate and depth.
CTRL-W Load or save a waveform.
CTRL X External sync-to-tape.
CTRL-Z Set the metronome tempo.
0-9 Change an instrument (split dependent).
SPACEBAR Access record/playback menu.
SHIFT
CTRL-M Key release off bottom or top bar (5 octave only)

APPENDIX C: Metatrak File Type Descriptions

Below is a list of file types associated with Metatrak. Each file type is functionally described, and how its name appears on diskette is shown.

"PRESET MASTER: (name)"

A preset master is a file containing parameters for a bank of ten instruments. When loaded into the preset master, Metatrak uses "CTRL-P". It automatically loads the wave master file and LFO master file associated with it.

"WAVE MASTER: (name)"

A wave master file contains the waveforms for the ten instruments in a preset master. It is automatically loaded with its associated preset master.

"LFO MASTER: (name)"

An LFO master holds the vibrato and offset parameters of a preset master. It can only be created using an alphaPlus (version 2.0). The LFO master will automatically be loaded with its associated preset master. If a preset master that doesn't have an LFO master is loaded it will cause an error message, but will load the preset master properly.

"SPLIT MASTER: (name)"

A split master is a file that stores the number of splits and which instrument numbers are used in a split. The information is used for updating the screen. A split master can be loaded or saved using the "CTRL-S" command in Metatrak live mode. It automatically loads or saves a split bank file.

"SPLIT BANK: (name)"

A split bank file contains information for associating instrument numbers with key positions. It is automatically loaded or saved with a split master.

"TRACK MASTER: (name)"

A track master is a file that contains all the information for how the sixteen tracks in Metatrak were set in regards to instrument and control parameter assignment. A track master can be loaded or saved using the "CTRL-T" command in Metatrak live mode. It is meant to be used in conjunction with the preset master used in recording a meta file.

"META: (name)"

A meta file contains note and track information for a Metatrak recording. It can be loaded or saved in Metatrak via the record/playback menu.

"MFX: (name)"

A MFX file holds a Metatrak FX mod (special effect). An FX mod is a small assembly language program used for sound modification. FX mods can be loaded and saved using the "CTRL-F" command in live mode. The alphaPlus FX mods are not compatible with Metatrak.

APPENDIX D: Demonstration Recording Instructions

A Metatrak demonstration recording is provided on your Metatrak diskette. Listening to the recorded example will give you a quick idea of the possibilities and potential Metatrak offers.

There are a few steps to go through to prepare for proper playback. The explanation of each step is thorough for those who have not used the alphaSyntauri synthesizer before. Simply follow the instructions below. Detailed explanations for the process are covered in this manual.

STEP 1

Make sure you are in "live" mode, that is, you can hear sound as you play the alphaSyntauri keyboard and the diskette labeled Metatrak is in the disk drive.

STEP 2

If not already loaded, load preset master METATRAK.L, by holding down the "CTRL" key while typing "P", and then typing METATRAK.L followed by a "RETURN".

STEP 3

When back in live mode again press the SPACEBAR. This will cause the record/playback menu to be displayed. Type "L" followed by "RETURN". This will allow you to load the meta file recording. Type GALAXY GAP followed by "RETURN".

STEP 4

After the meta file is loaded a prompt will appear to load the "track master". Type GALAXY GAP followed by "RETURN". This will load a track master, restoring Metatrak to the state it was in during the original recording.

STEP 5

After the track master is loaded, type consecutive "RETURN"s until you hear the recording playback.

STEP 6

When the recording is finished, the screen will go back to the record/playback menu. Type "0" followed by "RETURN" to turn the playback off. Typing "RETURN" again will put you back into the live mode

"Galaxy Gap" written, performed and copyrighted by: Robin J. Jigour

APPENDIX E: Metatrak Record Errors And Warnings

Since the meta file buffer is divided into two parts during the Metatrak recording, it is possible for the "track" being recorded to overwrite the playback "track". This may or may not be inconvenient depending on:

- * Whether or not the Echo/Repeat has been chosen.
- * The type of material being recorded from the alpha keyboard.

As a result, a number of safety checks have been included in the software to minimize these occurrences. Below is a brief discussion of each check and what it does.

Maximum Meta File Length

Each time a meta file is loaded in the Metatrak recording mode, the length of the file is checked before it is loaded. If the file when loaded, does not allow at least a 50 note difference between the beginning of the recording buffer and the playback buffer, an error message will be displayed on the video monitor, and the Meta file will not be loaded.

Buffer Collision Warning

When the meta file to be loaded meets the limits described above, the file is loaded and you may begin recording. The difference between the two buffer pointers is then monitored. If at any time a 200 note difference is violated, a flashing exclamation point will be displayed at the bottom right portion of the video screen to alert you to this fact. If you continue playing until the buffers finally overlap, you will exit the Metatrak record mode and be asked if you want to save the "track". If this happens save it as a different name so you still have the previous meta file to work with.

Echo/Repeat Shutoff

If you are using the Echo/Repeat option while in Metatrak record mode and you write over the beginning of the playback notes file because you ignored the buffer collision warning, the Echo/Repeat will stop automatically since that information has been written over during the recording process (when you reach the end of the playback meta file). You will exit the Metatrak record mode and be asked if you wish to save the track.

APPENDIX F: FX MOD DESCRIPTIONS

The following are descriptions of the Metatrak FX mods. A general explanation for using FX mods is covered in Parameter Control, section III. Note: Metatrak FX mods are not compatible with alphaPlus FX mods.

TS - Timbre Scan

TS scans through all the primary and percussion waveforms of the current preset master while using the envelope characteristics of the assigned instrument. The rate of the scan is controlled by adjusting paddle 0, and then pushing the paddle 0 button. Timbre scan can be assigned to a range of tracks when it is loaded. If no track range is specified it will affect tracks 0, (the live keyboard), through 8.

PS - Pitch Sweep

PS dynamically varies the pitch as controlled by the assigned instrument attack rate and position of paddle 1 when pushing the paddle 1 button. Special effects can be obtained by varying the control paddle until the pitch goes into or out of "aliasing". Pitch sweep, like timbre scan, can be assigned to a range of tracks.

AM - Amplitude Modulation

AM allows you to produce a tremolo effect with your master volume. The rate and depth are controlled by paddles 0 and 1, respectively. Use the paddle buttons to set the values. AM is a global FX mod for all tracks, a range cannot be defined.

VIB1 - Keyboard Following Vibrato

VIB1 emulates voltage-keyboard-follow control of analog synthesizers. The higher the key struck the faster the vibrato rate and the greater the vibrato depth. When using VIB1, vibrato cannot be updated by standard methods. VIB1 is a global FX mod for all tracks, a range cannot be defined.

OFF1 - Keyboard Following Offset

OFF1 works in the same fashion as VIB1, except that offset is affected rather than vibrato. The higher the key struck, the greater the offset detuning between the primary and percussion oscillators. OFF1 is a global FX mod for all tracks, a range cannot be defined.