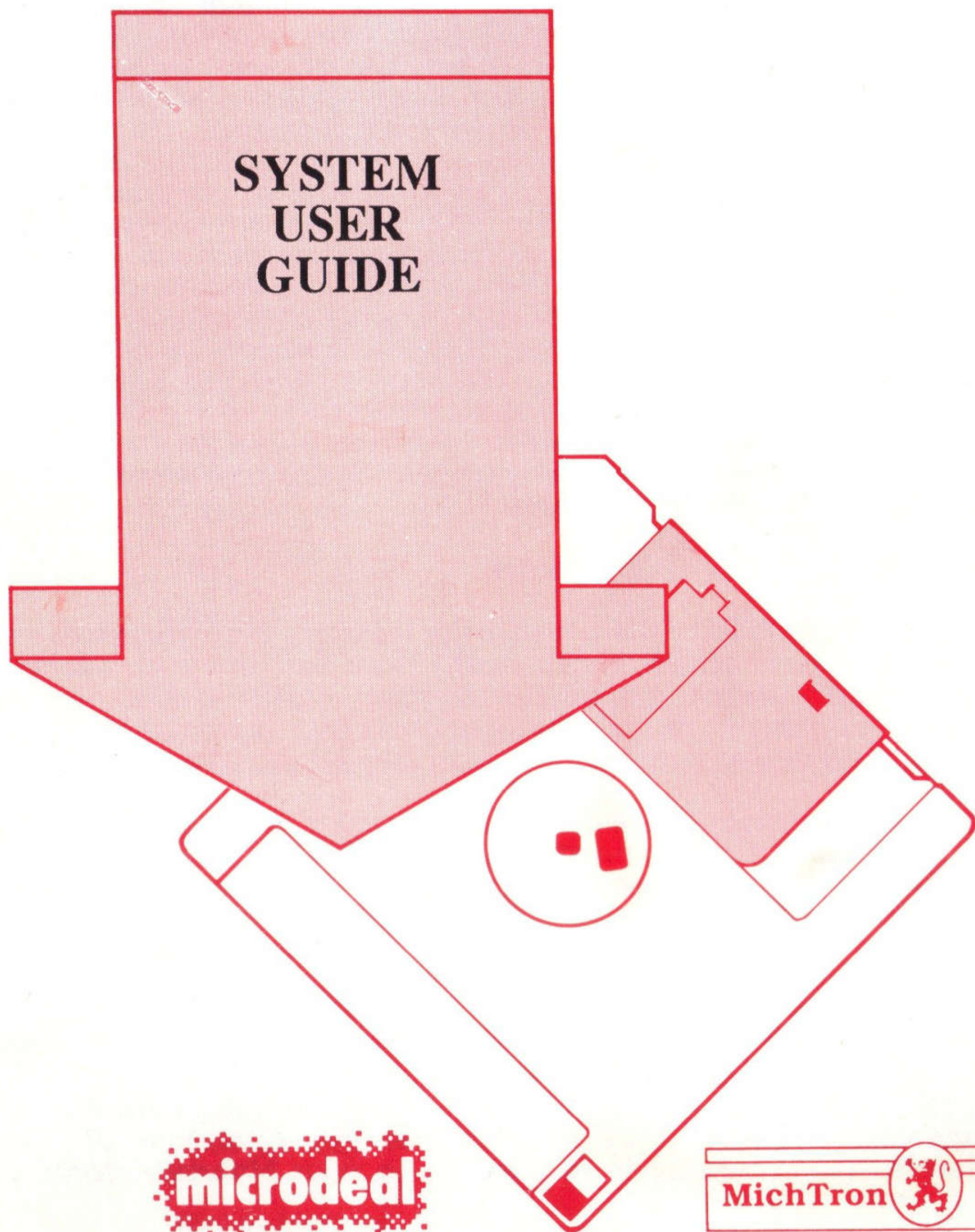


MASTER SOUND



COMMODORE AMIGA

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MASTER SOUND USER GUIDE

MASTER SOUND USER GUIDE

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MASTER SOUND AMIGA Operation Manual

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**Manual 2nd edition. 16/08/90
Software version 1.1**

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1.0 INTRODUCTION

Master Sound is a fantastic new Hardware/Software package that combines the fun of sampling your favourite sounds or music and combining them with your own graphics and text to produce your own exciting musical scrolling message demo's. The Master Sound cartridge acts as a digital tape recorder, while the Master Sound software acts both as the sound editor and as a four track computer sequencer. All of this comes in a package costing only a little more than the average computer game !

Using the sample sequencer software, you will be able to store up to 18 samples in the computers memory and assign each one to one of the keys on the computers numeric keypad. When in record mode, tapping one of the keys will play the sample assigned to it and will record the key press as an 'EVENT'. Sequences of up to 200 seconds in length may be recorded. These may be replayed, fast forwarded, rewind and edited at will. The sequencer will records 25 events per second. Once recorded and edited satisfactorily, the sequence and the associated samples may be saved to disc.

Please note that with updates in the package, there may be differences, improvements and other modifications in the software. Please examine your system disc thoroughly. Any notices from MICRODEAL will be posted in the READ.ME file on the disc. This may be printed to the screen by opening a CLI window and typing 'TYPE READ.ME'. Please refer to your AMIGA users manual for further details.

Master Sound is a superb value for money product and is immense fun to use, we hope that you enjoy your new system as much as we do and don't forget that fame (and fortune ?) may be just around the corner by placing your MASTER MIXES on the public domain.

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2.0 Specifications

The Hardware

Input:	3.5 MM jack socket.
Bandwidth:	Filter set at 5 KHz (approx.)
Sampling:	Maximum frequency 90 kHz (approx.)
Sensitivity:	2.5 volts (peak to peak)
Connection:	Plugs into computers PRINTER port.

The Software

Sampling:	Record, Record with auto trigger, playback & listen
Memory:	Utilises full RAM of Amiga.
Analysis:	Digital oscilloscope, L.E.D. style 'VU' meter and real Time Spectrum analyser.
Frequency:	Record/Play frequencies of from 3.0 to 56.6 KHz
Editing:	Cut, copy, overlay, fade in/out, filter, shrink volume up.
File:	Load and Save samples in IFF, IFF 1, 3 or 5 octave instrument and raw formats, Load SEQ, Save SEQ.
Sequencer:	Hold up to 18 samples in memory at once. Records 25 events per second. Sequences of up to 200 seconds may be made. Frequency shift samples by +/- half an octave.
Demo:	Takes IFF picture files and Master Sound sequence files from disc and plays a sample sequence. This can be used to create your own demo disk.

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3.0 Installing your MASTER SOUND cartridge.

3.1 Connecting up.

Firstly, switch off your computer, NEVER connect or remove the Master Sound cartridge from your system with the power applied.

Place your Master Sound cartridge label side up on the rear of your Amiga. Position the cartridge so that the input socket is facing outwards from the computer, and the open end is facing inwards. Now locate the PRINTER PORT on the rear of the Amiga. Gently slide the cartridge into the open slot of the computer and feel the cartridge engage the computers socket. When you are sure that the unit is in position, apply gentle but forceful pressure onto the cartridge to slide it into the machine by about 5 mm. This operation may require some force if the cartridge is new, but should become easier with use. Your sampler cartridge should always produce a firm fit, NEVER switch your computer on if it is not fully inserted or if it feels loose. Disaster may strike your Master Sound or Amiga (or both) if the cartridge is not inserted correctly. When in place, switch on your computer, it should autoboot in the usual manner. If the disc light fails to appear, or the screen displays an unusual pattern and refuses to clear, switch the computer off IMMEDIATELY; recheck your computer connections and, most important, recheck the sampler and boot disc and ensure that they are both correctly installed (I.E. LABEL SIDE UP AND FULLY PRESSED IN). If the fault persists, please consult your dealer for help.

3.2 Connecting an input

Next, connect an input signal to the socket of your sampler with a suitable lead. The sampler was designed to accept inputs from most forms of portable electrical audio equipment such as battery operated cassette players, radios and compact disc players fitted with a volume controlled headphone output. The signal is usually taken from the headphone/earpiece socket. Instruments such as guitars and electronic keyboards may be used if fitted with suitable amplification.

It is important to set the input level to the correct value approx. 2.5V peak to peak). This can be achieved accurately with the use of the Oscilloscope function or more roughly with the 'VU' meter found on the main MASTER SOUND editor program. Refer to section 3.4 of this chapter for further details on how to use the scope. Failure to correctly set the input level will result in poor quality samples due to bad use of the available sample range or to distortion because the input signal is simply too loud.

WARNING:

NEVER connect Master Sound to the MAINS electricity supply.

NEVER connect Master Sound to the speaker leads of a power or HI-FI amplifier since these voltages are too high. The warranty CANNOT protect the user from this form of electrical abuse.

3.3 Running the MASTER SOUND editor software.

Simply insert the Master Sound disk in the internal disk drive (DF0:) and turn on your Amiga. Master Sound will load and run automatically from the startup-sequence. Alternatively, Master Sound may be run from the WorkBench by inserting the Master Sound disk into any of the Amigas floppy disk drives and double clicking on the disk icon when it appears. Now locate the program file called Master Sound. Double click on this file to execute the program. After a few seconds a title screen should appear,

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Pressing the space bar on your computer will cause the display to be replaced with that of the MASTER SOUND editor and should look similar to the picture in section 4.0.

3.4 Setting the correct input volume.

To obtain the optimum sample quality, it is most important that the input level of the signal to be sampled is neither too low nor too high. The oscilloscope, visible on the lower right of the screen, is provided for just this purpose. Select the scope from the main control panel (refer to section 4.3.7 to identify the button) and apply a signal source to the sampler input. Please examine the following diagram carefully and ensure that your signal is set at an appropriate level.



Too low...

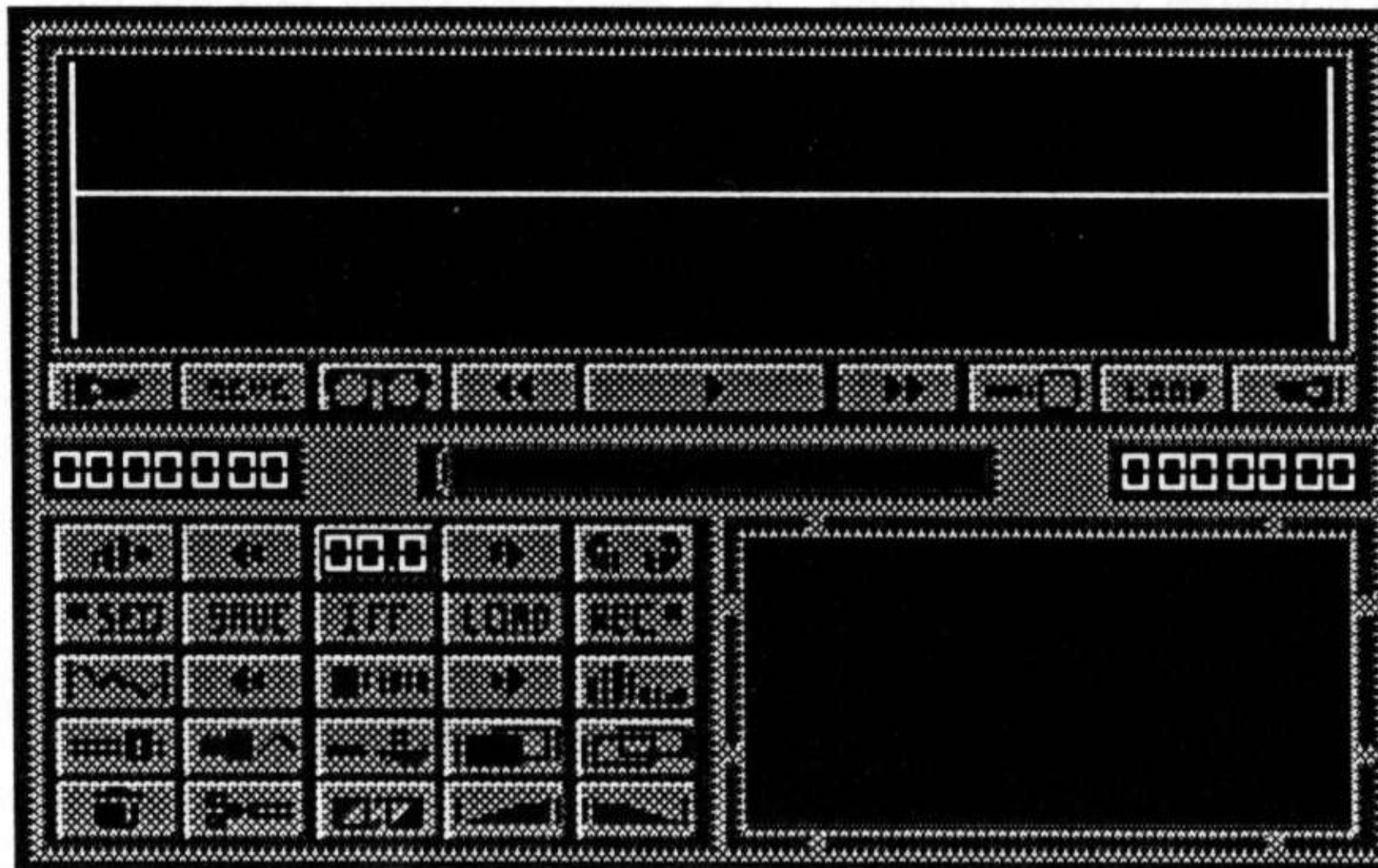
Correct level...

Too high.

Please note that if the level is set too low, then an element of background noise is likely to be present due to an effect known as aliasing. Setting the correct volume will ensure that the noise remains a significantly lower proportion of the audible tone. Setting the input too high will cause undesirable distortion and clipping and will be heard as a variety of clicks and crackles which are not actually part of the incoming audio signal. The Master Sound sampler can produce some very high quality samples when set up correctly. A little care on this aspect of the set-up procedure will reward you with stunning results.

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4.0 A tour of the screen.



The above picture shows the screen of the MASTER SOUND editor software. At the top of the screen is the sample display window which contains 2 pink cursors and a blue waveform display. Immediately beneath this lay a series of control buttons for sample playback and edit window control. Beneath this panel of controls are 2 boxes containing numbers. These are the cursor position indicators. Between these indicators lies the VU meter, a form of volume level meter. The main control panel is located as the large block of buttons at the bottom left hand side of the screen. This panel contains most of the important sample record and editing facilities. Finally, to the right of the main control panel, we find the oscilloscope display, the counterpart to the VU meter.

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4.1 Sample display & control.



The above diagram shows the sample edit window, playback control panel & the 2 cursor position displays. When first running the software, the sample edit window will show 2 PINK vertical lines which are the editors cursors (one at each end of the display) and a horizontal BLUE line which represents the sample itself. This should be blank at present (refer to the picture in 4.0). In the above picture, the edit window is showing a typical waveform display, which may be expected after having recorded or loaded a sample from disc, more on that later. To move the cursors, simply move the mouse pointer onto one of the pink lines and press and hold the left mouse button. Moving the mouse left and right will DRAG the mouse. When the cursor is at the desired screen position, release the mouse button. This will cause the cursor to be dropped on the screen. Please note also how the values change in the relevant cursor display window as you move that cursor back and forth. These values reflect the distance of the cursor into the sample, and may be noted for future reference or relocation of the cursors to an old position or sample.

4.1.1 Instant END location

The 2 buttons at either end of the panel shown above, provide an instant ability to locate either the start or end of the sample edit buffer. Pressing on one of these with the RIGHT mouse button will promptly cause the computer to redraw the screen and position the cursors and tape counters at the end of the sample. This facility will obviously only work with the screen under magnification. Also, clicking on these buttons with the LEFT mouse button will move the appropriate cursor to the edge of the sample display.

4.1.2 REVERSE PLAY mode.

When this option is selected, pressing PLAY will cause the sample to be played backwards. This has exactly the same effect as using the REVERSE sample edit function described in section 4.3.18 EXCEPT that the sample itself remains unchanged in memory.

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4.1.3 UN-MAGNIFY display

The first button in on the left of the cursor panel is depicted as a pair of glasses. When the screen has been magnified to examine part of a sample, pressing this button will cause the display to expand back up to full size again. Please note that when the screen is magnified, the computer will remember the location of the cursors before the operation. When using the unmagnify option, the cursors will be replaced at their previous positions on the screen.

4.1.4 DISPLAY REWIND.

When a portion of the sample display has been magnified to occupy the full size of the screen, it is normally impossible to move the cursors to the left or right of the screen. Using the rewind facility will cause the sample display to slide to the right moving the cursors and the screen back toward the start of the sample.

4.1.5 PLAY sample.

To play the sample shown between the cursors, click on the PLAY button. The sample will be played out through the computer's monitor. Normally the sample will play forwards unless the REVE button is illuminated, in which case it will of course play backwards. The play will finish automatically when the end of the sample is reached unless LOOP mode is on or until the right mouse button. A sample may be made to stutter during playback by pressing the left mouse button. The sample will be restarted immediately. Repeated quick-fire use of the SPACE bar can have some amusing effects

4.1.6 DISPLAY FORWARD.

This performs exactly the same function as the REWIND button except that the display is moved toward the END of the sample.

4.1.7 MAGNIFY.

The cursors may be moved freely around the screen, however, the area of memory displayed at any one time may be so large that it may be impossible to accurately locate the start of the piece of speech or that illusive Drum beat that you require. An accurate form of location can be achieved by placing the cursors at the start and end of the sample in question. Now press on the MAGNIFIER button and the screen will be seen to instantly ENLARGE the sample onto the full width of the window. Now the cursors may be moved with even greater accuracy.

4.1.8 LOOP mode.

With loop mode highlighted, your sample will continue to play over and over again. To stop the sample from playing, press the right mouse button.

4.2 Important details.

Whenever an operation is being made, it is assumed that the operation is being performed upon the sample area contained between the two pink cursors. Anything outside of this area will NOT be affected. Whenever a sample is saved or loaded to or from disc, only the area BETWEEN the cursors is used.

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After any operation which affects the status of a sample, the sample window will be redrawn.

4.3 The Main control panel,

All of the Master Sound controls are selected by pressing the left mouse button. When a function has been selected and is in operation, its button legend will turn red. Clicking on the function again will cause the legend to extinguish and shows that the function is now no longer operational. Some functions, however, require extra input from the user or may take some time to perform their operation. Such functions will appear to glow purple to indicate that they are waiting for some additional form of input or that they are doing their work and will extinguish as soon as they are finished. Such buttons are found on the bottom 2 rows of the main control panel. A description of the individual functions follows :-

4.3.1 FREQUENCY UP/DOWN



Clicking on one of these buttons changes the record and playback speed for the system. Please note that the higher the sample frequency, the higher the quality of the recorded sound, but the larger the size of the sample produced. Master Sound is unique in that it is capable of playing a very wide range of sample frequencies, from 3.0 to 59.6 KHz.

4.3.2 PLAYBACK CONTROL



Clicking on this button will bring up a requester that allows you to adjust some of the playback parameters to your preference. You may select which of the Amiga's stereo channels sound will be played from, LEFT, RIGHT or BOTH. The default is BOTH. You may also adjust the PLAYBACK volume using the volume slider. This ranges from 0 (off) to 63 (full volume). In addition to this, you may turn off the Amiga's internal sound filter with the FILTER button. All Amigas have a built in low-pass filter that cuts off sound frequencies above about 14 KHz, making samples sound less trebbly. While this is desirable for samples recorded at low rates, it does limit the quality of playback for samples recorded at higher rates (e.g. above 14 KHz). Please note that this filter is only selectable from Master Sound on Amiga models A500 and A2000 upwards, and cannot be controlled on A1000s. Turning off the filter also has the effect of dimming the Amiga's power LED, which can be alarming at first - don't worry, this is quite normal and safe ! Please note also that the FILTER and VOLUME controls only affect the playback of samples, and in no way affect recording quality or levels.

4.3.3 SEQUENCER MODE



Clicking on this button will cause the editor to replace the lower half of the screen with two new panels for the sequencer software. Please read chapter 5 for more information on this powerful sequence creator mode.

4.3.4 SAMPLE FORMAT



Master Sound is very flexible in that it can load and save samples to disk in a variety of formats. Selecting this button allows you to determine what format samples will be saved in.

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You may choose IFF, IFF Instrument files in one, three or five octaves (which may then be used in many of the popular Amiga music programs such as Aegis Sonix), and RAW format in which just the sample data is saved. Note that information such as playback frequency is not saved in RAW mode, and will have to be set manually the next time the sample is used.

4.3.5 SAVE SAMPLE



A sample can be saved to floppy or hard disc. Selecting SAVE will cause the file selector box to appear on the screen. Enter a file name and select O.K. Your sample will then be saved to disc in the format you selected in SAMPLE FORMAT (see above). The default is IFF format. Please note that three and five octave IFF instruments can take a great deal of disk space, so try to keep instrument sizes to a minimum when using this option. Please note also that some music programs are limited to a maximum instrument sample size of 31K bytes in length.

4.3.6 LISTEN TO INPUT.



As soon as this function is selected, the input signal to the cartridge should become audible via the monitor in the usual fashion. This mode is useful for cuing up a tape recorder or simply for checking the level of input for distortion or aliasing, facilitating input level adjustment. Simply press any key (except space) to exit the Listen mode.

4.3.7 LOAD SAMPLE.



Samples may be loaded into the editor with this command. Any sample which is too long to fit into the area of memory defined by the cursors will be truncated. Master Sound will determine the format of the file before loading it. If the file is IFF format, the frequency will be determined and displayed on screen. If an IFF instrument file of more than one octave is detected, the middle (natural frequency) octave will be loaded. All other formats will be loaded as RAW format. Mangled IFF files will be loaded as RAW format.

4.3.8 RECORD SAMPLE.



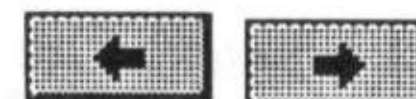
RECORD is the button which causes the system to start sampling. Sampling will start immediately unless AUTO record is set ON (section 4.3.9). Sampling will stop when the sample space is full or when the user stops sampling by pressing the left mouse button. Once sampling has been terminated, the editor readjusts the edit window to display the new display.

4.3.9 REAL TIME OSCILLOSCOPE.

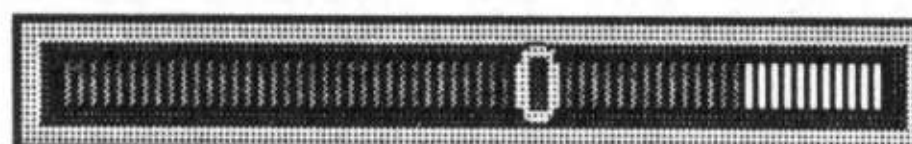


This facility enables you to accurately check the level of the incoming signal for distortion. Please ensure that you fully read the section on setting up the input signal strength (SECTION 3.4).

4.3.10 AUTO TRIGGER UP/DOWN

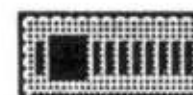


The sensitivity of the AUTO record function is adjusted with these 2 buttons. Selecting one or the other will cause a pointer to slide up or down the VU meter and sets the trigger limit.



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4.3.11 AUTO TRIGGER ON/OFF



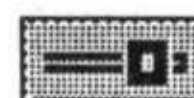
When this button is lit, the AUTO record function is enabled. Now when RECOrd is selected, sampling will not start until the level of the VU meter has reached that of the AUTO level pointer. Pressing any key on the computer keyboard BEFORE sampling has started will abort the RECOrd selection and turn off the AUTO record trigger.

4.3.12 SPECTRUM ANALYSER.



The spectrum analyser facility causes a real time moving display to replace the sample edit windows. The moving bars display the frequency content of the incoming sample. The sample can not be heard simultaneously. To exit the Spectrum mode, press any key.

4.3.13 VOLUME UP.



The volume of a sample may be increased with this function. Once selected, the sample will be amplified by 10%, after which the resultant new sample will scroll into the display. A word of warning. The effect of this button is not reversible. Repeated use of this option will cause a sample to saturate and distort. It is recommended that a copy of the sample should be held elsewhere in memory in case of an error.

4.3.14 COMPRESS SAMPLE.



This function compresses the sample held between the cursors by half. This not only means that the sample now occupies half the space that it did before the operation, but compared to its original sample frequency it is now twice the speed. For a sample recorded at 10KHz, squeezed by 50%, the playback frequency must also be reduced by 50% to 5KHz. Squeezed samples often sound better because they are made at a higher frequency and are therefore subject to less sample aliasing than that of a straight 5 KHz sample.

4.3.15 FILTER.



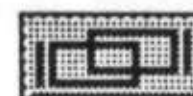
Filtering causes a sample, especially one recorded at a low frequency, to sound less TINNY. Repeated use of the filter on the same sample will make it more and more muffled.

4.3.16 COPY.



On selecting copy, the two cursors are joined to form a box around the sample they encompass. Now the screen can be scrolled left or right to locate an area of the sample buffer to which the sample is to be transferred or both pointers may be picked up and moved together and placed at the destination location. Finally, clicking LEFT mouse button will cause the sample to be copied from source to destination. Clicking the RIGHT mouse button while the key is glowing will cause the operation to be aborted.

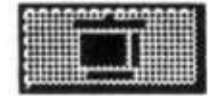
4.3.17 OVERLAY.



This facility enables you to superimpose one sample on top of another and behaves in exactly the same way as the copy function. Echo effects may also be created using this function by overlaying one sample on top of itself with a displacement.

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4.3.18 WIPE.



When selected, the sample between the cursors is deleted.

4.3.19 CUT.



Removes the sample contained within the cursors and shuffles the rest of the sample above, down. Please note that the use of this command can be disruptive to pointers that have been set up within the sequencer. When performing a CUT operation, the entire contents of the memory will be shifted down to close the desired gap, throwing any pointer settings to the right of the cut area out by the size of the gap. These problems can usually be simply rectified through the use of the operations outlined in section 5.4.

4.3.20 REVERSE SAMPLE.



This simply reverses the sample between the cursors. Please note that its effect is different from the REVERSE function under the editors waveform display. This button physically reverses the sample held in memory. The REVE button (see section 4.1.2) simply tells the computer to play the sample backwards, there is a very subtle but important difference. Some fantastic effects can be produced from playing samples in reverse. Also popular records that have sections of music or speech played backwards can be re-reversed to see what the group are saying.

4.3.21 FADE IN/OUT.



These buttons will cause a fade operation to be performed over the whole length of the sample contained between the cursors. The effect is to gently increase or decrease the volume of the sample between the maximum and minimum limits.

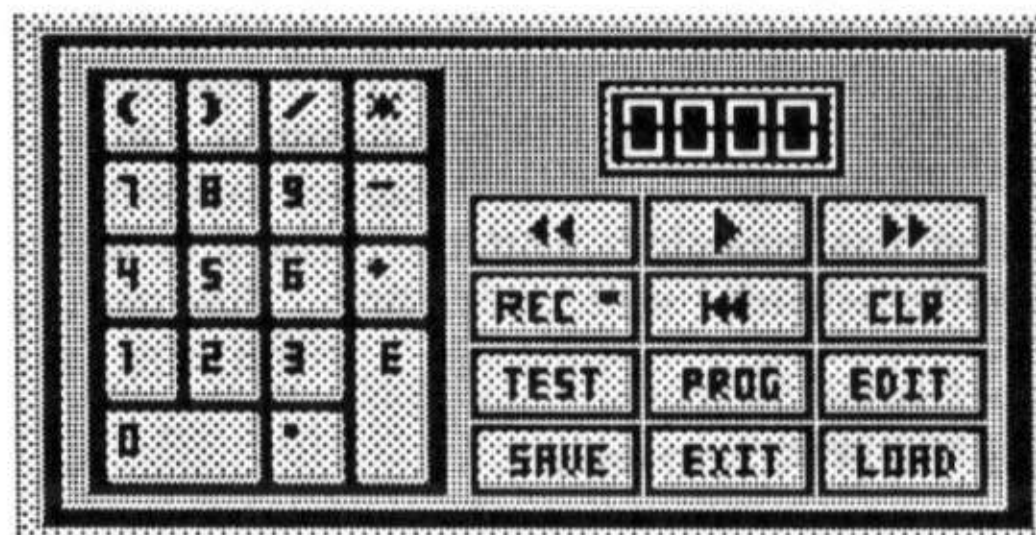
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5.0 The SEQUENCER.

The sample sequencer provided with Master Sound is one of the most exciting aspects of the package. Basically you can load up to 18 samples into the computers memory (space permitting). The sequencer will only work correctly with samples recorded at 14.4 KHz. When setup you will be able to record a sample mix by tapping out the sample rhythms on your computers keypad. Every time a key is pressed, that sample will be played. At the same time the computer will remember which key was pressed and when. Later on, the sequence may be stopped, rewind and played back, Look, NO HANDS!! If a mistake was made during recording, it is possible to locate the problem area and to re-record over the top of the mistake. When a sequence has been successfully completed, it may be saved to disc. Finally, a sequence can be added to samples and graphics and used to create your own sample demo discs (see chapter 6).

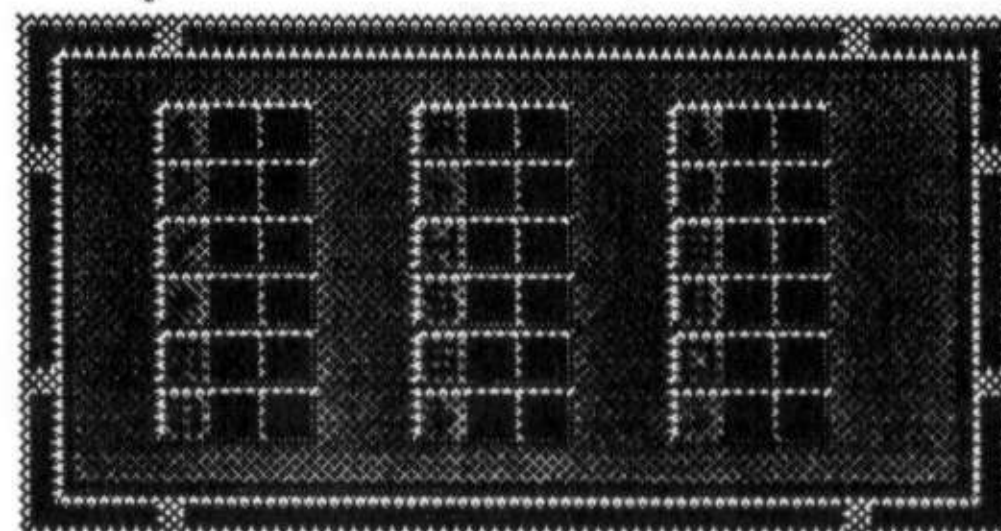
5.1 How to enter SEQUENCER mode.

To invoke the Sequencer, locate & click on the SEQ button found on the main control panel. When done, the oscilloscope will be replaced with a sample data display and the main control panel will be replaced by the sequencer control panel shown here on the right. It is from here that all of the sequencers recording and playback control is performed. You will see that the display contains a replica of the computers keypad, a tape counter set to 0000 and a small panel of control buttons.



5.2 The sample DATA display.

The sample data display shows which of the keypad buttons have had a sample assigned to them. You will see that the display contains a legend for each keypad button. Next to this legend can be seen 2 black boxes. The first of these contains a box if that key has a sample assigned to it, it is blank otherwise. The second box will contain an L if the sample assigned is set to play in oop mode.



5.3 Control Panel functionality.

A description of the buttons found on the sequencer control panel follows:-

5.3.1 FAST REWIND.

Pressing this button will start to quickly rewind towards the start of the sequencers recording buffer. The TAPE counter will count down to zero. It is impossible to rewind past 0000.

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5.3.2 PLAY sequence.

Playback of a sequence can be started from any tape counter position. The samples are played back as they were recorded, I.E. looped. During playback the tape counter will advance in twenty-fifths of a second.

5.3.3 FAST FORWARD.

Move forward to a desired tape counter position. The end of the tape counter is 4999. Advancing past this point is impossible.

5.3.4 RECOrd sequence.

As soon as this button is activated, a request will be made with the options to CANCEL, RECORD or OVERDUB. For a new sequence, RECORD must be selected. The RECORD mode is now operative (see section 5.7 for over dubbing). Any key pressed on the keypad or any of the frequency shift keys along the top line of the main keyboard will start the sequencer off. The first sample to be played will be the one just selected or the one allocated to the keypad button highlighted in RED. All valid keys are recorded during the session and the effect is audible in real time. As recording progresses the tape counter will advance. Recording will automatically stop if the counter reaches 4999. To stop recording press the left mouse button.

5.3.5 REWIND to start.

Reset tape counter to 0000 and return the sequencer to the start.

5.3.6 CLEAR key/sequence.

Upon selecting the CLR key, an requester will be placed on the screen requesting CANCEL, current TRACK, current KEY or ALL. Selecting TRACK will tell the computer that you wish to erase the sequence currently held in memory for that channel, 1 to 4. The requester will disappear, the sequence in memory will be erased and the tape counter will be reset to zero. Selecting KEY will delete the sample associated with that key and return its' memory to the sequencer buffer for reuse. Alternatively, selecting ALL will cause the requester to disappear and the sequence in the computers memory will be erased along with all of the sample definitions.

5.3.7 Use of Memory

Now for a bit of technical information to help you understand the capabilities of Master Sound! If any of the following terms are unfamiliar, please refer to your Amiga user manual.

Master Sound is unique in allowing recording and playback of samples right up to 59.6 KHz, and also in allowing playback of samples from any type of Amiga memory including FAST RAM rather than just CHIP RAM at up to 28KHz like most other samplers. This is achieved by highly optimised and innovative playback and record routines which do not rely on the Amiga's custom chips. On an expanded memory Amiga (i.e. 1 Megabyte or greater), the largest block of free FAST RAM is assigned to the Sampler for greatest sampling time, and the largest block of free CHIP RAM is assigned to the Sequencer.

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On an unexpanded Amiga which only has CHIP RAM, half of the largest available block of memory is assigned to the Sampler, and the other half to Sequencer. However, you may just want to do some sampling, or perhaps just use the Sequencer, so you can decide what proportion of the CHIP RAM you want to assign to which function. You can alter the ratio of these assignments by pressing the CONTROL and E keys simultaneously. This displays a requester showing the total amount of CHIP RAM, and the amount currently assigned to the Sequencer. You may then edit the size of the buffer assigned to the Sequencer by clicking in the string gadget, clearing the current choice by typing the keys RIGHT AMIGA and X simultaneously, and typing in your choice in bytes using the number keys. Note that this amount can only be as large as the total CHIP RAM available, and must be larger than approx 2880 bytes. NB THIS REASSIGNMENT OF MEMORY WILL CAUSE ANY SAMPLES, KEY ASSIGNMENTS AND SEQUENCES TO BE DELETED IN MEMORY! You MUST SAVE TO DISK any work that you want to keep BEFORE doing this. For this reason, this process is best carried out when first using Master Sound. Please note also that this only functions from within the Sequencer module, and is only applicable to unexpanded Amigas with only CHIP RAM to give you maximum flexibility.

Please note also that to allow all four stereo channels to be used, KEY samples are always stored in the Amiga's CHIP RAM.

5.3.8 TEST allocations.

When TEST is selected, the keypad test mode is invoked. Pressing a keypad button will cause that sample to be played (if one exists). Any looping option is acted upon. To stop a looping sample, simply press the left mouse button as usual. To exit the TEST mode, simply press the mouse button.

5.3.9 PROGRAM key.

With this key selected, samples are allocated to the keypad. When an allocation is made, the sample DATA panel will instantly show the relevant information in the boxes next to the appropriate legend. Pressing this key with the RIGHT button and holding it down will cause the amount of available key buffer space to appear in the LEFT number display and the amount of used space to be shown in the RIGHT number display, preceeded by the letters 'A' and 'U' respectively.

5.3.10 EDIT allocated sample.

Samples assigned to keys may be instantly recalled and displayed in the sample display window with the EDIT button. Selecting EDIT will cause the EDIT button to glow and a requester asking you to confirm that you want to edit the current key sample. Click on the OK button and the sample assigned to it will immediately appear in the window. All data relevant to the sample at the time of PROGRAMming it, are restored. You may then exit back to the Sample Editor and edit the key sample with the usual tools i.e. cut/paste etc. The mouse pointer will also change and display the word EDIT under it as a visual indication of which mode you are in. When you have finished editing the key sample, return to the Sequencer with the SEQ button and click again on EDIT to end your editing session.

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5.3.11 SAVE samples/sequence.

Selecting this button will cause an alert box to appear on the screen giving the following options; CANCEL, KEYS and ALL. If cancel is pressed, you will be returned back to the sequencer. A collection of samples assigned to keys may be saved to disc by choosing the KEYS option. All keys should be saved using the .KEY file extension. The ALL option will save all of the samples complete with their keypad assignments AND the recorded sequence as a single file of DATA to disc. The .SEQ file extension should be used for the sample block.

5.3.12 EXIT to editor.

To exit the sequencer and return back to the sampler/editor, click on this button. Doing so will not lose any sequencer data and is sometimes useful when trying to CUT gaps from between samples (to maximise RAM and disc space) or when loading individual samples from disc (which can not be done from within the sequencer).

5.3.13 LOAD samples/sequence.

This facility is the exact reverse of the SAVE option. When LOAD is selected the old sample or sequence will be over written. To load just a set of key samples into the computer select KEYS. Any previous KEYS will be lost. To load an entire sequence (samples, definitions and track), select ALL.



5.3.14 Playback Channels

The 4 buttons on the left hand side of this panel select which of the Amiga's channels are active during play mode. You will not be able to hear any of the channels you have recorded if the corresponding channel button is not turned on.

5.3.15 Record Channels

The 4 buttons to the right of the panel determine which channel is to be recorded on next. Simply click on the button for the channel you want to record on next.

5.4 Setting up the Sequencer.

Before entering the sequencer (while still in the sound editor mode) please ensure that all samples required for your sequence are saved to disc and that the entire contents of RAM has been erased. Now load each sample required in the sequence back into memory, one after the other. The sequencer will accept samples recorded with the master sound cartridge but will only work correctly with samples recorded or compressed to 14.4KHz. When done, cut as much of the gaps from between the samples as is possible using the MAGNIFY and CUT facilities. This will help you to keep the samples compact and ensure that the sequence file is as short as possible when saved to disc. Please note that you may leave the sequencer at any time to edit a sample and then return back to the sequencer without destroying any of the assignments or any recorded sequence. If extensive editing or cutting has been performed however, then some key assignments (if they have been made) may need to be re-programmed (see sections 4.3.17, 5.3.8 & 5.3.9).

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The next step is to allocate your samples to the desired keypad positions. Enter the sequencer by clicking on the SEQ button. Using the sample display and controls, locate each sample in turn, magnify it up to full screen size and allocate it to a keypad button using the PROGRAM button. Finally, you may test your samples and check your assignments by selecting the TEST facility. Pressing a keypad button will now cause the sample assigned to this key to play. Now that your samples are set up on the keypad, everything should now be ready for you to create your sequence.

5.5 RECOding a sequence.

It is advised that a sequence should be built up in layers. It would be practically impossible to tap a whole 200 second sequence out in one take. The first layer is usually the BASS line or DRUM rhythm. It would be wise to tap out the backing track first before adding the more complex overlays. Click on the RECO button and select the RECORD option from the requester. The sequencer is now waiting for you to start the sequence by pressing a key. If a keypad button is pressed that sample will start to play and the sequencer will be off ! If a frequency shift button was selected, the sequencer will start and will play the sample that is assigned to the currently lit keypad button. If any other key (other than ESCape) is pressed, then the sequencer will start but will record and play nothing. It should be noted that when in record mode, key presses and gaps will be recorded over the top of the old sequence. To halt the sequencer, press the left mouse button. Recording can be started at any point so mistakes can be located and recorded over by using the fast forward and rewind buttons. When the basic layer of a sequence is finished, it would be advisable to periodically save this data alone to disc (section 5.3.10).

5.6 PLAYing back a sequence.

Your sequence may be played back by rewinding to a suitable point or resetting the sequence to 0000 and selecting the play button from the sequencer panel. The recording will now be played back. Press the left mouse button to stop. Please note that there may be a noticeable period before you hear anything !! This is because of the fact that you may have rewound into a period of the recording where one sample is continuously looping (for example). The first sample that you hear will be played on the first event that the sequencer comes across after starting playback. This may be a press of the space bar, a frequency shift or new sample event. To stop play back press left mouse button.

5.7 Overdub recording.

Once the basic track has been established, the sequence may now be built upon to make it more elaborate by adding new samples and sequences over the top. Dubbing is different to RECORDING because, where as recording erases the old track as it goes, dubbing will mix over the top of the old track. Please note however that Master Sound can play only one sample at a time and that it will QUANTISE events into twentieths of a second. Therefore if a key event is recorded over the top of a previous event, the old one event will be lost. It is possible therefore, to press a frequency shift key and overwrite a PLAY SAMPLE event. The emphasis here is to save your track every time a dub has been successfully completed (just in case you muck it up with the next mix) and to keep your sequences as simple as possible. With experience you will learn the pitfalls and will see how a sequence can better be organised and recorded and that the complexity of your sequences will grow. To start over dubbing, move the tape counter to the desired start position, click on the RECO button and select OVERDUB. The sequencer is now waiting for a key press to start dubbing.

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As soon as a key is pressed, dubbing will start. The previous track will be played back in real-time and any new actions will be heard as they are recorded. When the end of the track is reached or you wish to stop and review the mix, simply press the ESCape key.

5.8 Frequency shifting.

The master sound sequencer provides the facility for being able shift the frequency of a sample by up to plus or minus half an octave. Two small piano keyboards are emulated with the keys 'Y' to 'J' being the white notes of the upper octave and the keys '7' to '=' being the black keys of the upper octave, and the lower octave by keys 'Z' to 'M' for the white keys and 'S' to 'J' for the black keys. This arrangement allow for easy two handed playing. Frequency shifting is audible when in either the TEST or RECOrd modes of sequencer operation. The 'Y' key and space bar represent 'natural' frequency and the sample will be increased or decreased in frequency, one note at a time, as the keys up or down the keyboard are pressed.

The NATURAL frequency of an instrument is taken to be that of the musical note of 'C'. Therefore pressing the 'U' key will play the note of 'C#'. Pressing 'M' will play the note of 'B' etc. This means that the top row of keys spans the notes F# through C to F# again. You may feel that half an octave is a bit restricting. Since the musical scale used is even tempered, there is nothing stopping you from taking a copy of the sample which represents the note of 'C', compressing it and then assigning it to another key. Now you will be able to create a 2 octave span of the same sample (there will, however, be a one note overlap in the centre at the middle F#). A better alternative to this is simply to record the note of 'C' an octave higher or lower to that of the first sample and assign this to another key. You will be able to span as wide a scale as you require.

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6.0 Creating a DEMO disc.

Creating your own demo disc can be as simple or as complicated as you wish. Creating a disc with a new demo with your own samples and sequence is no more difficult than producing your own sequence and copying the relevant files onto a fresh disc.

6.1 Preparing your blank disc.

Format a blank disk using WorkBench. Now open a shell or CLI window and install the disk to make it bootable as a workbench disk by typing 'INSTALL DF0:' if the disk is in the internal drive.

Now copy the files MasterDemo, an IFF picture of your choice, and the Master Sound sequence file you have created. Note that the picture file must be called 'MasterPic' and that the sequence file must be called 'MasterSeq', and also that these files must be in the same directory as the MasterDemo program. To make the demo run automatically from boot up, you must create a file called STARTUP SEQUENCE which contains the line 'MasterDemo'. This file should be just a plain ASCII text file, and can easily be created with the Amiga editor 'Ed' which can be found on your WorkBench disk.

To auto run the demo, simply reboot your Amiga by pressing the keys CONTROL, LEFT AMIGA and RIGHT AMIGA simultaneously with your demo disk in the internal drive DF0:. The disc should automatically load in the demo. Once loaded, the MASTER MIX demo will start.

6.3 The file types.

When executing, the Master Sound demo boot program always looks for files with fixed names. Creating your own customised demo disc is really only a case of replacing (or removing) the files on the MASTER MIX demo with your own of the same names. The file names and types are as follows:-

6.3.1 MASTERSEQ

This file is the main file which contains the entire recorded sequence and the samples in one large lump. This file **MUST** be present on the disc. Please bear in mind that the TRACK portion of a sequence file is always 40,000 bytes (40 Kbytes) in size.

6.3.2 MASTERPIC

The title or initial screen of the demo must be a IFF picture file of this name. This file is optional, leaving the file off will give extra disc and RAM space for samples, however the demo disc is likely to be rather less interesting than if a picture were present.

6.4 Changing the main screen.

The main title screen may be loaded into any of the commonly available Amiga paint packages.

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7.0 HELP!

Here is an attempt to find solutions to problems which you may encounter while using your Master Sound system.

7.1 I have a sample on the screen but I can't hear it on playback.

Check your input lead & connection, are they correct ? Can you obtain a scope waveform or a VU meter response ? If so, then the signal should be audible from Listen.

7.2 Background noise on samples.

A low level of background noise is inevitable. However, its effects can be reduced to a minimum by ensuring that the input signal is as high as possible. Use of a poor signal source such as a low quality tape player is a classic cause of 'HISSY' samples, try always to keep the tape player well serviced. Clean the tape head and capstan roller regularly. Finally, the environment in which Master Sound itself is placed can be a cause of low level noise. Try and keep your Amiga as far away from the VDU as possible. Any device which contains a power transformer or an electric motor is a potential source of noise, including some disc drives! The Amiga itself should not pose too much of a problem as it is quite well shielded.

7.3 My samples don't sound correct in the sequencer.

The sequencer automatically sets the sample play frequency to 14.4 KHz when it is invoked, and resets it back to the last setting upon return back to the editor. If the samples were recorded at any other frequency and have not been correctly adjusted, then they will be replayed at the incorrect speed. Ensure that all samples for use within the sequencer are either recorded at 14.4 KHz or recorded at 28.8 KHz and then compressed to 14.4 KHz. If the tuning is incorrect when frequency shifted, then the likely cause of trouble is that the original sample was off key or was not of an instrument playing the musical note of 'C'.

Also use the EDIT function to check the alignment of the cursors around your samples. Ensure that, in cutting out gaps from the within the editor, you have not disturbed the positions of the samples with respect to the saved cursor settings (see section 4.3.17). If they are, simply use the edit window slider controls and the PROG button to restore the new settings.

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8.0 Hints and tips.

Digital sampling can be exciting. The possibilities offered by it open a whole new world of digital recording and mixing. However, some special techniques are required to get the most out of this relatively new medium. Here are some that we use ourselves :-

8.1 Sample Quality.

It cannot be stressed enough about the importance of setting up the input of the sampler correctly. The two factors which affect the sample quality most are the volume of the input and the speed at which it is sampled. It is advised that sampling should be carried out at the highest possible frequency and that samples should be compressed for low frequency playback, superior results will be obtained this way. If necessary however, a graphic equaliser or filter box can be placed between the sample source and the cartridge in an attempt to remove the aliasing noises which are obtained when sampling at low frequencies.

8.2 Effects of looping.

Looping can sound strange if care is not taken to match up two important aspects of the sample volume. The first is that both ends of the sample start & end are roughly the same. Ideally, the sample should start and end with zero volume. This ensures that there is not a large, sudden change of volume which would be audible as a click or pop. Judicious use of the magnify facility at its highest level is invaluable here since it is possible to locate the pointers exactly on the desired volume. The second aspect to be cautious of is that the general 'ENVELOPE' of the sample should also start and end at roughly the same level. If not, then the sample will appear to modulate every time the sample is looped. A little patience and lot of practice with positioning the looping pointers helps a great deal in obtaining the most professional results.

8.3 Clicks on spliced samples.

Appending one sample onto the end of another can often produce clicks similar to those obtained with looping (see 8.3 above). The same precautions regarding sample volume changes should be observed. However, unlike looping, there is one last trick that can be employed to ease the end of one sample into the start of another. The trick is to place the second sample close to the end of the first. Next, locate the meeting point of the samples by placing it somewhere in the centre of the display. Now we can use the magnify function to zoom into the area of the joint of the samples. Locate the markers at one part of each sample that have approximately the same level on the display (preferably close to the centre line) and use the CUT function to bring the two sections of sample together. By returning to the original display mode we should now see the two spliced samples, which, when played, should have a more natural transition from one to the other (and hopefully does not click).

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8.4 Sample length.

It is recommended that close attention is paid to the lengths of the samples. Try not to save any blank space at the start and end of a sample, especially when a sample is to be saved to disc or assigned to a sequencer key. This helps to optimise the computers memory for extra sampling space and disc space for larger text files or simply for more samples and picture files. Another useful tip to help keep sequencer files short is to ensure that all samples are loaded into the computer end to end with as little gap between them as possible. This is because the sequencer saves the samples out as a single block of data between the highest and lowest addresses. The more compact this block is, the better.

8.5 SEQ file length.

The sequence file contains not only a 40K track and the sample pointers but also the samples themselves too! The smaller the gaps between the samples the better.

8.6 Sequencer dubbing.

You may find difficulty in cuing up the sequence to start over recording. It may be useful to record a 4 beat introduction at the start of a sequence to help you pick up the rhythm again. Also remember that the sequencer will wait for a key before starting any recording or dubbing operation. This is useful to remember since you can rewind well past the point of interest, set up the record mode and then press any non-recorded key to start the dub operation. This will give you an opportunity to catch up with the beat, before reaching the point of interest without recording ny unwanted key presses over the top of your precious sequence.

-----END-----

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MASTER SOUND SOFTWARE USE - MANUAL ADDITIONS

Since the release of the Master Sound package for the Amiga, a number of customers have experienced difficulty in operating various aspects of the sequencer program built into the main EDITOR software. These problems break down into the following areas:-

1) Loading and Saving samples within the sequencer.

This section must be read in conjunction with sections 5.3.7 and 5.4 of this manual. Many users have experienced problems in loading samples directly into the sequencer. This is because it is only possible to load or save an entire BLOCK of samples or the actual SEQUENCE pattern file from within the sequencer, individual samples can not be loaded or saved from the computer whilst in this mode. Please read section 5.4 very carefully, all samples MUST be loaded into the computer while in the normal EDITOR mode of operation and BEFORE entering the SEQencer mode itself.

2) Sample space in the sequencer.

The AMIGA itself places some restrictions on the amount of sample space available to the sequencer. The maximum amount of FAST Ram available in most Amiga's is 512k. Therefore the total size of the sample block to be used by the sequencer must not exceed that which is free for use within the computers FAST RAM. Please read section 5.3.7 fully. To keep the amount of sample space required by the sequencer to a minimum, please edit out gaps from between the samples before assigning them to keypad buttons, this process is explained in section 5.4 of this manual. This helps to ensure that samples required for sequencing will all fit into the limited amount of free FAST RAM.

3) Using the TEST button

This should be read in conjunction with sections 5.3.8 and 5.8 of this manual. After having made allocations to the numeric keypad using the PROG button, sample allocations can be tested by selecting the TEST button with the LEFT mouse button (at which point the button will turn RED). The next sample to be tested must be selected by pressing the relevant sample button on the AMIGA'S numeric keypad (at which point, this will also turn RED). The selection must only be made from the buttons having a sample assigned to it in the procedure outlined in section 5.3.9 and must be visible in the sample DATA display (5.2). Upon pressing the required keypad button, the sample assigned to that button can now be played using the AMIGA'S large typewriter keyboard in the fashion described in section 5.8 of this manual. The AMIGA keyboard is treated in a similar fashion to that of a piano, with the normal (white) keys on a lower row of letters and the sharps (black) on the row of keys directly above. To make the sample audible, simply press one of the required keys and the sample will be played at that 'NOTE'.

4) Playing samples in RECOrd mode.

This passage should be read in conjunction with sections 5.5 and 5.8 of this manual. After having made allocations to the numeric keypad using the PROG button and having tested the sample allocations using the TEST (as above), it is possible to play the samples and record them as a sequence from the computer. Section 5.5 is INCORRECT in so far as that, after having selected RECOrd mode, pressing a keypad button will select the sample assigned to that key to become active or the selected sample. To play the selected sample, press one of the main AMIGA keyboard buttons (section 5.8). This mode of operation is consistent with that of the TEST key.



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