

**MIDIK.I.T.I. PRO**

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## INTRODUCTION

Welcome to the midiKITI! This device was conceived to bring the proven triggering power of the drumKAT to you in a compact, easy-to-use format. KITI stands for KAT Intelligent Trigger Interface.

The midiKITI excels at both acoustic triggering and as a MIDI interface for electronic trigger pads. Through the use of 5 push-buttons and 3 groups of LEDs you can easily control the settings for 9 trigger inputs.

The beauty of the midiKITI is that there is no mystery as to what settings you have control over; they are spelled out on the front panel! For quick setup an "AUTO-TRAIN" section has been provided to allow automatic determination of MIDI Channel and Note, of needed Gain for each trigger, and Dynamic and Waveform settings for each trigger. For advanced use all settings can be easily selected and changed in the MIDI/TRIGGERING section of the front panel.

The midiKITI will make MIDI triggering a simple reality and allow you to focus on playing and expanding into new areas of expression.

## PRODUCT OVERVIEW

The **midiKITI** is a compact but very intelligent trigger-to-MIDI device. It is 7-3/4" front-to-back, 9-1/4" left-to-right, and has a 1" to 2" tapered thickness. It weighs in at less than 4 pounds. It is powered by a 9V, 500mA, positive tip AC adaptor. The **midiKITI** has one MIDI IN, two MIDI OUTs, and 9 totally independent trigger inputs.

The front panel has 5 push-button switches: SELECT, UP, DOWN, SAVE, and AUTO. There are 3 groups of leds. On the left are 17 RED LEDs that indicate your MIDI and TRIGGERING settings in a bargraph format to remove some of the number mystery from triggering. On the top right are 2 YELLOW LEDs to guide you through AUTO TRAINING. On the bottom right are 9 GREEN LEDs which indicate which trigger was just hit. These GREEN Trigger LEDs also indicate when you have interaction problems.

The **midiKITI** has separate TRIGGERING settings for each trigger input. These settings are GAIN, Envelope, THRESHOLD, MASK TIME, MINIMUM DYNAMIC, MAXIMUM DYNAMIC, HEADROOM, and SCAN TIME. A global INTERACTION setting allows you to stop interactions from one trigger to another.

The **midiKITI** holds 16 KITS of user-defineable MIDI settings. A KIT consists of the settings for MIDI Channel, MIDI Note, Minimum Velocity, Maximum Velocity, Velocity Curve, and Gate Time for each of the 9 triggers. All of these settings are separate and independent for each of the 9 triggers. Also included is one Program Change that can be sent out to your drum-machine or synth when you enter each KIT.

The **AUTO TRAIN** section allows automatic determination of settings for your triggers. All of these settings can then be individually adjusted to your specific needs.

Factory defaults for any of the MIDI or TRIGGERING settings can be easily loaded into your **midiKITI** to quickly put any settings "in the ballpark".

Appendices B ("Triggering Troubleshooting Guide") and H ("midiKITI Summary of Operations") can be helpful as quick guides.

# THE OUTSIDE WORLD

## UNPACKING and SHIPPING

When you receive your midiKITI, check to be sure that you have the following:

- 1 midiKITI
- 1 AC Adaptor
- 1 manual

### **Optional:**

- Mounting bracket for tom tom or cymbal stands.**
- KDT-1 Head Mount Triggers for Acoustic drums**
- KST-1 Shell Mount Triggers for Acoustic drums**
- T shirt**

You should also find a warranty card. Please fill it out and send it in so that we can keep track of you. If you ever have to send your midiKITI in for repair or an update, use care and good judgment. It is best to save the original packing material to make shipping easy and safe. If you do not have the original packing material, box the midiKITI in tight with packing noodles, paper, etc. so that it is not flopping around in the box during shipping. Shipping expenses and proper shipping are the responsibility of the consumer.

## STANDS

Using the optional midiKITI mounting bracket, the midiKITI can be mounted on any tom tom or cymbal stand with a multi-clamp adaptor. Where and how you mount the midiKITI is largely a matter of personal taste.

## BACK PANEL CONNECTIONS

### POWER

The midiKITI comes supplied with a removable AC Adaptor to plug the midiKITI into a 110v outlet.

### MIDI IN

The midiKITI has a MIDI IN jack to receive MIDI information from another controller, a sequencer, or a computer. The midiKITI will merge this information and send it to both of the pairs of MIDI OUT jacks. The MIDI IN also allows you to have your midiKITI respond to Program Changes (channel 16) from an external device to move to different KITs. Also, when receiving the Channel/Note AUTO TRAIN, the MIDI Channel and MIDI Note from your drum-machine are received from the MIDI IN jack.

### MIDI OUT

The midiKITI has a pair of MIDI OUT jacks. The MIDI OUTs will contain a merge of midiKITI information as well as MIDI IN information.

### TRIGGER INPUTS

The midiKITI has nine trigger inputs. Each one of the nine trigger inputs are totally independent. On the midiKITI you "TRAIN" each of the trigger inputs for the type of trigger you have plugged into each trigger input. To "TRAIN" the triggers the midiKITI will ask you for a "soft" and a "hard" hit to define your playing dynamic range and to allow the midiKITI to memorize the decay envelope of your trigger for optimum trigger response. The trigger inputs each have independent gains, dynamic range settings, mask time, and threshold settings to allow you to connect a variety of triggering sources including foot triggers, trigger pads, or acoustic drum triggers (such as the KAT KDT-1 and KST-1).

## CONNECTING TO MIDI

To have your **midikITI** control another MIDI device, perform the following:

Connect a MIDI cable from one of the **midikITI** MIDI OUTs to the MIDI IN of the device which you would like to control. On the device you are attempting to control make sure that it is selected to be on MIDI Channel 10. Most of the **midikITI** factory kits are set up for MIDI Channel 10 because many of the current drum machines default to Channel 10.



## midiKITI Tutorial

We assume that before you read this you probably have tried (with some success) to get some triggering happening from the information on the separate "midiKITI BASIC" sheet. This Tutorial is a step by step explanation of the details of triggering.

To have your midiKITI work for you, you must do 2 things for each of your triggers:

- (1) Get **MIDI** settings that will cause the right things to happen on your drum machine
- (2) Get **TRIGGERING** settings that will allow the midiKITI to properly recognize the signals from your trigger.

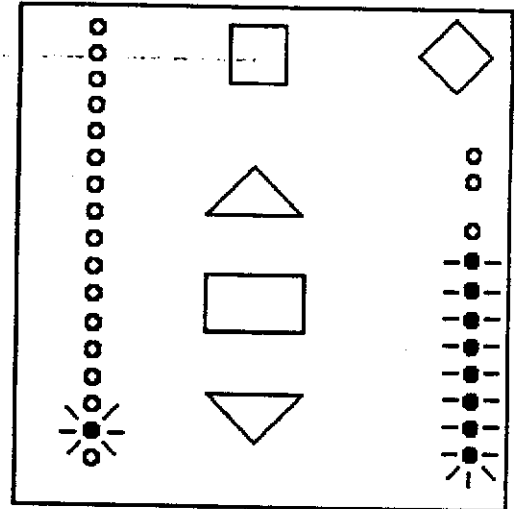
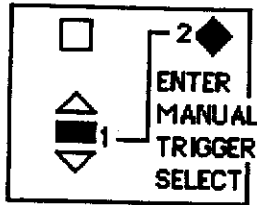
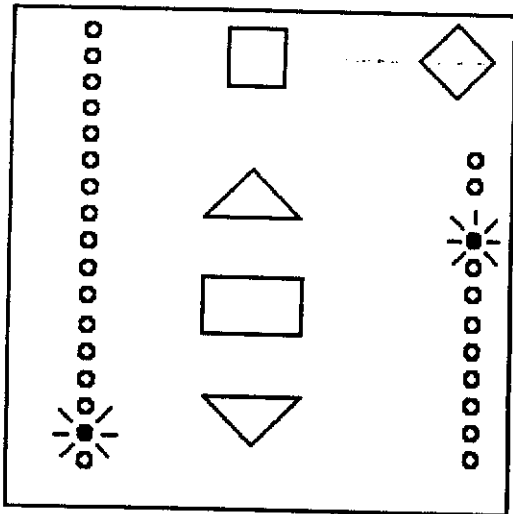
Both of these groups of settings are essential for a functioning Trigger-to-MIDI interface. If you are new to MIDI, Triggering, and electronics the number of settings within a MIDI system can seem a bit overwhelming at first. However it is like anything else. Just take it one step at a time and before you know it your knowledge and understanding of Triggering will rapidly develop.

As mentioned earlier there are two different groups of settings for you to tackle: (1) **MIDI** settings and (2) **TRIGGERING** settings.

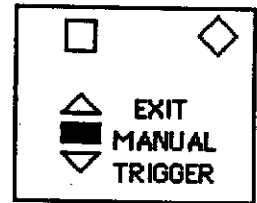
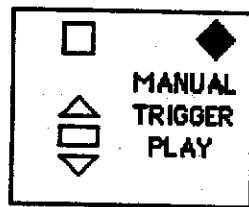
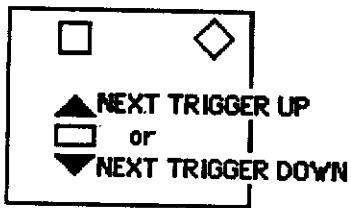
**MIDI** settings have to do mainly with what you are playing **INTO** - the drum machine, synth, or sampler - and the settings that need to be sent to it to make it play **WHAT** and **HOW** you like.

**TRIGGERING** settings concern what you are playing **ON** - a snare drum with a head mount pickup, or a tom-tom with a shell mount pickup, an electronic trigger pad, or an electronic bass drum trigger - and the settings that are needed for the midiKITI to properly read dynamics information without false or double triggering.

To get into **MANUAL TRIGGER MODE**



When Trigger Leds go inverse (8 lit, 1 unlit):



## SESSION 1: MIDI SETTINGS

First we'll explain the MIDI settings. Along the way we will show:

- 1) How to **MANUALLY** select and play any trigger,
- 2) How to **AUTO TRAIN** your **MIDI CHANNEL** and **NOTE**,
- 3) How to set your **MIDI** settings "in the ballpark" by using factory defaults,
- 4) How to examine the **MIDI** settings,
- 5) How to change the **MIDI** settings directly,
- 6) How to **SAVE MIDI KIT** settings to Permanent Memory,
- 7) How to **RECALL** a **KIT** for the purpose of doing a **KIT COPY**

This **TUTORIAL** will be in a double-page format. The Left Page is always the quick summary (quite often with some graphics) of what to do. The Right Page gives detailed explanations.

First we will show you how to play your **MIDI** settings without using your actual trigger! This way you can set-up and test your **MIDI** settings simply by pushing the 5 buttons on the **midikITi** front panel.

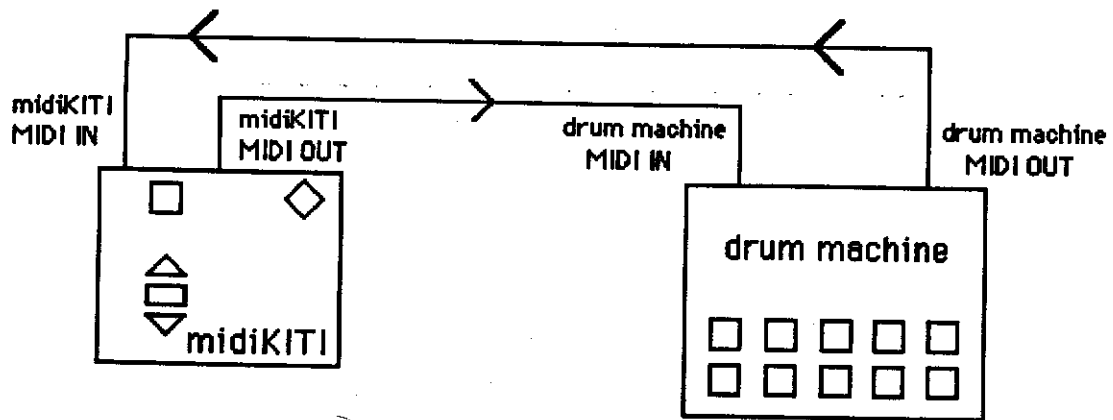
### MANUAL TRIGGER MODE

Press **<SELECT>**, then while **<SELECT>** is held, press **<AUTO>**. The green Trigger leds "go inverse". Now 8 of the green leds are lit and 1 is unlit. The one that is unlit is the Current Trigger.

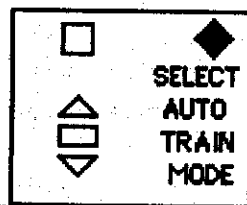
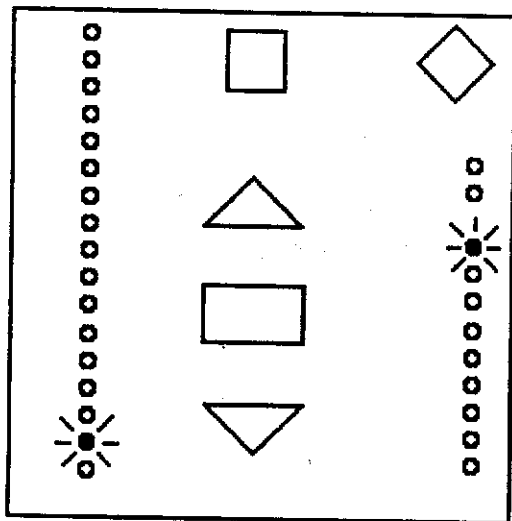
You select a different trigger by pressing the **<UP>** and **<DOWN>** keys.

You can "**PLAY**" the **MIDI** settings for this trigger by simply pushing the **<AUTO>** button. When you press the **<AUTO>** button the led blinks to indicate that a **MIDI NOTE** is being sent out.

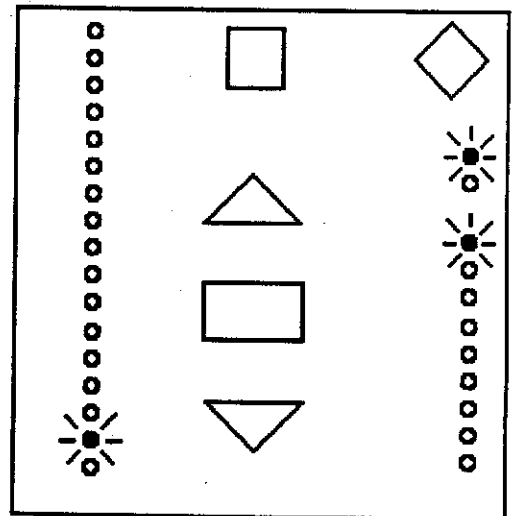
To get back out of this mode simply press **<SELECT>**.



MIDI cable connections for MIDI CHANNEL/NOTE AUTO TRAIN.



Select AUTOTRAIN of CHANNEL/NOTE



If you do this and your drum machine won't make any sound first make sure that the settings on your drum machine are set appropriately.

When you play the buttons on your drum machine does it make sound?

Check drum machine audio out, wiring and sound system.

Check MIDI wiring.

Check to see if your drum machine is properly set up to receive an incoming MIDI signal.

If you are still having trouble look in the APPENDIX for Trouble-shooting.

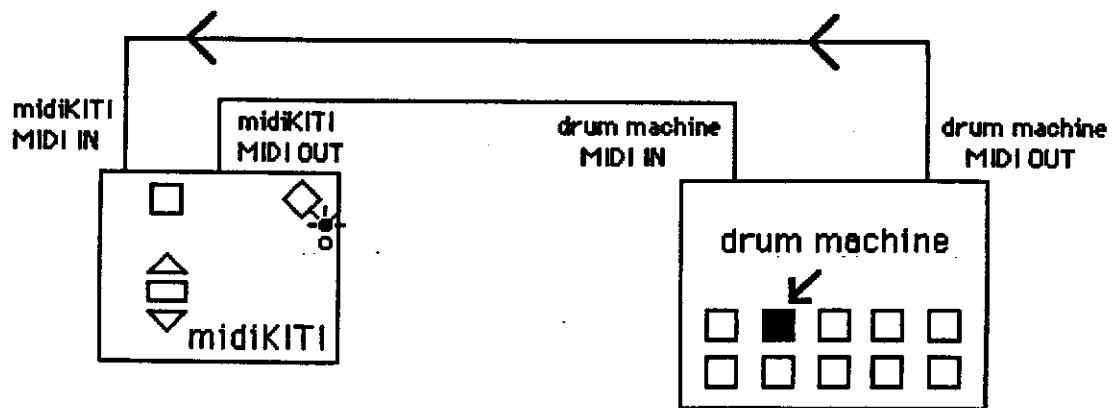
When you are sure your drum machine and sound system are set up properly you can zero in on the MIDI CHANNEL and NOTE. In this MANUAL TRIGGER PLAY MODE the 3 VELOCITY settings are ignored. All the NOTES played by pressing <AUTO> are played with a fixed VELOCITY of 127 (which is the loudest dynamic or volume for a note). The GATE TIME is likewise ignored. The GATE TIME (sustain time) of the NOTE is determined by how long you hold the key. That leaves MIDI CHANNEL and MIDI NOTE as the only two things to worry about in getting a sound to play on your drum machine from your midiKIT1.

To get the MIDI CHANNEL and MIDI NOTE set up you have 3 choices: 1) AUTO TRAIN, 2) Try Defaults, 3) Change them.

### MIDI CHANNEL/NOTE AUTO TRAIN

To do an AUTO TRAIN of the MIDI CHANNEL and MIDI NOTE you need a MIDI cable from the MIDI OUT of your drum machine to the MIDI IN on your midiKIT1.

Next press <AUTO>. When you release the <AUTO> button the top yellow led for CHANNEL/NOTE will turn on in the AUTO TRAIN section. Regardless of what Function you were viewing before you pressed <AUTO> you will now be seeing the 3 digits of the MIDI NOTE value cycling on the red leds. To verify that you are actually looking at the MIDI NOTE value, press <SELECT> and notice the single red led next to MIDI NOTE turns on to tell you that MIDI NOTE is the Function you are viewing.



Push button on drum machine to **AUTO LOAD** the MIDI CHANNEL and MIDI NOTE of sound into midiKITI.

Now the midiKITI is looking to receive MIDI information from your drum machine on the midiKITI MIDI IN. Tap a sound button on your drum machine (or play a note key on your synth). If your drum machine sends out a NOTE ON command the midiKITI will grab the MIDI CHANNEL and MIDI NOTE from the information it receives from the drum machine.

If this is successful you will see what appears to be a complicated series of blinkings on the red leds. What actually happens when a CHANNEL/NOTE is received when in AUTO CHANNEL/NOTE is:

1. The red leds will first show the single red led next to CHANNEL on for 1/2 second.
2. Next a bar graph of the CHANNEL Value will be shown for 1 second.
3. Then the single red led next to NOTE will go on for 1/2 second.
4. Then the red leds will lock back into cycling through the 3 digits of the received MIDI NOTE Value.

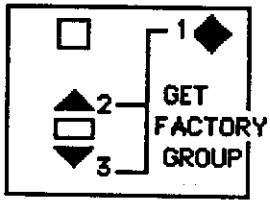
If you didn't get this series of information when you pushed the button on your drum machine check your MIDI cable from the drum machine MIDI OUT to the midiKITI MIDI IN, check the settings on your drum machine to make sure it is sending MIDI out, and make sure the single top yellow led is on in the AUTO TRAIN section.

If you don't understand how to read this cycling MIDI NOTE Value on the red leds this will explain. The MIDI NOTE value can be from 0 to 127, so the Value shown always uses 3 digits. The "100's" digit is first, then the "10's" digit, then the "1's" digit. Then the red leds go blank to allow you to sync up with the sequence.

As an example: if you see BLANK, 0, 3, 8 - that is 038 or simply 38! If you see BLANK, 1, 0, 5 - that is 105.

If pressing buttons on your drum machine is loading in numbers into your midiKITI, then you can now select another trigger by either hitting the trigger or by doing a MANUAL TRIGGER SELECT as shown above to get to another trigger. You can repeat this process until all of your triggers have some CHANNEL and NOTE assigned to them.

Note: you can easily change the MIDI NOTE value by simply pressing the <UP> or <DOWN> buttons on your midiKITI.



To load a **group of factory defaults.**

- Either
- 1) An entire MIDI KIT,
  - 2) MIDI settings for 1 trigger only,
  - 3) TRIGGERING settings for 1 trigger only.



## DEFAULT CHANNEL and NOTE

A second way to get your CHANNEL and NOTE set up is to load in the Factory Default settings for these Values and see if they make your drum machine happy. You can enter Single Default settings or a whole Group of Default settings. We will explain both.

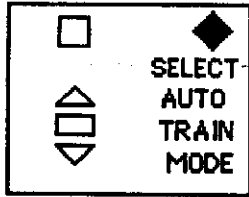
## LOADING a DEFAULT GROUP

The triple key combination of <AUTO>, then <UP>, then <DOWN>, so that all 3 end up pressed simultaneously, will cause a Group of Default settings to be loaded into memory. There are 3 possible Groups depending on your Current Function. You can see what the Current Function is by pressing <SELECT> down. The single red led that is ON when you press <SELECT> shows you your Current Function. When you release <SELECT> you then see the Value of the Current Function for your Current Trigger.

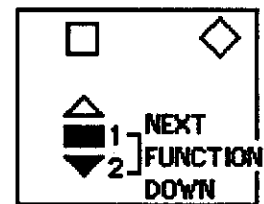
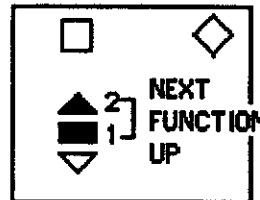
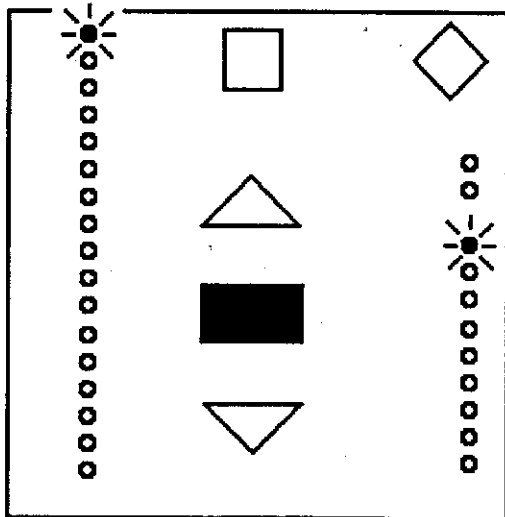
If your Current Function is KIT then an entire Group of Factory MIDI Defaults (a Factory KIT) for all 9 triggers will be loaded into Temporary MIDI KIT Memory. This is signified by a led burst of all 7 of the red MIDI leds and all 9 trigger leds - telling you that all MIDI settings for all 9 triggers have been loaded into Temporary KIT Memory.

If your Current Function is one of the MIDI settings: CHANNEL through PGM CHANGE, then a Group of MIDI settings for only the Current Trigger will be loaded into Temporary MIDI KIT Memory. Specifically the Default MIDI CHANNEL, MIDI NOTE, MIN VELOCITY, MAX VELOCITY, VELOCITY CURVE, and GATE TIME will be loaded in for your Current Trigger.

If your Current Function is one of the TRIGGERING settings: GAIN through INTERACTION, then a Group of TRIGGERING settings for only the Current Trigger will be loaded into Permanent Memory. Specifically the Default GAIN, Envelope, THRESHOLD, MASK TIME, MIN DYNAMIC, MAX DYNAMIC, HEADROOM, SCAN TIME, and INTERACTION will be loaded in for your Current Trigger.



To EXIT from AUTO TRAINING, push <AUTO> several times until both yellow leds turn off.



Press <SELECT> to see what Current Function is.

(Strictly speaking the **INTERACTION** setting is a single Global setting that applies to all triggers at once - so this Default Group for "only the Current Trigger" actually affects the **INTERACTION** setting that is used by all the triggers - but the **GAIN**, **Envelope**, **THRESHOLD**, **MASK TIME**, **MIN DYNAMIC**, **MAX DYNAMIC**, and **SCAN TIME** can be changed separately for each trigger without affecting the others.)

After loading in MIDI Defaults for your Current Trigger, press **<AUTO>** and release, 3 more times until both yellow **AUTO TRAIN** leds turn off. If you play on your trigger and your drum machine responds then have fun! Then go down to the "**CHANGING YOUR MIDI SETTINGS**".

If your trigger still doesn't respond let's avoid the **TRIGGERING** side of things and use the **MANUAL TRIGGER MODE** to send our MIDI settings **OUT** and see if our drum machine responds.

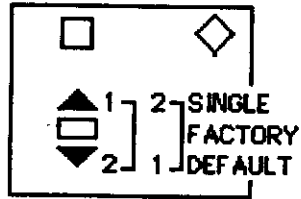
To get into **MANUAL TRIGGER MODE** you press **<SELECT>** and while it is still held down also press **<AUTO>**. The Trigger leds go inverse. You can "PLAY" the Current Trigger's MIDI settings by pressing **<AUTO>**. You can change which Trigger is selected by pressing the **<UP>** and **<DOWN>** arrows and you can exit the **MANUAL TRIGGER MODE** by pressing **<SELECT>**.

If you still don't hear anything out of your drum machine continue on to hear how to manually change your MIDI settings.

### **CHANGING YOUR MIDI SETTINGS**

To actually change your MIDI settings is simple. Press **<SELECT>** to see what your Current Function is. If you would like to select a different Function, **MIDI CHANNEL** for example, you simply press **<SELECT>** and while you are still holding **<SELECT>** you also press **<DOWN>** and hold, you will scroll through the various Functions. When you get to the Function you want release the **<DOWN>** first. Then release the **<SELECT>** as well. (**<SELECT>** and **<UP>** together will scroll up through the Functions. Release **<UP>** first and then release **<SELECT>**.)

You will now see the Value of the Current Function for the Current Trigger. To change the value simply press **<UP>** or **<DOWN>** to raise or lower the Value. If your drum machine is still not responding you should try different **MIDI CHANNELS** and different **MIDI NOTES** until you can match what your drum machine wants to see.



To load in an individual **FACTORY DEFAULT** simply press **<UP>** and **<DOWN>** simultaneously.

## LOADING AN INDIVIDUAL FACTORY DEFAULT

Any of your individual MIDI or TRIGGERING settings can be instantly changed to a **FACTORY DEFAULT** setting by simply pressing <UP> and while <UP> is still pressed, press <DOWN> also. The scrolling of the Value will stop and the individual **FACTORY DEFAULT** for this Function will be put in for the Value of the Current Function for the Current Trigger.

The other order of pressing <DOWN> first and then <UP> as well works too.  
The individual **FACTORY DEFAULT** for each Function is listed in Appendix I.

**MIDI Channels** are one of the most important concepts in MIDI. Basically MIDI Channels allow you to select which drum machine or synth should respond to each trigger. MIDI information can be sent to any of 16 Channels. If you want your drum machine to respond to the **midikITI**, the Channel it is set on must be the same as the Channel as the particular trigger on the **midikITI** is sending on! Each trigger on the **midikITI** can send on any Channel, independent of the other triggers.

**MIDI CHANNEL 10** has become kind of the "standard" Channel for drum machines. So make sure and try various MIDI NOTE Values on CHANNEL 10.

If that doesn't work look in your drum machine manual to find how to get at its MIDI Channel settings and how to find out its MIDI NOTE assignments.

**MIDI NOTES** allow you to select which specific sound or pitch within the device that you have selected (by MIDI Channel) should respond to each trigger.

Typical MIDI NOTE values on drum machines these days are Snare Drum=38, Snare Rim=37, Bass Drum=35, Low Tom=41, Medium Tom=45, High Tom=48, High Hats 42,44,46, Crash=49, Ride=51, Clap=39, Congas=62,63, Cowbells=67,68, Timbale=65.

The Appendix contains a lengthy discussion of **Velocity**, but simply put: Minimum Velocity is generally a measure of how loud your softest hits should sound. Maximum Velocity is a measure of how loud your hardest hits should sound. Velocity Curves are a correlation of as you hit harder, how fast the sound gets louder.

A Minimum Velocity of 1 and a Maximum Velocity of 16 gives you wide dynamics. However there are a lot of instances where other ranges are more appropriate. Often a low velocity will be barely audible. In live situations where you need to cut through to be heard, your minimum should be raised to 4 or more. Also some synths do not respond well to high velocities, so sometimes you will want to limit your maximum to less than 16. It is all a matter of personal taste and the particular situation you are in.

The best way to get an understanding of Velocity Curves is to get a responsive sound, use min to max of 1-16 and play soft to loud using different curves. You will find some of the curves are reverse Curves!. Velocity Curves are documented in the Appendix.

Typical ranges for **VELOCITY** are 1 or 2 (very soft) for your **MINIMUM VELOCITY** and 16 (very loud) for your **MAXIMUM VELOCITY**.

For piezo trigger pads **VELOCITY CURVES** 8 and 9 are best. Curve 1 is a linear curve and 12,13,14 are even Reverse Curves.



One last comment on velocity. Not all patches or presets in tone generators respond to velocity information. Some just play with a fixed volume regardless of the velocity sent to it. So don't assume that something is broken if all of your sounds are not dynamic!

For drum machines **GATE TIME** is generally meaningless.

For synths and samplers **GATE TIME** will affect how long the sound sustains after you strike it. Select **GATE TIME** as your Current Function and then change the **GATE TIME** Value by releasing <SELECT> to see the Value. Now press <UP> and keep it pressed. You will notice that eventually the bar graph Value actually does increase, but that it does so very slowly. This is because it takes 16 increments of **GATE TIME** to cause the led to go up by 1.

Your **GATE TIME** varies from 0 (as soon as your hit is finished, a NOTE OFF is sent immediately) and 25 milliseconds (0.025 seconds) up to 6.35 seconds in 25 millisecond steps.

Since there are 16 red led bar graphs, 16 increments of 0.025 seconds, and 6.35 seconds, 128 increments, they can not all be shown on the 16 red led bar graphs. It takes 254 increments of 16 consecutive **GATE TIME** times from the start of the sound to the end of the sound. The increments are 0.025, 0.050, 0.075, 0.100, 0.125, 0.150, 0.175, 0.200, 0.225, 0.250, 0.275, 0.300, 0.325, 0.350, 0.375, 0.400, 0.425, 0.450, 0.475, 0.500, 0.525, 0.550, 0.575, 0.600, 0.625, 0.650, 0.675, 0.700, 0.725, 0.750, 0.775, 0.800, 0.825, 0.850, 0.875, 0.900, 0.925, 0.950, 0.975, 1.000, 1.025, 1.050, 1.075, 1.100, 1.125, 1.150, 1.175, 1.200, 1.225, 1.250, 1.275, 1.300, 1.325, 1.350, 1.375, 1.400, 1.425, 1.450, 1.475, 1.500, 1.525, 1.550, 1.575, 1.600, 1.625, 1.650, 1.675, 1.700, 1.725, 1.750, 1.775, 1.800, 1.825, 1.850, 1.875, 1.900, 1.925, 1.950, 1.975, 2.000, 2.025, 2.050, 2.075, 2.100, 2.125, 2.150, 2.175, 2.200, 2.225, 2.250, 2.275, 2.300, 2.325, 2.350, 2.375, 2.400, 2.425, 2.450, 2.475, 2.500, 2.525, 2.550, 2.575, 2.600, 2.625, 2.650, 2.675, 2.700, 2.725, 2.750, 2.775, 2.800, 2.825, 2.850, 2.875, 2.900, 2.925, 2.950, 2.975, 3.000, 3.025, 3.050, 3.075, 3.100, 3.125, 3.150, 3.175, 3.200, 3.225, 3.250, 3.275, 3.300, 3.325, 3.350, 3.375, 3.400, 3.425, 3.450, 3.475, 3.500, 3.525, 3.550, 3.575, 3.600, 3.625, 3.650, 3.675, 3.700, 3.725, 3.750, 3.775, 3.800, 3.825, 3.850, 3.875, 3.900, 3.925, 3.950, 3.975, 4.000, 4.025, 4.050, 4.075, 4.100, 4.125, 4.150, 4.175, 4.200, 4.225, 4.250, 4.275, 4.300, 4.325, 4.350, 4.375, 4.400, 4.425, 4.450, 4.475, 4.500, 4.525, 4.550, 4.575, 4.600, 4.625, 4.650, 4.675, 4.700, 4.725, 4.750, 4.775, 4.800, 4.825, 4.850, 4.875, 4.900, 4.925, 4.950, 4.975, 5.000, 5.025, 5.050, 5.075, 5.100, 5.125, 5.150, 5.175, 5.200, 5.225, 5.250, 5.275, 5.300, 5.325, 5.350, 5.375, 5.400, 5.425, 5.450, 5.475, 5.500, 5.525, 5.550, 5.575, 5.600, 5.625, 5.650, 5.675, 5.700, 5.725, 5.750, 5.775, 5.800, 5.825, 5.850, 5.875, 5.900, 5.925, 5.950, 5.975, 6.000, 6.025, 6.050, 6.075, 6.100, 6.125, 6.150, 6.175, 6.200, 6.225, 6.250, 6.275, 6.300, 6.325, 6.350.

Likewise **GATE TIMES** of .400 to .775 all share the value of "01" on the bar graph.

Sounds with a slow build up on the front of the sound, strings and horns especially need a longer **GATE TIME** on synths so that the sound can rise to an audible level.

The highest **GATE TIME** setting will cause no **NOTE OFF** to be sent. This is a good setting for most drum machines.

**PROGRAM CHANGE** is a command that can be sent to your drum machine or synth to get it to change sounds or timbres or other groups of settings. There is 1 **PROGRAM CHANGE** associated with each **KIT**. Whenever you advance into a new **KIT** a **PROGRAM CHANGE** will be sent out if one is selected in that **KIT**. The Value of the **PROGRAM CHANGE** determines which patch is selected on the drum machine. A **PROGRAM CHANGE** needs to have a **CHANNEL** associated with it (so that all drum machines don't respond to **PROGRAM CHANGES** that were meant for another machine in the chain).

The **CHANNEL** used for this single **PROGRAM CHANGE** Value is the **CHANNEL** used by Trigger 9. We figured using Trigger 9's **CHANNEL** setting would give you more flexibility as far as which Channel to select compared





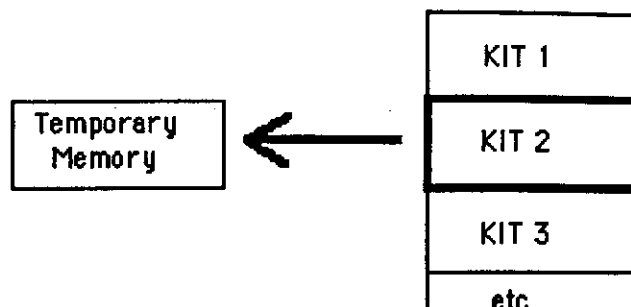
to choosing Trigger 1 which is probably always locked into a Bass Drum or Snare drum sound.

The **PROGRAM CHANGE** value can be anything between 0 and 127. Check your drum machine or synth's manual to see in what ways they will respond to a **PROGRAM CHANGE**.

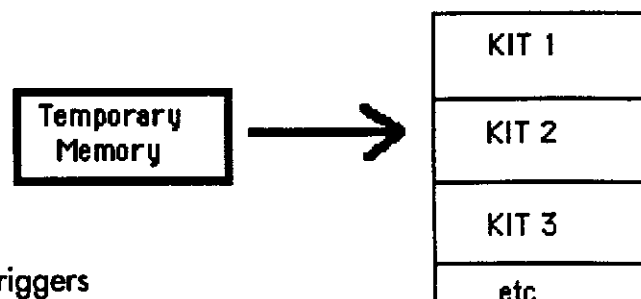
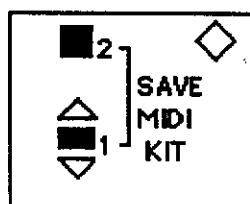
If you decrease the Value of **PROGRAM CHANGE** 1 below 0 or 1 above 127 the leds will go off and stay off - this is the setting where you can choose not to send any **PROGRAM CHANGE** at all!

Changes you make to **TRIGGERING** settings go immediately into Permanent Memory.

Changes made to your **MIDI** settings are done in Temporary Memory.



When you enter a **KIT** a copy of it is made into Temporary Memory to be used for playing and editing.



**KIT SAVE** copies the MIDI settings for all 9 triggers from Temporary Memory to Permanent Memory.

## SAVING MIDI SETTINGS TO PERMANENT MEMORY

Your **TRIGGERING** settings for each of the 9 trigger inputs are stored in Permanent Memory and any changes to them are immediately done permanently.

However, your **MIDI** settings which make up the **KITs** are handled a bit differently. Your **MIDI KITs** reside in Permanent Memory too, but whenever you use a **KIT** it is first copied from Permanent Memory to Temporary Memory where it is played and edited from from.

Specifically, when you advance to a new **KIT** (either by selecting **KIT** as your Current Function and then raising or lowering the **KIT #**), the newly selected **KIT** is copied from Permanent Memory to Temporary Memory.

Specifically, when you advance to a new **KIT** (either by selecting **KIT** as your Current Function and then raising or lowering the **KIT#** or by **RECEIVING** a **PROGRAM CHANGE** on Channel 16 at the **MIDI IN**), the newly selected **KIT** is copied from Permanent Memory to Temporary Memory.

It is easy to **SAVE** a changed **KIT** to Permanent Memory. Press **<SELECT>** and while **<SELECT>** is held also press **<SAVE>**. ALL 9 green Trigger leds and the top 8 red leds all light up for 1 second and then turn off. You may release the keys in either order.

All 9 green leds light up to tell you that **MIDI** settings for ALL 9 triggers are being stored. All the MIDI leds: KIT through PROGRAM CHANGE, all light up to tell that all the MIDI settings (and none of the **TRIGGERING** settings) are being stored. This **KIT SAVE** can be done regardless of the Current Function. Regardless of whether your Current Function is **MIDI CHANNEL** or **GAIN** all the top group of **MIDI** values are stored for all 9 triggers when the **<SELECT>** - **<SAVE>** combination is pressed.



**Permanent Memory**

KIT 1
KIT 2
KIT 3
etc

Whenever a change is made to the MIDI settings, your KIT will be copied from Temporary Memory into the RECALL DRAWER.

Basically any time you have done any editing that you know you want to keep you should do a quick **KIT-SAVE**. This prevents having done a lot of changes and then accidentally destroying what you have done by tripping on the power cord or something.

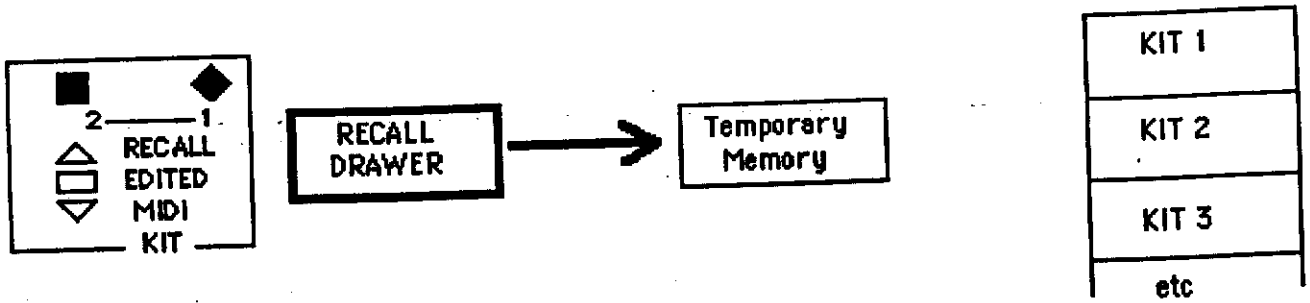
If you accidentally advance to another KIT without **SAVING** to Permanent Memory the changes you made to the previous KIT will be gone when you come back. Remember, the changes you make to a KIT of MIDI settings are done to a copy of the KIT in Temporary Memory and this doesn't change the KIT in Permanent Memory. When you advance to another KIT, the new KIT will be loaded from Permanent Memory to Temporary Memory (so it can be used for both Playing and Experimenting with the settings) and your changed *previous* KIT that was in Temporary Memory will get erased.

### RECALLING LAST EDITED KIT INTO TEMPORARY KIT MEMORY

However, all is not lost. Whenever you make any change to the MIDI settings of any of the triggers the entire Temporary Memory of MIDI KIT settings gets copied into the **RECALL DRAWER** automatically. For example, if you change the MIDI NOTE Value for Trigger 8 (in Temporary Memory of course), all of the Temporary Memory MIDI KIT settings are then saved in the **RECALL DRAWER**. The settings in a MIDI KIT are MIDI CHANNEL, NOTE, MIN VELOCITY, MAX VELOCITY, VELOCITY CURVE, and GATE TIME, for all 9 triggers and 1 PROGRAM CHANGE that is used globally as a single value to send to MIDI when you advance into this KIT. The **RECALL DRAWER** gets loaded any time you change any of the settings from MIDI CHANNEL to PROGRAM CHANGE.

The **RECALL DRAWER** has 2 main uses:

- 1) To keep your edited Kit "backed up" in case you do something by accident to lose your changes, and
- 2) To do **KIT COPIES**.



To **RECALL** the last edited KIT from the **RECALL DRAWER** into Temporary Memory:  
Press **<AUTO>** and while **<AUTO>** is still held, press **<SAVE>**.

First, if you have made a lot of edits and accidentally advance to a new KIT, you can easily get your edited KIT back if you haven't made any new changes to the accidental new kit. First, get back to the correct KIT #. Second, perform a **KIT RECALL**.

To **RECALL** the last changed KIT, simply press **<AUTO>** and while **<AUTO>** is held also press **<SAVE>**. This will provide a burst on the top 8 red leds and on all 9 green trigger leds that is 1/2 as long as the burst for a **KIT SAVE**. All of the red leds for **MIDI** settings are lit and all 9 green leds are lit to indicate that ALL of the MIDI settings for ALL of the 9 Triggers are being **RECALLED**.

## **KIT COPY**

To do a **KIT COPY** go to the KIT that you want to make a copy of. We will call this kit the **"FROM" KIT**. You need to get the **FROM KIT** into the **RECALL DRAWER**. To get a KIT into the **RECALL DRAWER** you simply make a change to the KIT and the KIT will get put into the **RECALL DRAWER** automatically for you. So change one Value, increment the **MIDI CHANNEL** for Trigger 1 for example, and then decrement the Value back to its original Value. Both the increment and the decrement cause the edited KIT in Temporary Memory to be stored into the **RECALL DRAWER**. The second time is the one you care about because this stores the correct settings of yourKIT in the **RECALL DRAWER**.

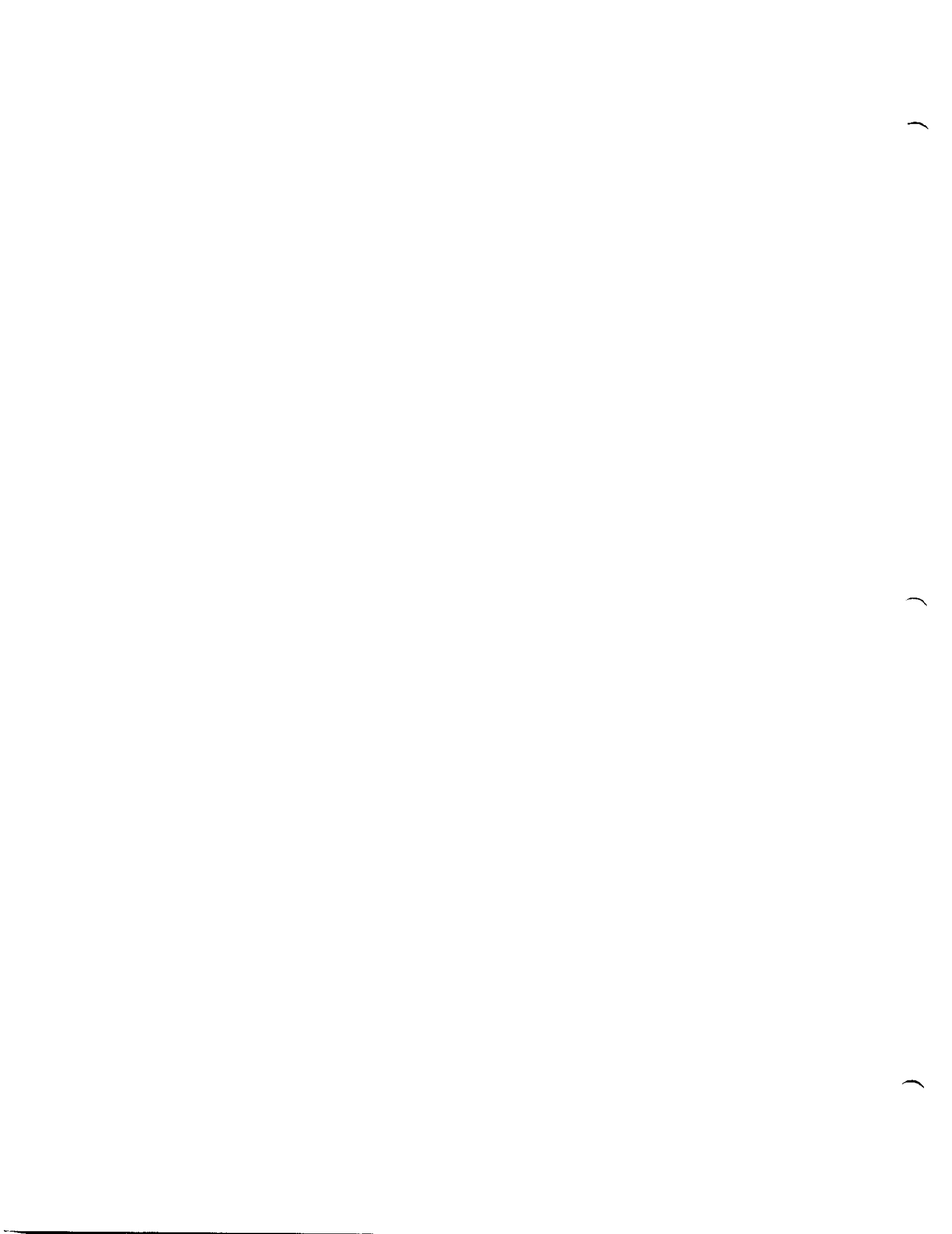
Now select **KIT** as your Current Function by pressing **<SELECT>** and while **<SELECT>** is held press the **<UP>** button until the single red led for **KIT** is lit. Release **<UP>** then release **<SELECT>**. Now adjust the bargraph reading of the current **KIT#** to the **KIT#** you want to copy **INTO**. This **KIT** is called the **"TO KIT"**.

When you are at the **TO KIT** do a **RECALL** by pressing **<AUTO>** and while **<AUTO>** is held also press **<SAVE>**. The red and green leds will give a short burst to tell you that ALL the MIDI settings for ALL 9 Triggers have been **RECALLED** into Temporary Memory. This **MIDI KIT** in Temporary Memory can now be edited further, played on, and then **SAVED** when it has been "tweaked" for specifically what you want with a **<SELECT>** - **<SAVE>** combination.

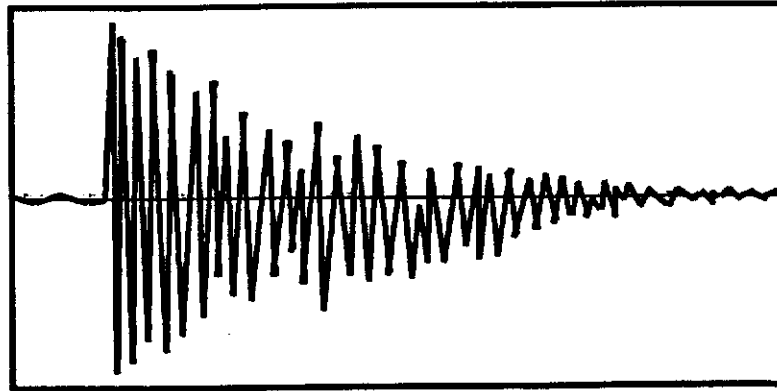
For example, if you wanted to copy KIT 9 to KIT 3:  
(KIT 9 is the "FROM KIT", KIT 3 is the "TO KIT")

- 1) Get to the FROM KIT, (KIT 9).  
Do this by pressing <SELECT> and while <SELECT> is held press <UP> until the single red led for KIT is lit.  
Release <UP> and then release <SELECT>. When you have released BOTH keys you will see the bar graph Value for which KIT is currently being used in Temporary Memory.
- 2) Next, make a **change** to the KIT so that it will be put in the **RECALL DRAWER**. For example, select MIDI CHANNEL as Current Function, then increase the CHANNEL, and then decrease the CHANNEL back to where it was. This causes KIT 9 to be put into the **RECALL DRAWER**.
- 3) Now select KIT as the Current Function. Then decrement the KIT # to 3.
- 4) Do a **RECALL**. Press <AUTO> and while <AUTO> is being held also press <SAVE>. All the red MIDI leds and all the green Trigger leds blink to verify that an entire KIT (MIDI settings for all 9 Triggers) has been **RECALLED** from the **RECALL DRAWER** into **TEMPORARY KIT MEMORY**.
- 5) If you decide to **SAVE** into KIT 3 simply press <SELECT> and while <SELECT> is held also press <SAVE>. All the red MIDI leds and all the green Trigger leds do a long blink to verify that an entire KIT (MIDI settings for all 9 Triggers) has been stored from **TEMPORARY KIT MEMORY** to **PERMANENT MEMORY**.



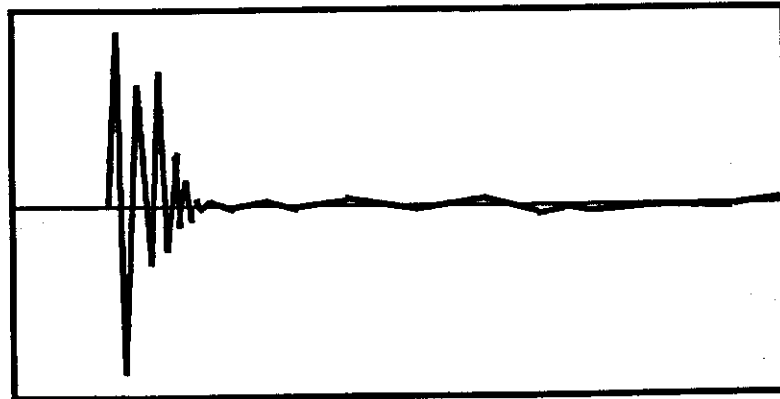


The first waveform is that of a snare drum



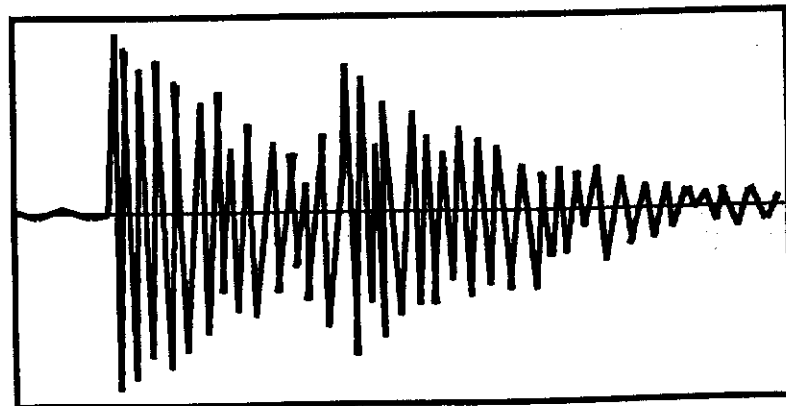
<- 200 milliseconds (0,2 sec) ---->

Next, the waveform of a trigger pad:



20 milliseconds (0.2 sec)

Triggering from acoustic drums is a complex task.  
Snare drum:            1st Hit            2nd Hit



## SESSION 2 : TRIGGERING SETTINGS

To properly use the 9 **TRIGGER INPUTS** you must **"TRAIN"** the midiKITI to recognize the **"envelope"** of the external trigger you are using. There are an incredible array of different kinds of external triggers available for you to use. There are acoustic trigger devices which are connected to the head or shell of an acoustic drum (like the KAT KDT-1 and KST-1), foot triggering devices, and trigger pads. They all have dramatically different characteristics. The acoustic trigger devices have a long envelope because of the "ringing" of the acoustic drum-head. The foot triggers and trigger pads can have very short spikes as their response. The midiKITI has been designed with this variety in mind allowing you to get dynamics in your trigger playing without double triggering problems.

First, let's look at what these waveforms look like so that you can understand why the settings used by the midiKITI are necessary.

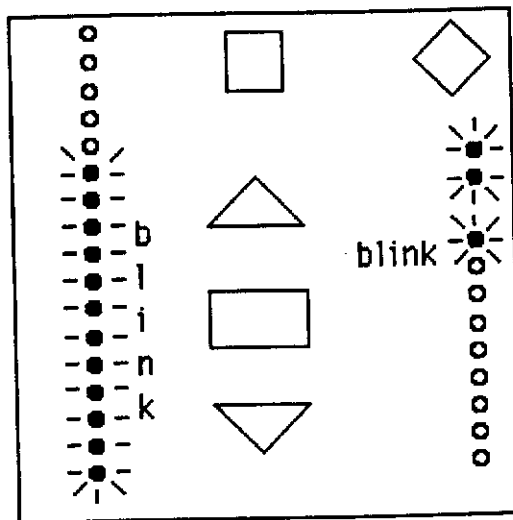
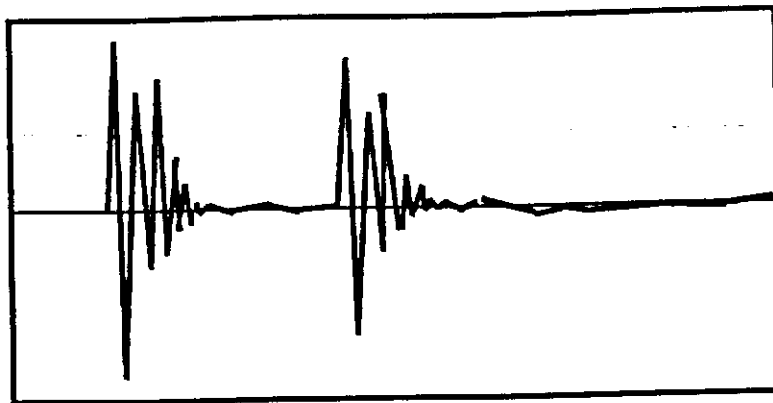
The main difference between these waveforms is that the snare drum has a very long **"decay time"**. Decay time is the time it takes for a signal to settle down to "quiet". Acoustic drums have a relatively long decay time - this is where the full tone of the drum is heard. A large tom-tom will have an even longer decay - up to 500 milliseconds (0.5 sec) or even longer.

If you wait 1 or 2 seconds between hits of an acoustic drum the signal from the drum will have settled down so that it is easy to differentiate the two hits as separate hits. This is how most trigger-to-MIDI devices before the drumKAT and midiKITI required you to play. However, if your hits are 60 milliseconds (0.06 sec) apart it is a tricky business to figure out what is going on.

To make matters even worse different drums produce very different signals depending on how they are constructed, tuned and even mounted. Where the piezo head or shell trigger is mounted even makes a difference!

To make sense of fast, dynamic playing on acoustic drums it is necessary to know what kind of signals are expected on the individual trigger inputs on the midiKITI and then use that information wisely to correctly sense dynamics and avoid double-triggering, but still allow fast playing. The midiKITI's **TRIGGER TRAINING** process allows it to get the information that is needed about your triggers/drums.

Triggering from electronic trigger pads is considerably easier.  
 Trigger pad:            1st Hit            2nd Hit



For **GAIN AUTO TRAIN**, both yellow **AUTO TRAIN** leds are lit, your Current Trigger green led and red leds 0-11 blink to prompt you to slowly hit 3/4 hard hits until display advances to **TRIGGER ENVELOPE TRAIN** with red leds 0-1 blinking and only the bottom yellow led lit.

To properly set up your triggers, you should 1st **AUTO TRAIN** them. Then if adjustments are necessary you have a reasonable starting point to make adjustments from. There are two types of **TRIGGERING AUTO TRAINING**: 1) **GAIN AUTO TRAIN** and 2) **TRIGGER ENVELOPE AUTO TRAIN**. The **GAIN AUTO TRAIN** is optional and the **GAIN** can be more effectively tweaked using **PEAK VIEW** as described on page 36 and 37. You may choose to do a **GAIN AUTO TRAIN** to get you "in the ballpark".

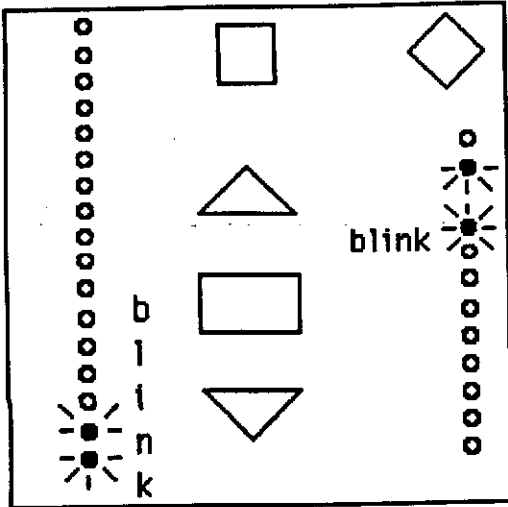
However, the **TRIGGER ENVELOPE TRAINING** is absolutely necessary. Regardless of how you set your **GAIN**, you must do an **ENVELOPE TRAIN** for each of your triggers. 1st lets explain the **GAIN AUTO TRAIN** and **TRIGGER ENVELOPE AUTO TRAIN**, then we will show you how to manually set your **GAIN** and other **TRIGGERING** settings.

### **GAIN AUTO TRAIN**

To **AUTO TRAIN** the **GAIN** for your trigger, press the **<AUTO>** switch twice until both **AUTO** leds are on. Red leds 0-11 and your Current Trigger all are blinking. This tells you that the **midiKITI** is waiting for a "3/4 Hard hit". The **midiKITI** will use this hit to judge whether or not the **GAIN** or amplification of your trigger signal needs to be increased, decreased, or if it is acceptable.

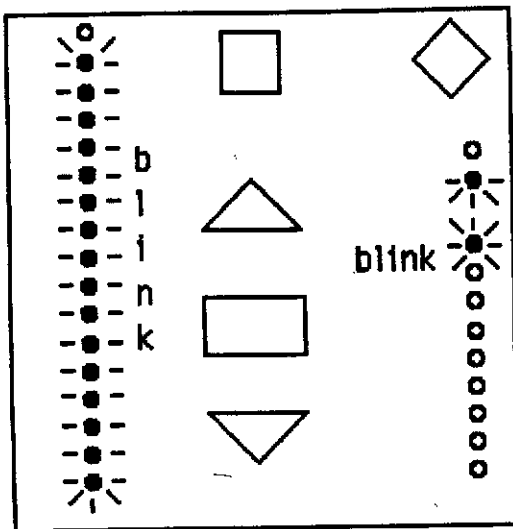
Hit your trigger once, medium Hard, then wait a second. If both **AUTO** leds and red 0-11 are still blinking, the **GAIN** for this trigger has been adjusted up or down by one because your hit did not fit in a middle range. So hit your trigger again, medium hard, and wait a second. Repeat this (try to hit with consistent strength) until only red 0-1 are blinking and only the bottom yellow **AUTO** led is blinking. When this happens, the **GAIN** has been accepted and you've now **AUTO Advanced** to **TRG ENVELOPE AUTO TRAIN**.

It may take several hits for the **GAIN** to be locked in. The **midiKITI AUTO GAIN TRAINING** starts with whatever **GAIN** you currently have and adjusts **UP** or **DOWN** by 1 for each hit you make. If the **GAIN** is far away from where it should be, it may take 5 or 6 hits to step to a **GAIN** that is acceptable.



For **TRIGGER ENVELOPE AUTO TRAIN**, the bottom yellow **AUTO TRAIN** led is lit. When your Current Trigger green led and red leds 0-1 blink, they are prompting you to hit once *soft* to set your **MINIMUM DYNAMIC**.

For **TRIGGER ENVELOPE AUTO TRAIN**, when the bottom yellow **AUTO TRAIN** led is lit, your Current Trigger green led and red leds 0-15 blink, they are prompting you to hit once *hard* to set your **MAXIMUM DYNAMIC** and load in your **ENVELOPE**.



## TRIGGER ENVELOPE AUTO TRAIN

When only the bottom yellow **AUTO** led is on you are in **TRIGGER ENVELOPE AUTO TRAIN**. There are two steps of **ENVELOPE TRAINING**: 1) Soft Hit and 2) Hard Hit. When red 0-1 are blinking, you are being asked to hit your trigger Soft to set the bottom end of your Dynamic Range. If it does not respond then you must hit a little harder until it does respond (maybe you should increase your **GAIN** or lower your **THRESHOLD**). When the midiKITI sees your trigger it will measure the peak of your soft hit and store it away as your "**LOW DYNAMIC**". After the Soft hit, **WAIT** while the leds are frozen. Your noise floor or idle level is being measured, after your hit is over, to set your **TRIGGERING THRESHOLD**.

When red 0-15 are blinking, you are asked to set the top end of your Dynamic Range. **WAIT** while the leds are frozen. After the Hard hit the midiKITI will **AUTO EXIT** out of **AUTO TRAIN** and you can play the trigger or go "tweak" the settings.

The midiKITI uses these two hits to figure out a **THRESHOLD**, a **MASK TIME**, and a **MINIMUM DYNAMIC** Value, a **MAXIMUM DYNAMIC** Value, and most importantly, a representation of the trigger's Envelope (overall "shape" of the hit - especially crucial in acoustic triggering) to allow the midiKITI to respond to the trigger without double or false triggering. The **MINIMUM** and **MAXIMUM DYNAMIC** Values are used by the midiKITI to adjust the trigger's response to your personal dynamics.

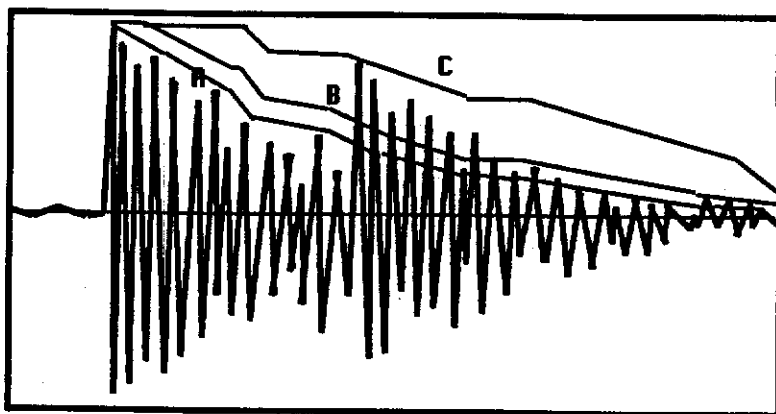
During the **TRIGGER TRAINING** process your hits will not send any **MIDI NOTE** information out. This is to make sure that you don't alter your hits because of internal **VELOCITY** settings in the midiKITI or because of the way the sound responds on your drum machine. Your soft and hard hits should be based on how you *want* to play, not on the end result of what you are hearing. The end result can be adjusted once you have trained the trigger input properly for your dynamics.

The **THRESHOLD** is the setting at which the peak of your trigger signal will be able to be seen as a hit. This setting is automatically read during the soft-hard part of trigger training based on the "idle level" of your trigger. You normally don't need to adjust it unless you want to increase the low-end sensitivity of your trigger or if you need to try to reduce an interaction or false triggering problem you are having - in that case you can try incrementing this value. However, trigger interaction problems are generally a sign that the physical location of your triggers needs to be rearranged or that you need to change your "trigger interaction settings" (explained later in this **SESSION**). The more you raise your **THRESHOLD** the less sensitivity you will have. The more you lower your **THRESHOLD**, the more likely you are to have false-triggering. (3 to 7 is a typical range)

The **MASK TIME** is the time immediately after the hit during which the trigger signal is ignored due to its unpredictability. This time is set to 4 every time you do an **ENVELOPE AUTO TRAIN**. If you have drop out on fast playing then try reducing this setting after **AUTO TRAINING**. If you have double triggering increasing this setting can help. (Actually headroom is a better setting to tweak to counteract double-triggering).

The **MINIMUM** and **MAXIMUM DYNAMIC** Values are used to tailor the midiKIT's response to your personal playing style.

These settings do not affect the actual sensitivity of a trigger (**THRESHOLD** does that). These settings set the "**DYNAMIC RANGE**" of the trigger. When you "**TRAIN**" your triggers, you are asked to hit it once "**SOFT**" and once "**HARD**". This tells the midiKIT what your style is like.



Your idea of soft and hard is different from how someone else plays. These settings allow you to "customize" the triggers to *your* playing style. The **MINIMUM DYNAMIC** is the reading of your soft hit and the **MAXIMUM DYNAMIC** is the reading of your hard hit.

A "table" is constructed inside the midiKIT to correlate the readings of your dynamics to the full range of MIDI velocity. Any hits read that are *below* your **MINIMUM DYNAMIC** (and above the **THRESHOLD**, of course) reading are judged to be at the Minimum Velocity. Any hits read that are *above* your **MAXIMUM DYNAMIC** reading are judged to be at the Maximum Velocity. All hit readings that are between the **MINIMUM DYNAMIC** and the **MAXIMUM DYNAMIC** are then correlated through the selected Velocity Curve to some value between your selected Minimum and Maximum Velocity settings in the current KIT.





## MANUAL TWEAKING OF TRIGGERING SETTINGS

If there is something you don't like about how your trigger is responding, then you may need to tweak the **TRIGGERING** settings. The various **TRIGGERING** Functions are described below.

The **GAIN** setting is probably the most important Triggering setting in getting smooth dynamic response. The **GAIN AUTO TRAIN** process will put you "in the ballpark" however using "**PEAK VIEW**" you can visually tell if you should make a further adjustment of your **GAIN**.

Select **PEAK VIEW** as your Current Function. The strength of every hit of your trigger will show up as a "bar-graph" reading on the red leds. This line will grow or shrink with your trigger's dynamics like a thermometer or a bar graph. You have 16 different **GAINs** to choose from. The goal here is to select a **GAIN** that gives the *widest spread* of response on the bar graph. The characteristics of some triggers are such that a higher **GAIN #** produces no greater result, or even less of a result than one particular lower **GAIN #**. Don't let that bother you. Also you don't need to have your soft hits be 1 led and your hard hits be full scale. Just select the **GAIN** that gives the widest spread on the bar graph from soft to loud hits. The midiKITI software and dynamic table adjustment will adjust for that so that you still get a wide velocity response. Basically, you want to select a **GAIN** that is high enough to give you good sensitivity to soft hits, but not too much **GAIN** that causes medium hits to fill the whole bar-graph (overdrive the input).

The **FACTORY DEFAULT GAIN** of 6 can be selected if **<UP>** and **<DOWN>** are pressed simultaneously.

If you select **PEAK VIEW** as your Current Function, you can see the size of the measured peak of each hit, shown in a bar-graph format on the red leds. If you press **<UP>** or **<DOWN>** alone when at the **PEAK VIEW** setting, nothing happens because it doesn't make sense to adjust the **PEAK VIEW** of your previous hit. However, there is an interesting trick here. If you press **<UP>** and **<DOWN>** simultaneously when **PEAK VIEW** is the Current Function, a *default trigger envelope* will be loaded in for the Envelope generally stored in the **TRIGGER ENVELOPE AUTO TRAIN**. The **FACTORY DEFAULT ENVELOPE** is a general purpose Envelope that will work for trigger pads and most acoustic drums. (Performing an actual training is generally better but you do have this default as an option also).

The **FACTORY DEFAULT TRIGGER ENVELOPE** is also loaded into the Current Trigger's Envelope Table when a **GROUP DEFAULT** is performed as described on page 14.

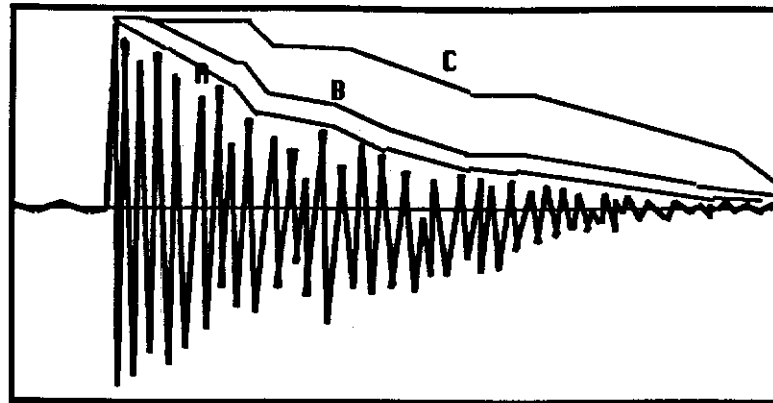
✓

✓

✓

You don't necessarily want your MINIMUM DYNAMIC at your *softest* hit or your MAXIMUM DYNAMIC to be at your *hardest* hit. You may want a "plateau" or "Dynamic Flat Spot" at the bottom or top of your Dynamic range. Having a flat spot will give you a comfort range of dynamics where your hits will be at a consistent low or high velocity, ignoring small changes in your playing dynamics. This is especially helpful on soft buzz rolls and for fast hard rolls.

To give yourself a flat spot at the bottom, hit your soft hit in AUTO TRAINING a little bit harder. Or you can simply select MINIMUM DYNAMIC as your Current Function and then increase the MINIMUM DYNAMIC VALUE. The more you raise your MINIMUM DYNAMIC, the bigger the flat spot on the bottom gets until your medium hits get treated the same as your soft hits.



The reverse holds true for MAXIMUM DYNAMIC. If you want a more "consistent" response at the upper end of DYNAMICs you could try Training the hard hit with a hit that isn't quite as hard OR go lower the value of MAXIMUM DYNAMIC. Lowering the MAXIMUM DYNAMIC will make a bigger flat spot at the top end of your dynamics.

The larger flat spots you make, the more wild of a jump from soft to loud you get in the middle of your Dynamic Range. You can manually set these Values to tweak the dynamic response of your triggers.

Next is the setting for "HEADROOM". Basically if you are getting double-triggering raise the HEADROOM. If soft hits are missed immediately after a hard hit, then lower the HEADROOM.

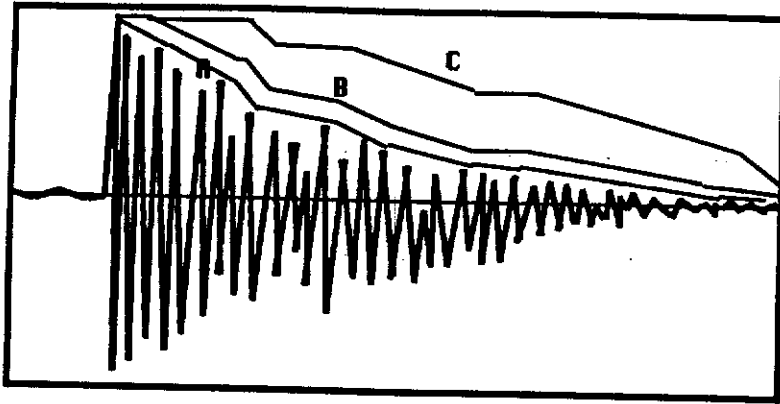
This is a somewhat difficult one to explain. To explain this we will need to get technical. Along with your "Dynamic Range", the other major job of TRIGGER TRAINING is to store a representation of your trigger's "ENVELOPE". This "ENVELOPE" is the overall shape of the decay of your trigger waveform. This stored ENVELOPE is used when you play the trigger to recognize the difference between a single hit and more than one hit on this trigger. Immediately after a hit of a trigger this ENVELOPE is used. For a new hit to be recognized, the new "hit" must rise above this ENVELOPE.

Each hit of your trigger is slightly different than each other hit (kind of like "no two snowflakes are alike"). So when this Envelope is used the headroom setting is used as a "safety margin" to make the Envelope less sensitive to double-triggering. The larger the HEADROOM the less likely an extra little wiggle in the trigger signal will cause a double-trigger. (If you make the HEADROOM too large, fast playing may not be tracked well or a Soft hit immediately following a Hard hit may not be accurately picked up.)

1

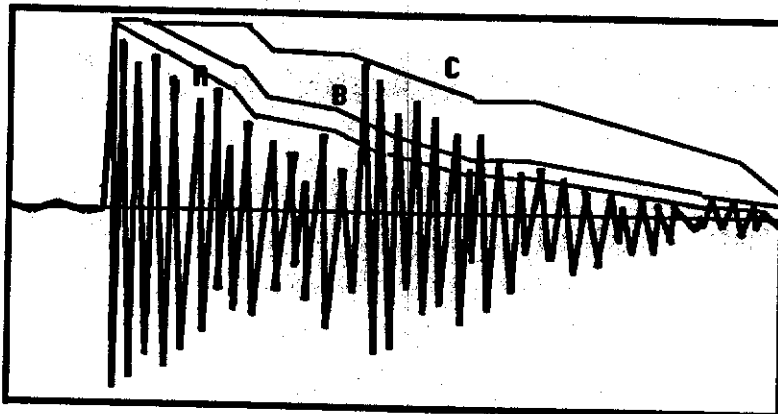
2

3



1st hit

2nd hit



In the standard 2.0 drumKAT the HEADROOM setting is used only when the Envelope is stored away in TRIGGER TRAINING. Changing the HEADROOM only affects future TRIGGER TRAININGS. However, this has been changed for the midiKITI. Here, the HEADROOM is added on to the Envelope for use at every new hit when you are playing. This means that "tweaking" of HEADROOM AFTER TRIGGER TRAINING will greatly affect your triggering response.

To the left is shown a HARD hit in TRAIN and the resulting ENVELOPES that would be used for 3 different values of HEADROOM. ENVELOPE "A" is the result for a HEADROOM of "0". Note the ENVELOPE follows the waveform closely. ENVELOPE "B" would be the result if a HEADROOM of "10" were selected. This ENVELOPE still follows the waveform fairly closely, but more of a "safety-margin" is incorporated into the ENVELOPE when it is used. ENVELOPE "C" would be the result if a HEADROOM of "64" had been selected. This ENVELOPE incorporates a large safety-margin. If you intend to play on this trigger slowly then that is fine. However if you intend to play fast, the second hit may not actually be seen as a second hit!

To the left is shown the two fast hits with the 3 different ENVELOPES superimposed upon them.

If ENVELOPES A or B were being used in the midiKITI, the 2nd hit would be correctly recognized (and at that point a new ENVELOPE would be started internally to track this new hit!) However, if ENVELOPE C were being used, the 2nd hit would not be big enough to get over the internal ENVELOPE that the software in the midiKITI is using because of the big safety-margin used when the ENVELOPE is used.

Next is SCAN TIME. Different types of triggers take significantly longer than others to exhibit their peak (which tells the true strength of the hit). However, it is undesirable to wait longer than is absolutely necessary because any wasted time results in a delay until the note is sounded. Because of this the midiKITI allows you to select how many scans or "snapshots" of your trigger should be taken before it is assumed that the actual "peak" has been seen.

### **Trigger-interaction suppression works like this:**

When a trigger is hit, some % of its peak is stored away as a "suppression factor" for a short period of time after the hit. This value is how big any other trigger must be to be seen as a hit. A % of the original hit is used because trigger interaction is usually greater for Harder hits than for Softer hits.

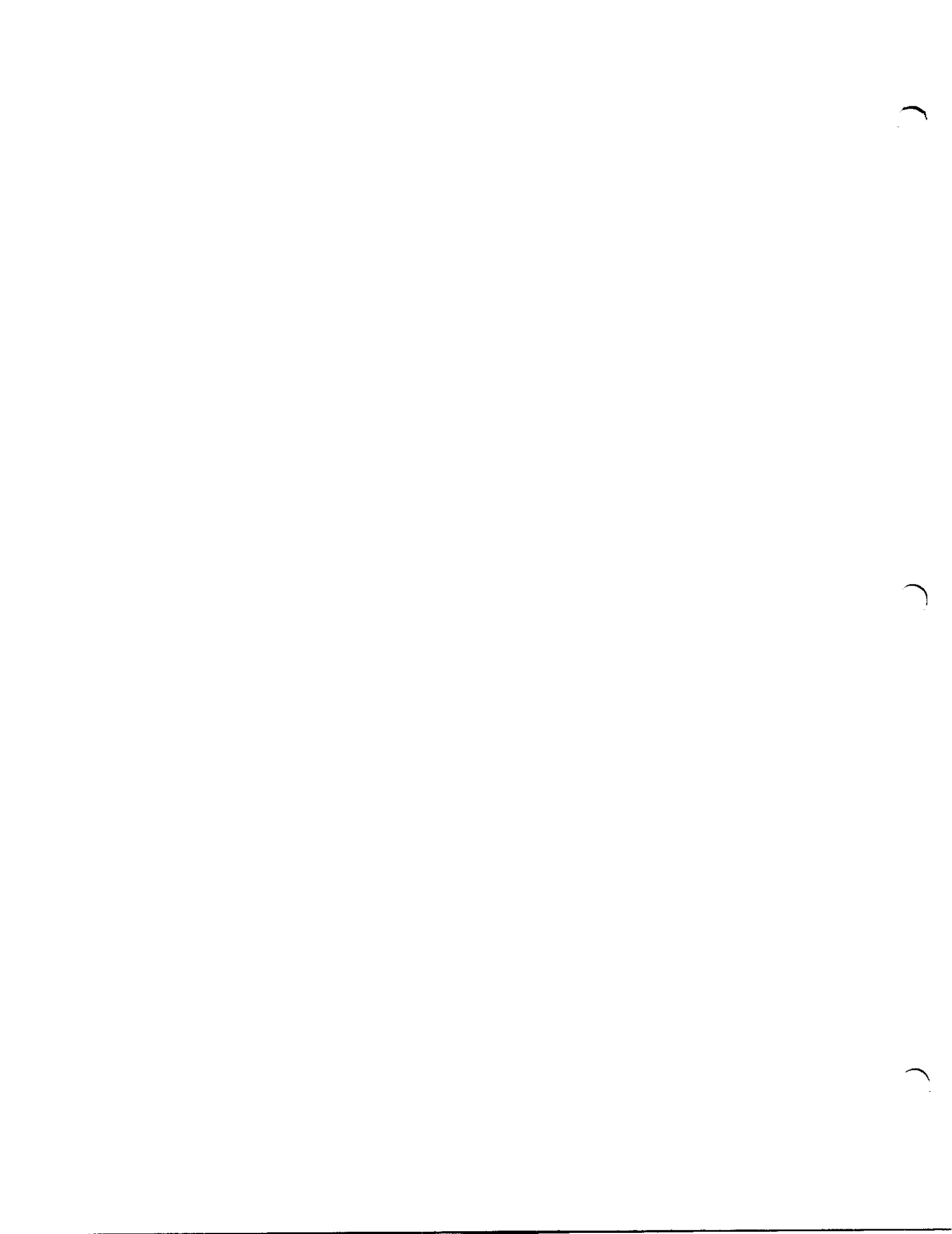
The larger the value of **INTERACTION** the less susceptible the **midikITi** will be to cross-triggering.

### **SOME SUGGESTIONS ON TRIGGER TRAINING:**

- 1) Getting a workable trigger happening is generally a trade-off between **GAIN** settings. Therefore it is not unusual to try retraining a trigger a couple of times until you find a setting that is the best compromise of dynamics, sensitivity, and tracking.
- 2) Because most triggers have piezo-crystal elements instead of **FSR**, you should not expect them to respond as well as the playing surface of the **drumKAT**. Experimenting with what you do for the hard and soft hits can produce different results in the resulting dynamic range. Sometimes the best resulting dynamics can be gotten by giving a medium hit for both the soft and hard hit. Experimenting is the key.

See the **APPENDIX** for a **TRIGGERING TROUBLE-SHOOTING** guide.



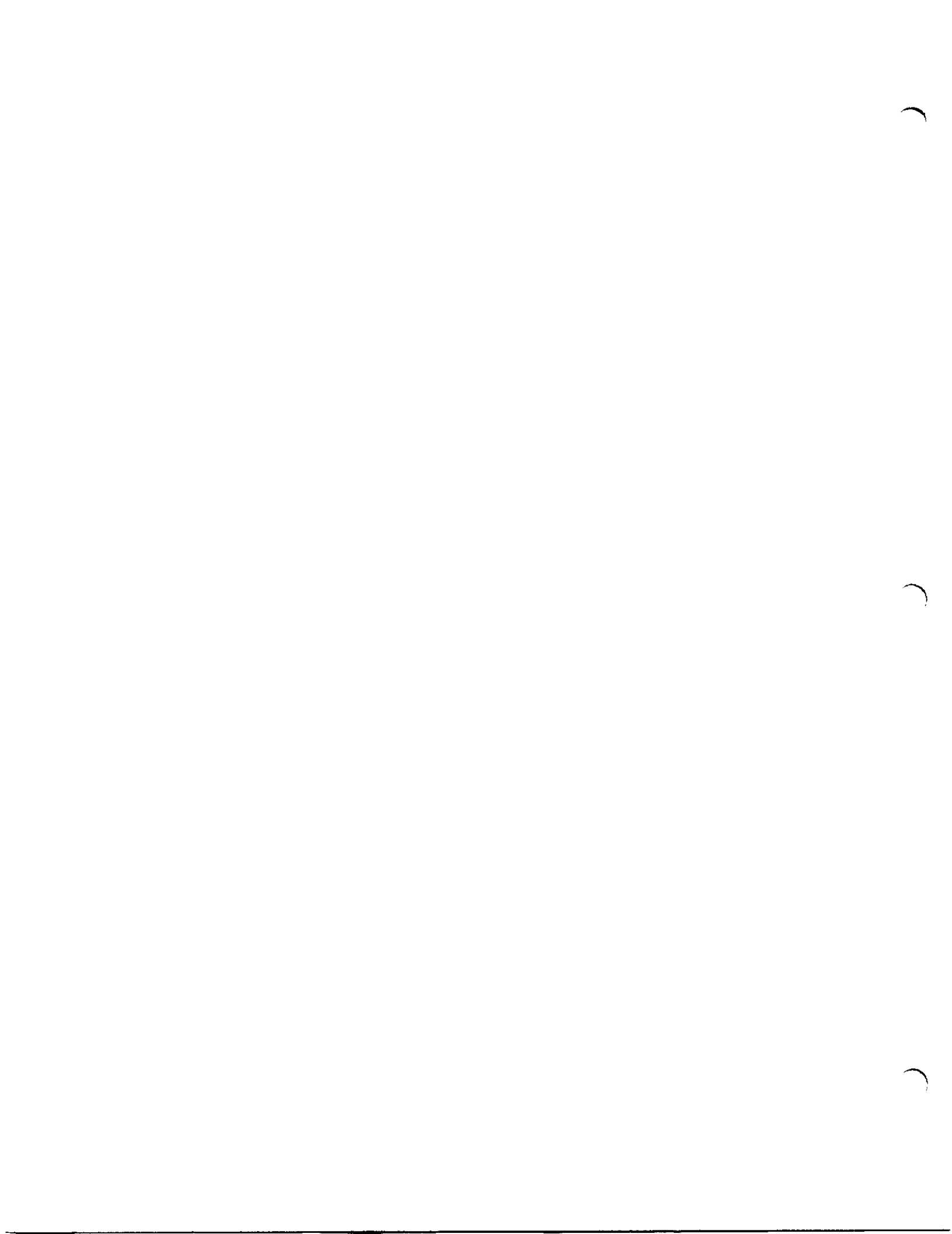


All 9 triggers have their own "**# of SCANS**". This setting allows you to make a trade-off between **MIDI delay** and accuracy of the reading of the peak of the trigger. It should be noted here that the actual problem of **MIDI delay** is mainly in the receiving sound sources not in the midiKIT itself. The "hottest" current drummachines take about 6.2 mS to respond **AFTER** they have received all of the MIDI information.

A "**SCAN**" is one "look" at the size of the trigger level. Each look occurs during a processing loop in which all of the triggers and MIDI ports are checked. This loop takes 1/2 of a millisecond. A low # of scans like 3 results in a very short **MIDI delay** (1.5 mS from hit to MIDI completely sent out) but a less accurate reading of the peak of the trigger waveform because not very much of the trigger waveform has been seen. A large # of scans, like 9 means you are very likely to have an accurate reading of dynamics but a longer **MIDI delay** (9 Scans is 4.5 mS from hit to MIDI completely sent out).

The goal here is to pick the smallest # of Scans that results in a consistent and accurate reading of your playing dynamics. The best setting depends very much on the specific trigger used. The best ones available reach their peak quickly (within 1 mS) and therefore need only 3 or 4 Scans to have the peak be seen. However, some triggers that are designed differently take about 2 or 3 mS to reach their peak (some particularly bad ones actually take around 7 or 8 mS to reach their peak!). On these slow responding ones a larger # of Scans must be used so that enough time has occurred for the peak to be reached and measured. A setting of "5 or 6" is generally pretty safe in consistent dynamics and minimal **MIDI delay**.

The next Function allows you to handle **trigger-interaction** problems. Since most triggers are piezo-based, interaction between them can be a real big problem. Two trigger pads on the same stand will quite often cross-trigger each other because of vibrational coupling through the stand. Also head triggers on acoustic drums that are very close to each other will sometimes cross-trigger each other because of either vibrational coupling through a stand or actual audio coupling because of the nearness of the two drums to each other. This setting can eliminate this problem with very little compromise on your ability to play simultaneously on those actual triggers.



## APPENDIX A:

### TROUBLESHOOTING HELP:

If you are having trouble playing into your synth or drum machine with the midiKITI check the following:

- 1) Make sure that the midiKITI your drum machine, and your amp are all turned on.
- 2) Make sure that your drum machine makes sound when you play on its own buttons.
- 3) Make sure that you have a MIDI cable connected from a midiKITI MIDI OUT to your drum machine's MIDI IN. You might also try using a different MIDI cable.
- 4) Verify that your midiKITI is "seeing" your triggers by observing the green trigger led for the trigger you have plugged in. Try loading Factory defaults in for your TRIGGERING settings.
- 5) Verify that the MIDI settings of the triggers are appropriate for the MIDI device you want to control. Try using Factory Defaults. Find out what MIDI Note numbers the receiving device needs to see and adjust the settings of your triggers accordingly.
- 6) Verify that your drum machine is on the same MIDI CHANNEL as the midiKITI and is set up to receive incoming notes and control information. Also verify that there is nothing unusual about the sound your synth or drum machine is making (like a slow building texture sound that a short HOLD TIME is not long enough for).
- 7) Check the power connections to your midiKITI and the instruments and amplifiers involved.

IF YOU EXPERIENCE A PROBLEM WITH YOUR midiKITI, TRY TO ISOLATE SPECIFICALLY WHERE THE PROBLEM IS.

IS IT YOUR DRUM MACHINE OR AMP?  
HOW ABOUT YOUR MIDI CABLES OR POWER CABLES?

THE MORE YOU CAN RULE OUT OR DISCOVER BEFORE YOU CALL US, THE EASIER IT WILL BE FOR US TO HELP YOU SOLVE YOUR PROBLEM.

## APPENDIX B:

### TRIGGERING TROUBLE SHOOTING GUIDE:

SYMPTOM	POSSIBLE CAUSE	REMEDY
Multiple triggers with just one hit.	midikITl not Trained properly.	See SESSION 2. or raise headroom
	Wire of trigger is touching rim or shell of drum.	Shape wire so that no portion touches rim or shell.
	Trigger head is not seated well on drum head. head with alcohol and then	Remove trigger head, replace double stick foam tape, clean apply trigger to drum head.
False triggers when not hit.	Threshold is set too low.	Raise Threshold.
Drum triggering not sensitive.	Threshold Point is too high.	Lower Threshold.
	Not enough Gain on trigger.	Raise Gain.
	Bad trigger element.	Try another trigger.
Dynamice range not very wide.	Not enough difference between Soft and Hard hits in Training.	Retrain (SESSION 2) with larger difference between Soft and Hard hits. (Can be set manually by changing LOW and HI DYNAMICS.
	MIDI Velocity range not set right in current KIT or unusual Velocity Curve selected.	See SESSION 1 and APPENDIX G.
Adjacent drum triggers when you play a nearby drum.	Trigger Interaction % too low.	Raise % setting.

(courtesy of TRIGGER PERFECT.)

## APPENDIX C:

### WARRANTY:

The midiKITI has a limited warranty. The midiKITI is warranted against defects due to materials or workmanship for 90 days on labor and 1 year on parts.

**WARRANTY RESTRICTIONS:** Damage or defects sustained through unauthorized repair or tampering, or abusive treatment are not covered by this warranty. The warranty does not cover damages to the midiKITI as a result of improper line voltage or use of an AC Adaptor of the wrong polarity. The shipping expenses and arrangements for repair are the responsibility of the purchaser.

## APPENDIX D:

### INSTRUCTIONS FOR INSERTING NEW SOFTWARE CHIPS FOR SOFTWARE UPDATES:

**TOOLS NEEDED:** 1 Small flat and 1 medium phillips screwdriver.

- 1) **FIRST REMOVE THE AC ADAPTOR CORD FROM THE BACK OF THE midiKITI.**
- 2) Find a smooth, clean, flat surface and place your midiKITI upside down on it with the jacks facing away from you.
- 3) Remove back cover of the midiKITI (4 screws).
- 4) When the midiKITI is opened you should see a large circuit board.
- 5) On the side of the circuit board closest to you is a chip in a special socket. This socket has machined, gold pins to insure that your software chip will continue to make good contact in the socket. Note that the chip in the socket has a white label on it. The label should read "midiKITI vX.X", where X.X is the version # of this software chip.
- 6) Pull the tail of the keyboard out of its socket on the bottom left of the circuit board. Remove the 4 circuit board screws (keep track of the flat washers as well). Now remove the printed circuit board from the chassis.
- 7) To remove the old chip, you will use your small flat screwdriver. You want to pry the chip out of its socket. The socket is soldered into the circuit board, so don't try to pry the socket out. You also want to take turns prying a little bit at a time on each side of the chip. If you pry a LOT on one side, you will bend the cute little legs on the other side as the chip pivots on them. Don't be scared - just pry a little on each side alternately until the chip is out. Take your time, don't be in a hurry. **Make sure you insert the small screwdriver BETWEEN THE CHIP AND THE SOCKET before you start to pry each time (INSTEAD OF BETWEEN THE SOCKET AND AND THE CIRCUIT BOARD)**

- 8) After you have the chip out, place the new chip in the socket: Take a little care to align the legs of the chip into the pins of the socket. Then push down evenly on the chip. It should snugly push down into the socket. Visually check to see that none of the legs got squished and are smashed under the chip.
- 9) Put the circuit board back into the chassis. Screw the 4 screws (with flatwashers) into the circuit board.
- 10) Plug the tail of the keyboard back into the circuit board.
- 11) Replace the back cover and put the 4 screws back in.
- 12) Turn your midiKITI back over and reinsert the Ac Adaptor cord and plug into power. If the display is working then you are OK. If the display is not working then:
  - a) Remove the AC Adaptor cord again.
  - b) Turn the midiKITI back over and remove the 4 cover screws.
  - c) Take the back cover off again.
  - d) Try reinserting the chip (pry it out again to make sure the legs didn't get bent under the chip).
  - e) Put the back cover back on, turn the midiKITI back over, reinsert the AC Adaptor cord and plug back in to power.
  - f) If this still fails put your OLD software back in and give us a call.
- 13) After you have had the new software in and used it for several days, please send the old chip back to us. They are very reusable.



## APPENDIX E:

### SYSTEM EXCLUSIVE DATADUMP DOCUMENTATION:

A midiKITI SYSTEM EXCLUSIVE DATA DUMP consists of two parts:

- 1) A 6 byte "header" that describes the dump and
- 2) The DATA! The #. of bytes of the DATA is determined by the type of dump.

The 6 bytes of the header are defined below:

#### HEADER:

byte1: (0F0H) Start of System Exclusive Status Byte  
byte2: (00H)  
byte3: (00H)  
byte4: (15H) [ 00H, 00H, 15H ] is KAT's Company ID #.  
byte5: (67H) Instrument ID # for the midiKITI.  
byte6: (00H) DUMP TYPE:

00 = ALL MEMORY (about 16 KBytes SYSEXC DATA)

The DATA is split into nibbles and sent in the following format:  
"X" is a variable DATA nibble.

#### DATA:

byte1: 0XH           Where X is the 1st nibble of DATA.  
byte2: 1XH           Where X is the 2nd nibble of DATA.  
byte3: 2XH           Where X is the 3rd nibble of DATA.  
byte4: 3XH  
byte5: 4XH  
byte6: 5XH  
byte7: 6XH  
byte8: 7XH  
byte9: 0XH           Where X is the 9th nibble of DATA.  
byte10: 1XH           Where X is the 10th nibble of DATA.

etc. etc.

etc. etc.

It takes two bytes of SYSTEM EXCLUSIVE transmission for every byte of raw DATA.

After all the DATA has been sent, the End Of System exclusive command (0F7H) is sent.

**APPENDIX F:**  
**midikITi PERCUSSION CONTROLLER**  
**MIDI IMPLEMENTATION CHART**

<u>Function</u>	<u>Transmitted</u>	<u>Recognized</u>	<u>Remarks</u>
Basic Default	10	16	
Channel: Changed	1 - 16	x	
Mode: Default			
Messages Altered	x	x	x
Note Number: True Voice	0 - 127 .....	x	
Velocity: Note ON	1 - 127	x	
After Touch	Key's Ch's	x x	
Pitch Bender:::	x	x	
Control			
Change:	x	x	
Prog Change: True #	0 - 127 .....	0 - 127 0 - 127	
System Exclusive:	o	o	all memory
System: Song Pos	x	x	
System: Song Sel	x	x	
Common: Tune	x	x	
System: Clock	x	x	
Real Time: Commands		x	x
Aux: Local ON/OFF	x	x	
Aux: All Notes OFF	o	x	
Mes- sages: Active Sense	x	x	
Mes- sages: Reset	x	x	

Notes:

Mode 1: OMNI ON, POLY  
 Mode 3: OMNI OFF, POLY

MODE 2: OMNI ON, MONO  
 MODE 4: OMNI OFF, MONO

o:Yes  
 x:No

## APPENDIX G:

### CURVE DOCUMENTATION:

For those of you who are truly gluttons for punishment, we will now get **MATHEMATICAL** about **VELOCITY**. This will include tables and formulas explaining how the **midiKITI** determines the **MIDI VELOCITY** values that it sends out for the notes you play on the **midiKITI**.

The **midiKITI** internally can measure 256 distinct levels of dynamics from the **midiKITI** Trigger Inputs. Since **MIDI Velocity** has only 128 different levels the **midiKITI** has more steps of "resolution" than it needs.

The **midiKITI** uses this extra resolution in combination with the **TRIGGER TRAINING** software to give you a personalized dynamic range. The **midiKITI** derives a **LO DYNAMIC** and a **HI DYNAMIC** that it makes a table from to adjust to your playing dynamics. This table reduces the number of individual steps of resolution to 64.

The **midiKITI** must then take these 64 levels and correlate them to **MIDI VELOCITY** numbers that can range from 0 to 127. The **midiKITI** uses the **MINIMUM VELOCITY**, **MAXIMUM VELOCITY**, and **VELOCITY CURVE** settings to do this correlation. The actual formula used is:

$$\text{MIDI VELOCITY} = \text{MINVEL} + ((\text{VCURV})/127) \times (\text{MAXVEL} - \text{MINVEL})$$

This result is then compared to the **MAXIMUM VELOCITY** setting to insure that even if you put in backwards values for **MINIMUM** and **MAXIMUM** that the final result will always be less than the **MAXIMUM** setting.

A display of **MINIMUM VELOCITY** of "0" is actually a 1 in **MIDI**. A display of "1" is an 8, a display of "2" is actually a 16, etc. until a display of "15" which is 120.

A display of **MAXIMUM VELOCITY** of "1" is actually a 7 in **MIDI**, a display of "2" is a 15, etc., up to "16" which is 127.

The VELOCITY CURVE has a "% multiplier" for each of the 64 dynamic levels to dictate how to divide up the range between the MINIMUM and MAXIMUM VELOCITY settings. The 16 factory VELOCITY CURVES in the midiKIT1 are shown in table form below where 1 is your softest hit and 64 is your hardest hit.

(The truth of the matter is that these values are really 0-255 inside the midiKIT1 but we show them to you here as 0-127 because MIDI has everyone expecting to see numbers ranging from 0-127!)

CURVE	DESCRIPTION
1	Linear.
2	Starts high. Good for rock drumming.
3	4 separate plateaus
4	3 separate plateaus
5	Stays low long with accent at top.
6	Good for smooth low buzz rolls.
7	Linear with zeroes at the bottom.
8	For smooth response on piezo trigger pads.
9	For piezo pads. Faster rise than 8.
10	Use with 11 to do a Multiple Vshift
11	Use with 10. Only plays at the top.
12	Reverse curve. Drops out only at the very top.
13	Reverse curve. Drops out before top.
14	Reverse curve. Drops out in mid-range.
15	Another piezo curve - flat plateau in middle.
16	Another piezo curve.

**VCURVE 1:**

Steps 1- 8	00	02	04	06	08	10	12	14
Steps 9-16	16	18	20	22	24	26	28	30
Steps 17-24	32	34	36	38	40	42	44	46
Steps 25-32	48	50	52	54	56	58	60	62
Steps 33-40	64	66	68	70	72	74	76	78
Steps 41-48	80	82	84	86	88	90	92	94
Steps 49-56	96	98	100	102	104	106	108	110
Steps 57-64	112	114	116	118	120	122	124	126

**VCURVE 2:**

Steps 1- 8	20	20	20	20	20	20	21	21
Steps 9-16	22	22	23	23	24	25	26	27
Steps 17-24	28	29	30	32	34	36	38	40
Steps 25-32	42	44	46	49	52	55	58	62
Steps 33-40	66	70	75	80	84	88	91	94
Steps 41-48	97	100	102	104	106	108	110	112
Steps 49-56	114	116	118	120	121	122	123	124
Steps 57-64	125	125	126	126	127	127	127	127

**VCURVE 3:**

Steps 1- 8	05	05	05	05	05	05	05	05
Steps 9-16	05	05	05	05	40	40	40	40
Steps 17-24	40	40	40	40	40	40	40	40
Steps 25-32	40	40	40	40	40	40	40	40
Steps 33-40	40	40	40	40	100	100	100	100
Steps 41-48	100	100	100	100	100	100	100	100
Steps 49-56	100	100	100	100	100	100	100	100
Steps 57-64	100	100	127	127	127	127	127	127

**VCURVE 4:**

Steps 1-8	05	05	05	05	05	05	05	05
Steps 9-16	05	05	05	05	05	05	05	05
Steps 17-24	40	40	40	40	40	40	40	40
Steps 25-32	40	40	40	40	40	40	40	40
Steps 33-40	40	40	40	40	40	40	40	40
Steps 41-48	40	40	40	40	40	40	40	40
Steps 49-56	127	127	127	127	127	127	127	127
Steps 57-64	127	127	127	127	127	127	127	127

**VCURVE 5:**

Steps 1-8	16	17	18	19	20	21	22	23
Steps 9-16	24	25	26	27	28	29	30	31
Steps 17-24	31	32	32	33	33	34	34	35
Steps 25-32	35	35	36	36	37	37	38	38
Steps 33-40	39	39	40	40	41	41	42	42
Steps 41-48	43	43	44	44	45	45	46	46
Steps 49-56	47	47	48	48	49	49	50	50
Steps 57-64	51	51	51	52	52	127	127	127

**VCURVE 6:**

Steps 1-8	01	01	01	01	01	01	01	01
Steps 9-16	01	01	01	01	01	01	01	01
Steps 17-24	02	03	04	05	06	07	08	09
Steps 25-32	11	13	15	17	19	21	23	25
Steps 33-40	27	29	31	33	35	37	39	41
Steps 41-48	44	47	50	53	56	59	62	65
Steps 49-56	68	72	75	79	82	86	89	93
Steps 57-64	97	101	105	109	114	119	124	127

**VCURVE 7:**

Steps 1-8	00	00	00	00	00	00	00	00
Steps 9-16	01	01	02	03	04	06	08	10
Steps 17-24	12	14	16	18	20	22	24	26
Steps 25-32	28	30	32	34	36	38	40	42
Steps 33-40	46	50	54	58	62	66	70	74
Steps 41-48	78	82	86	90	94	98	102	106
Steps 49-56	110	114	118	122	126	127	127	127
Steps 57-64	127	127	127	127	127	127	127	127

**VCURVE 8:**

Steps 1-8	00	04	09	14	19	25	29	33
Steps 9-16	37	41	45	49	52	55	59	63
Steps 17-24	66	69	71	74	76	78	80	82
Steps 25-32	84	86	87	89	91	93	94	95
Steps 33-40	97	98	100	102	103	105	106	108
Steps 41-48	109	111	113	114	115	116	117	117
Steps 49-56	118	119	120	120	121	121	122	123
Steps 57-64	124	125	125	126	126	126	127	127

**VCURVE 9:**

Steps 1-8	00	14	25	35	46	53	59	64
Steps 9-16	69	73	77	82	86	89	93	96
Steps 17-24	99	101	103	105	107	109	111	113
Steps 25-32	114	115	116	117	118	119	120	121
Steps 33-40	121	122	122	123	123	124	124	125
Steps 41-48	125	125	125	126	126	126	126	126
Steps 49-56	126	126	127	127	127	127	127	127
Steps 57-64	127	127	127	127	127	127	127	127

**VCURVE 10:**

Steps 1-8	01	03	05	08	10	13	15	18
Steps 9-16	20	23	25	28	30	33	35	38
Steps 17-24	40	43	45	48	50	53	55	58
Steps 25-32	60	63	65	68	70	72	76	79
Steps 33-40	83	92	97	102	107	112	117	122
Steps 41-48	127	127	127	127	127	127	127	127
Steps 49-56	64	32	08	00	00	00	00	00
Steps 57-64	00	00	00	00	00	00	00	00

**VCURVE 11:**

Steps 1-8	00	00	00	00	00	00	00	00
Steps 9-16	00	00	00	00	00	00	00	00
Steps 17-24	00	00	00	00	00	00	00	00
Steps 25-32	00	00	00	00	00	00	00	00
Steps 33-40	00	00	00	00	00	00	00	00
Steps 41-48	00	00	00	00	00	00	00	00
Steps 49-56	32	63	85	105	120	123	124	126
Steps 57-64	127	127	127	127	127	127	127	127

**VCURVE 12:**

Steps 1-8	127	127	127	127	127	127	127	127
Steps 9-16	127	127	127	127	127	127	127	127
Steps 17-24	126	125	124	123	122	120	119	117
Steps 25-32	115	113	111	109	107	105	103	101
Steps 33-40	98	95	92	89	86	83	80	78
Steps 41-48	74	70	66	62	58	54	50	46
Steps 49-56	42	38	34	30	26	21	16	11
Steps 57-64	06	01	00	00	00	00	00	00



**VCURVE 13:**

Steps 1-8	127	127	127	127	127	127	127	127
Steps 9-16	127	127	127	127	127	127	127	127
Steps 17-24	125	122	120	117	115	112	110	107
Steps 25-32	104	100	96	92	86	82	78	74
Steps 33-40	68	62	56	50	44	38	32	26
Steps 41-48	18	10	02	00	00	00	00	00
Steps 49-56	00	00	00	00	00	00	00	00
Steps 57-64	00	00	00	00	00	00	00	00

**VCURVE 14:**

Steps 1-8	127	127	127	127	127	127	127	127
Steps 9-16	127	127	127	127	127	127	127	127
Steps 17-24	125	122	119	116	112	108	104	100
Steps 25-32	95	90	85	80	74	68	62	56
Steps 33-40	48	40	32	24	16	08	04	00
Steps 41-48	00	00	00	00	00	00	00	00
Steps 49-56	00	00	00	00	00	00	00	00
Steps 57-64	00	00	00	00	00	00	00	00

**VCURVE 15:**

Steps 1-8	01	06	11	16	21	26	31	36
Steps 9-16	41	46	51	56	61	66	71	76
Steps 17-24	81	86	91	96	101	106	111	116
Steps 25-32	121	126	131	136	141	146	151	156
Steps 33-40	156	156	156	156	156	156	156	156
Steps 41-48	156	156	156	156	160	165	170	175
Steps 49-56	180	185	190	195	200	205	210	215
Steps 57-64	220	225	230	235	240	245	250	255

### VCURVE 16:

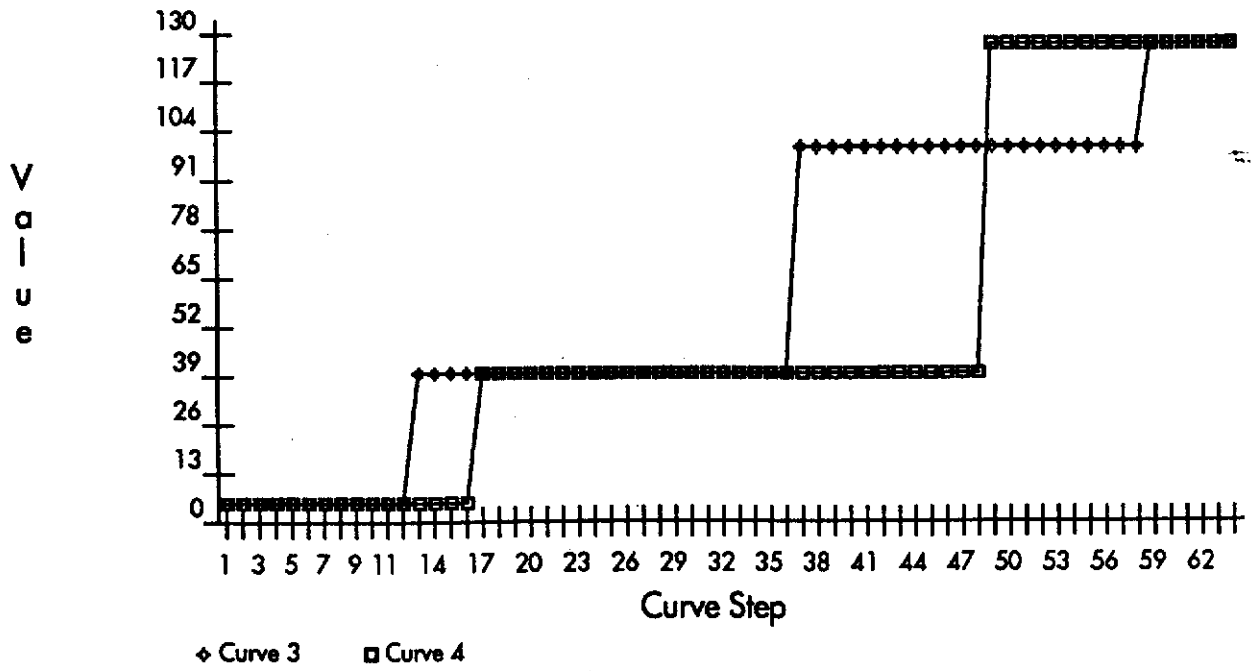
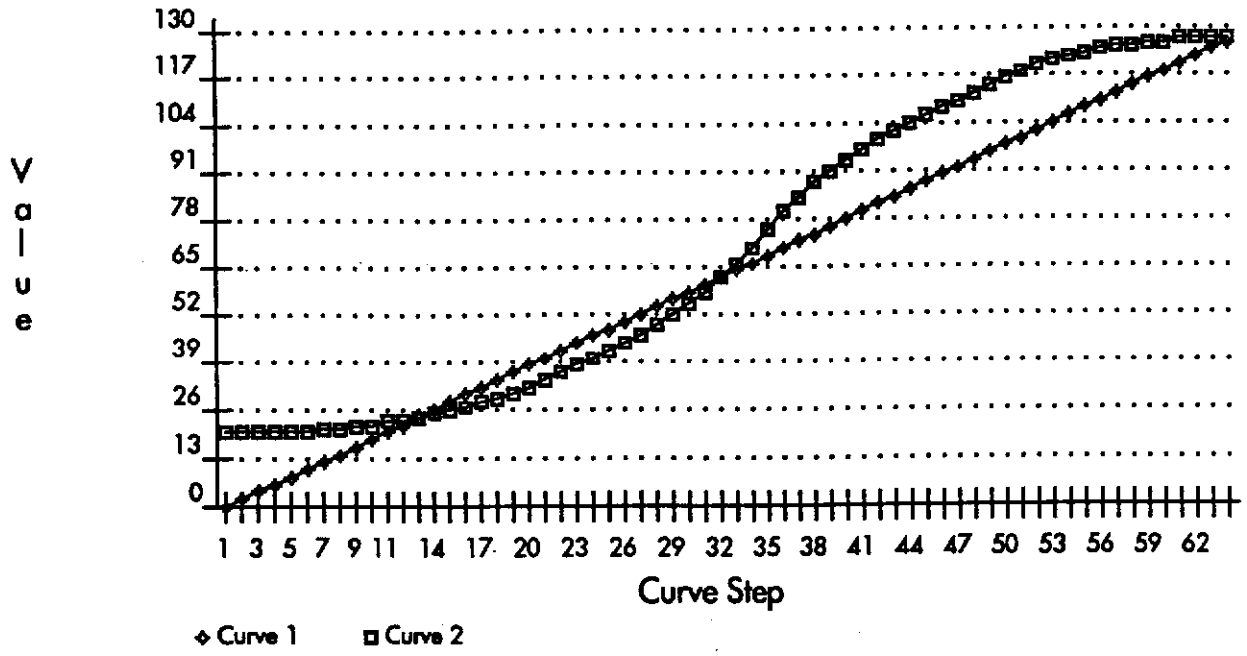
Steps 1-8	01	06	11	15	23	30	37	44
Steps 9-16	50	56	62	68	74	80	86	92
Steps 17-24	98	104	110	116	121	126	131	136
Steps 25-32	141	146	151	155	159	163	167	171
Steps 33-40	175	179	183	187	191	195	198	201
Steps 41-48	204	207	210	213	216	219	221	223
Steps 49-56	225	227	229	231	233	235	237	239
Steps 57-64	241	243	245	247	249	251	253	255

### HINTS:

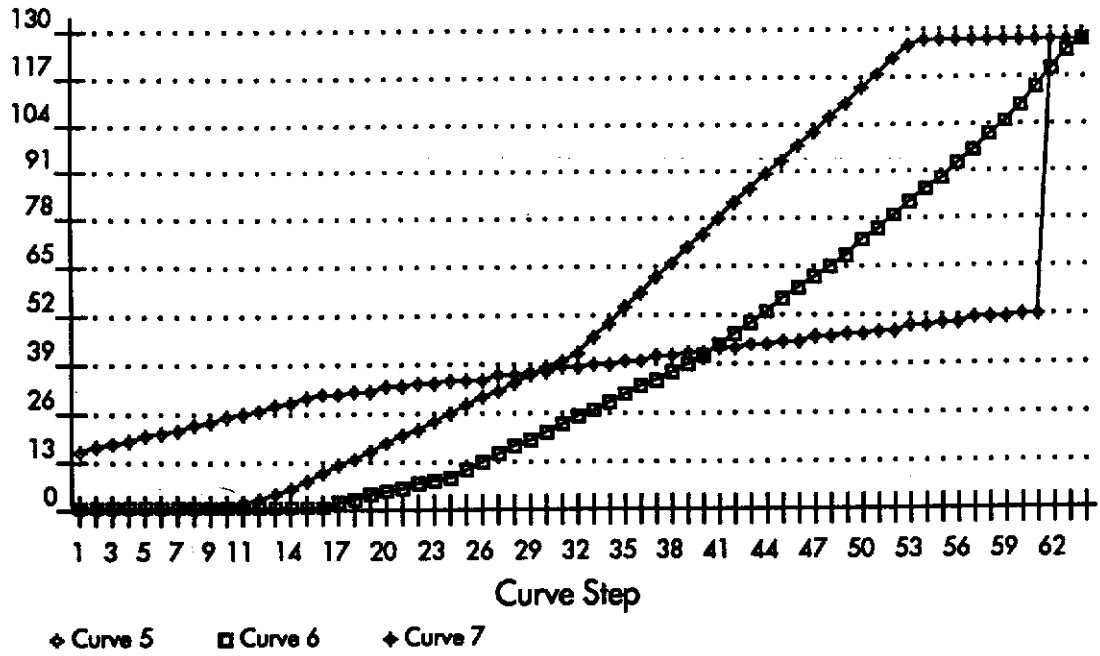
Curves 11, 12, and 13 are reverse curves.

Curves 3 and 4 have 4 and 3 plateaus respectively, within which the velocity will remain constant. For drum machines with a jumpy velocity response, they may make it feel more consistent.

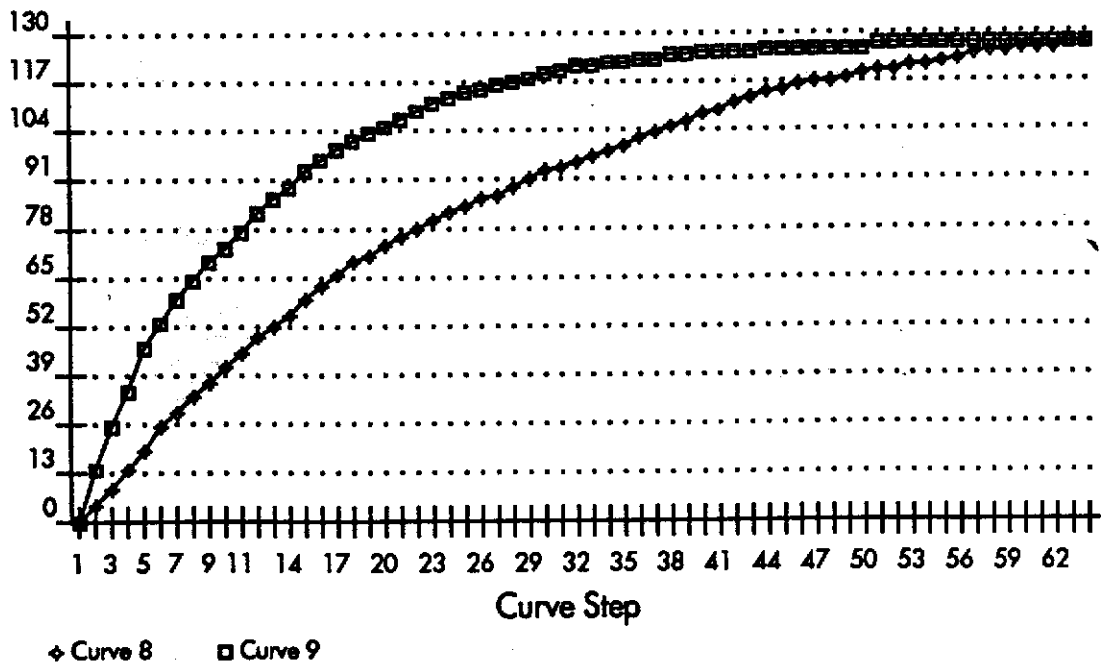
Curves 8 and 9 are specifically designed to be used with piezo trigger pads!



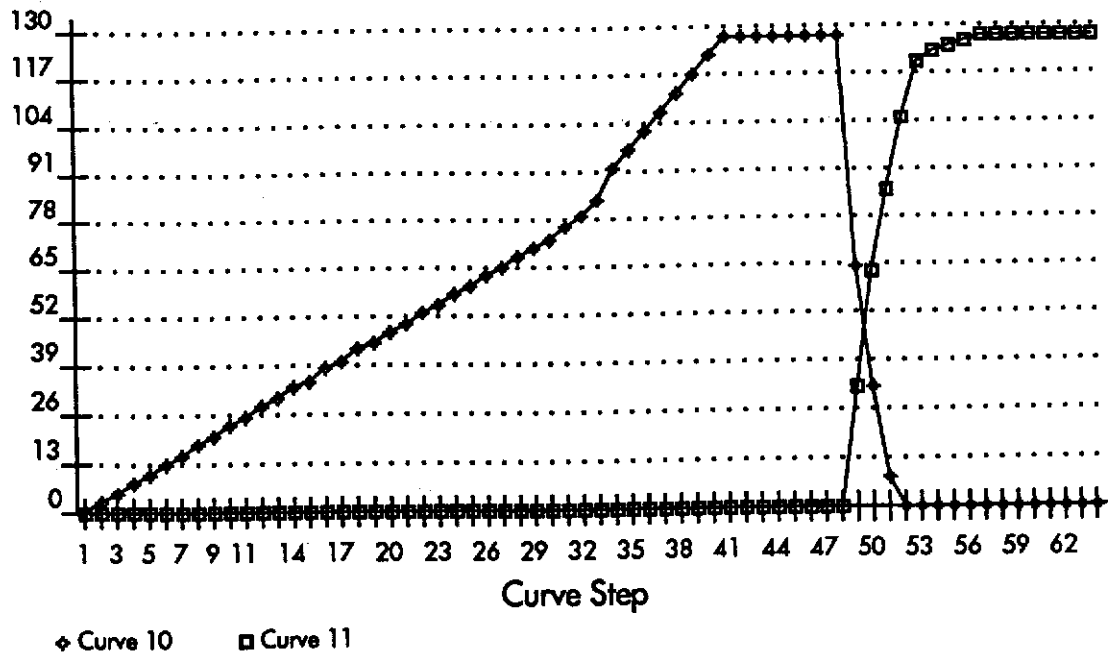
Value



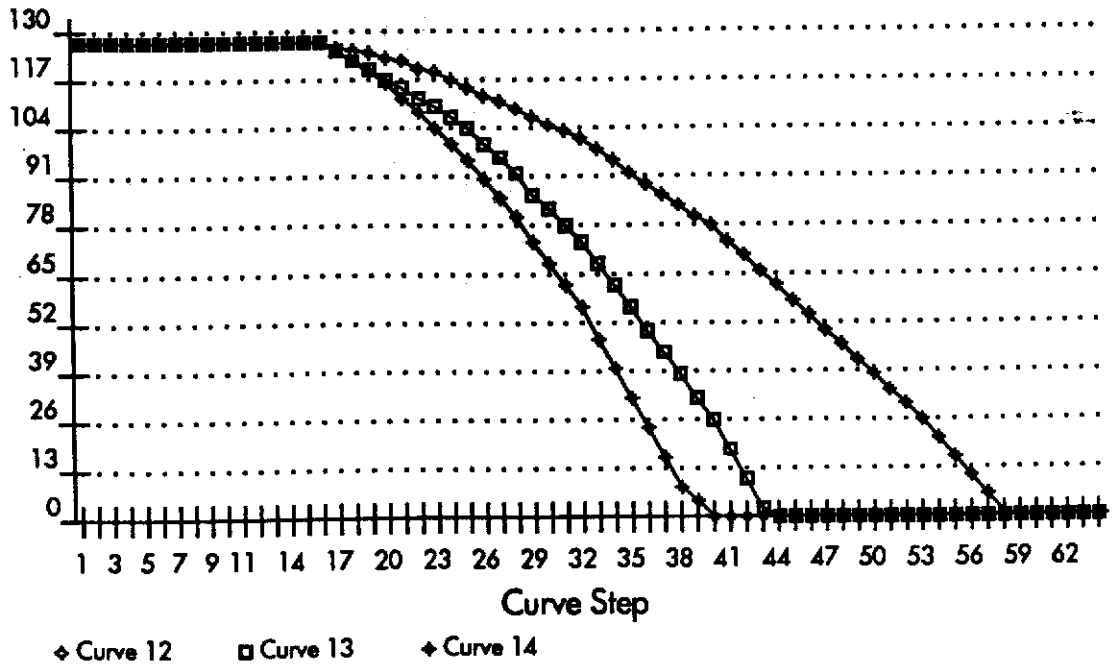
Value



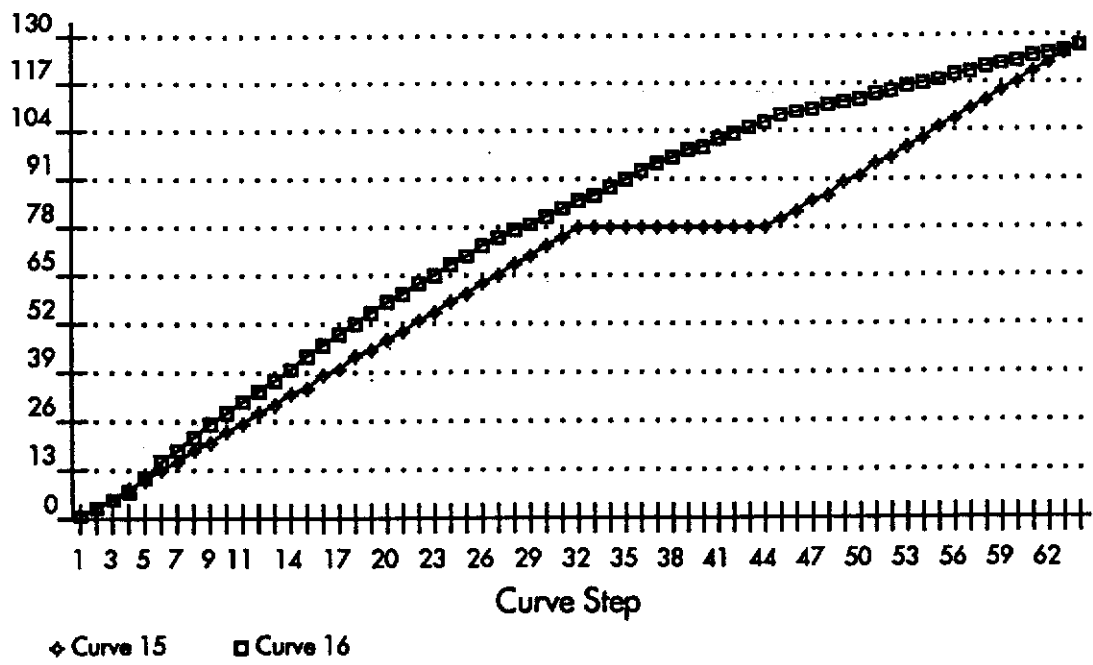
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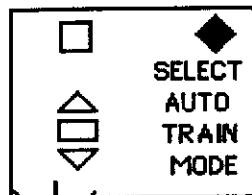
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## APPENDIX H

### midIKIT BASICS

**AUTO TRAINING** : Press <AUTO TRAIN> to get into one of 3 Auto Training Modes.

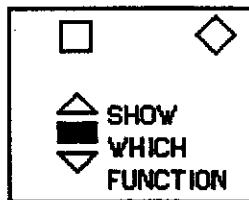


**CHANNEL/NOTE AUTO TRAIN:** Your midIKIT waits for a Channel and Note at its MIDI IN (from your drum machine's MIDI OUT). Connect a MIDI cable from your drum machine MIDI OUT to your midIKIT MIDI IN. Now push drum machine button for sound you want and the midIKIT will receive and store the Channel and Note away. You can adjust the Note value by pressing the <UP> or <DOWN> buttons.

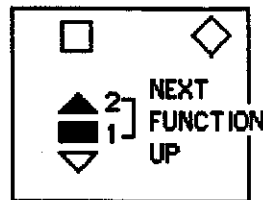
**GAIN AUTO TRAIN:** Red leds 0-11 blink and Current Trigger blinks asking for a 3/4 Hard hit to be used by the midIKIT to Automatically set your Gain. Hit once (3/4 Hard) and wait 1 second. If 0-11 and both AUTO TRAIN leds are still blinking, the Gain for this Trigger has been adjusted up or down by one because your hit did not fit in a middle range. You then hit 3/4 Hard again and wait 1 second. When it changes to only red 0-1 and only bottom AUTO led blinking, the Gain setting is now OK and you've AUTO Advanced to TRG ENVELOPE.

**TRIGGER ENVELOPE AUTO TRAIN:** There are 2 steps of TRG ENVELOPE AUTO TRAIN. 1) Soft Hit and 2) Hard Hit. When red 0-1 are blinking you are asked to hit the trigger Soft to set the bottom end of the Dynamic Range. After the Soft Hit, wait while the leds are frozen. Your noise floor is being measured to set your triggering Threshold. When red 0-15 are blinking you are asked to hit the trigger Hard to set the top end of the Dynamic Range. After the Hard Hit the midIKIT will AUTO EXIT out of AUTO TRAIN and you can play the trigger or go "tweak the settings.

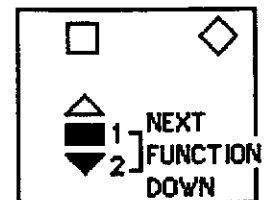
**SEE CURRENT FUNCTION** :



Press <SELECT> to see a single led at the Current Release and the Value of Function (for Current trigger) is graph form. The value can shown below.

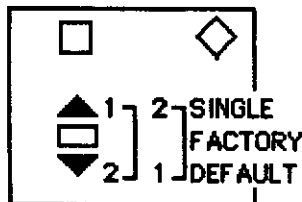


Press <SELECT> and while <SELECT> is still being held, press <UP>. You now advance to the next Function up. Release <UP> first when at the desired Function. When have released both <UP> and <SELECT> the value for the Current Trigger is displayed.

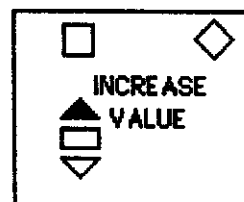


While <SELECT> is pressed, press <DOWN> Function. also. You go to the next <SELECT> Function down. Release the Current <DOWN> first when get to the desired Function. Hold shown in a bar both continuously and you on the leds. will scroll through the be changed as Functions.

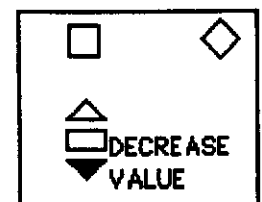
**CHANGE VALUE** :



Press <UP> and <DOWN> (in either order) Factory Default inserted into your Current Trigger.



Press <UP> alone and the Value of your Current Function for your Current Trigger will increase.

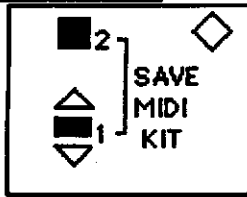


Press <DOWN> alone and together the Value of your Current and a Single Function for your Current will be Trigger will decrease.

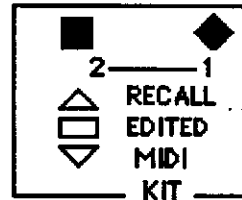
MIDI changes are in Temporary Memory unless KIT is "SAVED" to Permanent Memory. Any MIDI changes to Temporary Memory are also stored in the Recall Drawer so that the KIT can be copied to another KIT by a "Recall". Any changes to "TRIGGERING" settings goes immediately to Permanent Memory.

# ADVANCED midiKITI

## SAVING and RECALLING :

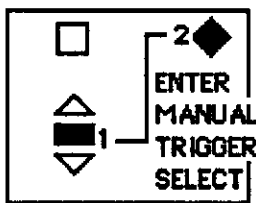


SAVE MIDI KIT in Temporary Memory into Permanent MIDI KIT Memory.

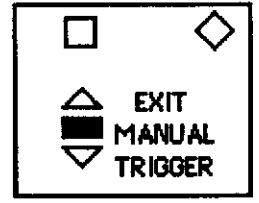
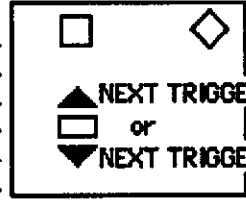


RECALL last changed KIT from RECALL DRAWER into Temporary Memory. (Use to do KIT COPY)

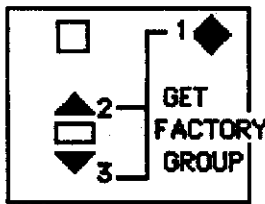
## MANUAL TRIGGER MODE :



Press <AUTO> while <SELECT> is pressed and change to MANUAL TRIGGER MODE where 8 Trigger leds are lit, 1 isn't.



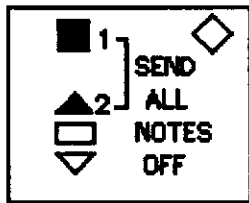
## GET FACTORY GROUPS of DEFAULTS :



Press <AUTO>, then <UP>, then <DOWN> so all 3 are pressed simultaneously. A Group of factory defaults will be loaded.

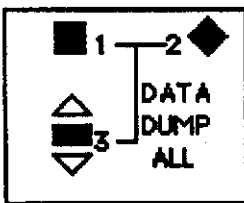
- (A) If Current Function is KIT #, an entire factory KIT (MIDI settings for all 9 triggers) will be loaded into Temporary MIDI KIT Memory.
- (B) If Current Function is MIDI CHANNEL through PGM CHANGE, a Group of all MIDI settings for only the Current Trigger will be loaded into Temporary MIDI KIT Memory.
- (C) If Current Function is GAIN through INTERACTION a Group of all TRIGGERING settings for the Current Trigger only is loaded into Permanent Memory.

## ALL NOTES OFF :



If a note is "stuck on" on a synth or sampler this will send a MIDI burst to shut it off.

## SYSTEM EXCLUSIVE DATA DUMP :



A System Exclusive Data Dump for all MIDI KITs and all TRIGGERING settings will be sent out MIDI. A System Exclusive Data Receive will occur whenever a Data Dump is received at the MIDI IN on the midiKITI.

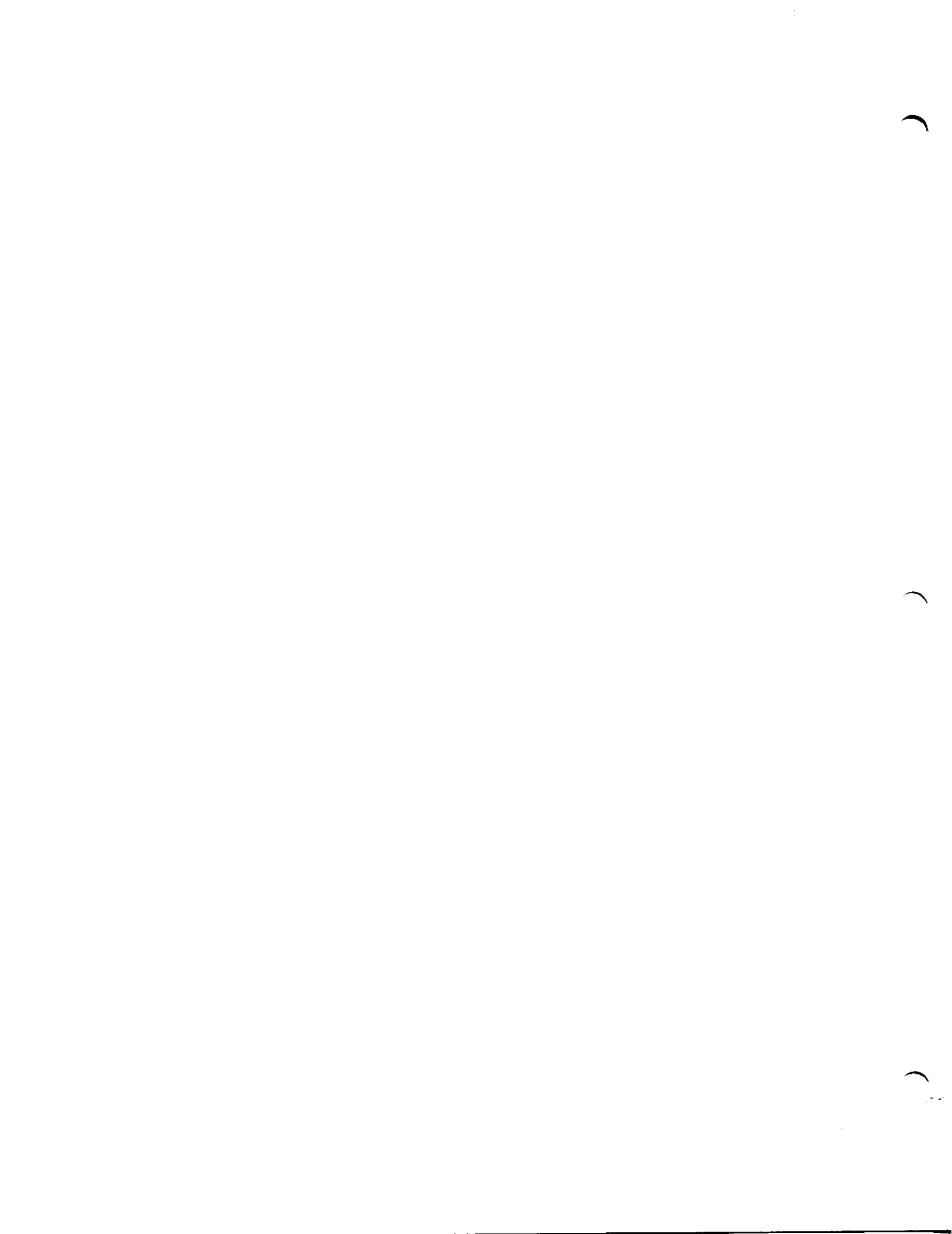


## APPENDIX I: midiKIT Individual FACTORY DEFAULT SETTINGS

Function	Factory Default Value
KIT	1
MIDI CHANNEL	10
MIDI NOTE	038
MINIMUM VELOCITY	01 (08 MIDI)
MAXIMUM VELOCITY	16 (127 MIDI)
VELOCITY CURVE	08
GATE TIME	00 (0.075 mS)
PROGRAM CHANGE	OFF
GAIN	06
(Default Envelope)	
THRESHOLD	02
MASK TIME	04 (=35 mS)
MINIMUM DYNAMIC	01
MAXIMUM DYNAMIC	14
HEADROOM	02 (=10)
SCAN TIME	06
INTERACTION	04 (50%)

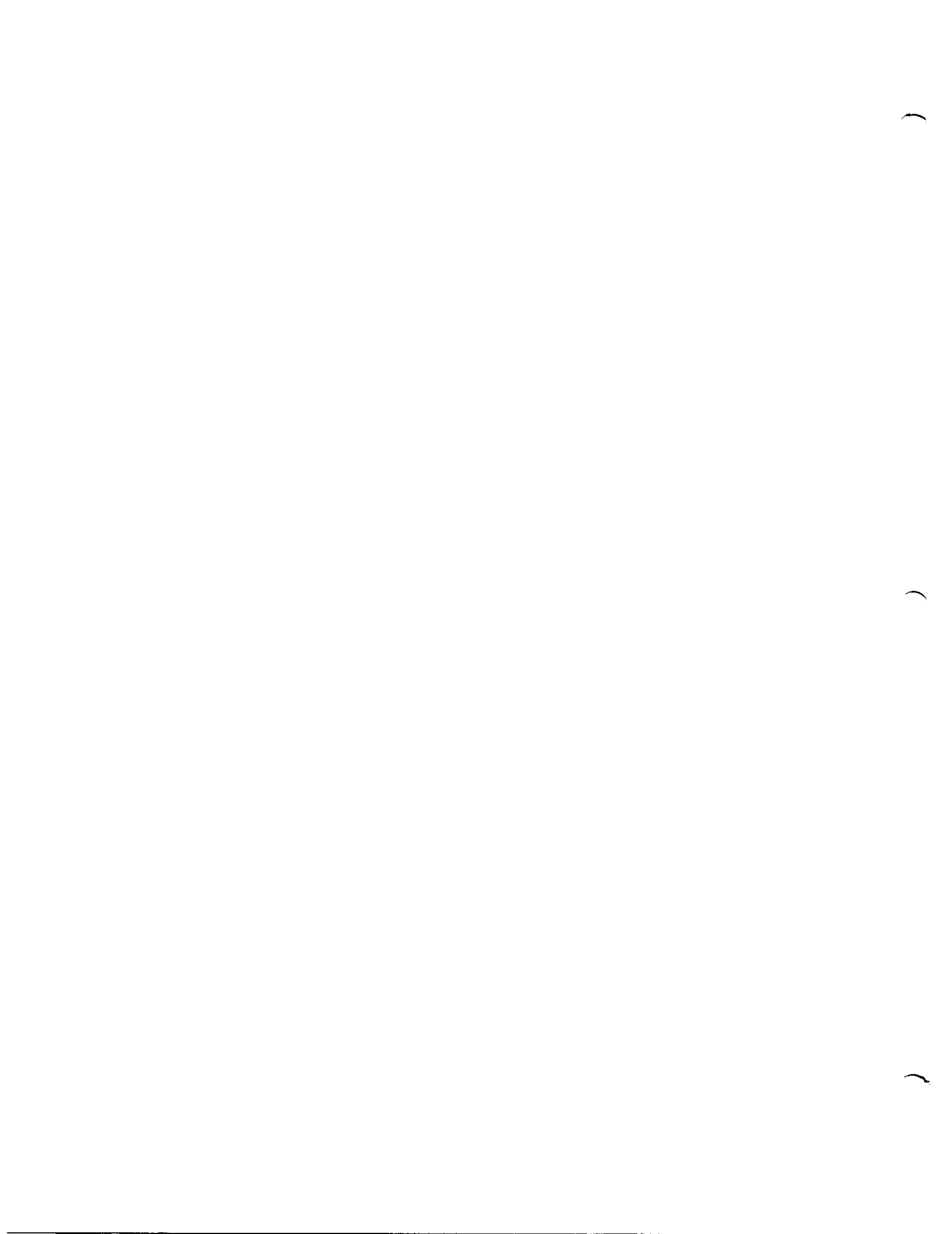
# midiKIT INDEX

AC Adaptor	2
AUTO TRAIN	
Channel/Note	10-12
Envelope	32-36
Gain	32-34,38
Leds	10,34
<AUTO> key	8-10,14-16,26,30
Current Function	10,14-16,30,38
Data Dump	Appendix-E
Double Triggering	40,Appendix-B
<DOWN> KEY	8,12-16,38
DYNAMICS	
Maximum	36,40-42
Minimum	36,40-42
FACTORY DEFAULTS	
Group	14,38
Individual	38, Appendix-I
False-Triggering	40,Appendix-B
Gain	34,38,48
Gate Time	20
Headroom	44
KIT	14,24,30
Copy	28
Manual Trigger Mod	8-12,16
Mask Time	36,40
MIDI Channel	8-20
MIDI Delay	46
MIDI IN	4,12
MIDI Note	8-18,36
MIDI OUT	4
MIDI Settings	6,14,24-26
Changing	16
Peak View	38
Permanent Memory	24-30
PROGRAM CHANGE	
Receive	4
Send	20
Recall Kit	26-28,30
Save Kit	24-28
<SAVE> key	24-30
Scan Time	44
<SELECT> key	8-10,14-16,20,24,28-30
Software Updates	Appendix-D
Temporary Kit Memory	14,24-30
Threshold	40
TRIGGER	
Current	8,16,34
Envelope	32-34,44
Default	38
Inputs	4,32
Interaction	16,46
Leds	8
Manual	8-12,16
Triggering Settings	6,14,24,34,38
Trouble Shooting	Appendix-A,B
<UP> key	8,12-16,20,28-30,38
VELOCITY	36
Curves	18-20,40,Appendix-G
Maximum	18,40,Appendix-G
Minimum	18,40,Appendix-G



# **MIDIK.I.T.I. PRO**

## **Upgrade Guide**



## **NEW MIDI KIT! FEATURES AND FACTORY KITS**

Two new features have been added to the midiKIT!... 1) the ability to "lock" your KIT! through software (especially useful for stage shows where the audience is snooping in your kit and for demo units in stores.) and 2) Your KIT! can now be reinitialized to original factory settings (in case the settings get totally out of whack). Again this is especially useful for in-store demo units.

### **NEW FEATURE: LOCKING YOUR KIT!**

If you hold down on both the <SELECT> and the <SAVE> buttons *while* you power the KIT! up - you will put the KIT! into **LOCK MODE**. (This will be confirmed by the yellow leds doing a bottom on, both on, top on, none on, bottom on, both on, etc., cycle). In this mode the up and down arrows will move you through Kits. That is the only thing the switches will do. No editing is allowed - the KIT! is locked! This is useful if you want to make sure no one changes your settings while your equipment is left unattended. For stores it is useful if you want customers to try out the equipment without fooling around and changing all the settings.

To get out of **LOCK MODE** you simply repeat the procedure. Power up with both <SELECT> and <SAVE> held down. This should toggle you back out of this mode (confirmed by the yellow leds being off after power-up).

### **NEW FEATURE: RE-INITIALIZE TO FACTORY SETTINGS**

Your midiKIT! can be re-initialized to factory settings by holding down both the <UP> and <DOWN> arrows while powering up. This will recall all the new factory preset kits into the midi KIT! memory. If you want to load just one of the preset kits into the memory, you can do that too. To do this, select the KIT function and the kit you want to dump into and press and hold the <AUTO>, <UP> and <DOWN> buttons simultaneously. This loads the factory preset kit into temporary memory. If you wish to save it to that kit, you must hold down <SELECT> and press <SAVE>.

## MIDI KIT! FACTORY PRESET KITS

Your midiKIT! now comes with factory preset kits. Here is a list of current drum machines and where they are found in the midiKIT!.

<u>KIT #</u>	<u>DRUM MACHINE</u>
1)	ALESIS SR-16
2)	ALESIS HR-16
3)	ALESIS HR-16B
4)	ALESIS D4
5)	AKAI MPC 60
6)	AKAI XR 10
7)	ROLAND DR 550 (KIT A)
8)	ROLAND DR 550 (KIT B)
9)	ROLAND R8
10)	KORG S3
11)	YAMAHA RY 30 (DRY)
12)	YAMAHA RY 30 (ROCK)
13)	E-MU PROCUSSION
14)	KAWAI XD5
15)	GENERAL MIDI NOTES
16)	C MAJOR SCALE

The following is a table of midi note number and instrument assignments for the inputs on your midiKIT!. All of the settings below have been pre-programmed in your midiKIT! at the factory!

INPUT #								
1	2	3	4	5	6	7	8	9
kick	snare	tom 1	tom 2	tom 3	tom 4	hi hat	crash	ride
					or perc.			

NOTE: These instrument assignments will only work properly if your drum machines note assignments have not been altered. If you have altered your note numbers, you can get them back by re-initializing your drum machine. Most drum

machines will let you do this. If yours however will not, you will have to make the assignments manually. *Remember, if you re-initialize your unit, it will lose any information you have written into it.* Below we have included (for most machines), the re-initialization instructions so that you will not have to shuffle back and fourth between two different manuals.

**TO RE-INITIALIZE THE SR-16**

As you power up the SR-16, press and hold the PLAY and ERASE buttons. Continue to hold these down for 3 seconds after turning on power.

**TO RE-INITIALIZE THE HR-16 AND HR-16B**

As you power up the HR-16/B, press and hold the ERASE, DELETE and RECORD buttons. Continue to hold these down for 3 seconds after turning on power.

**TO RE-INITIALIZE THE D4**

As you power up the D4, press and hold the VOICE and OUTPUT buttons. Continue to hold these down for 3 seconds after turning on power.

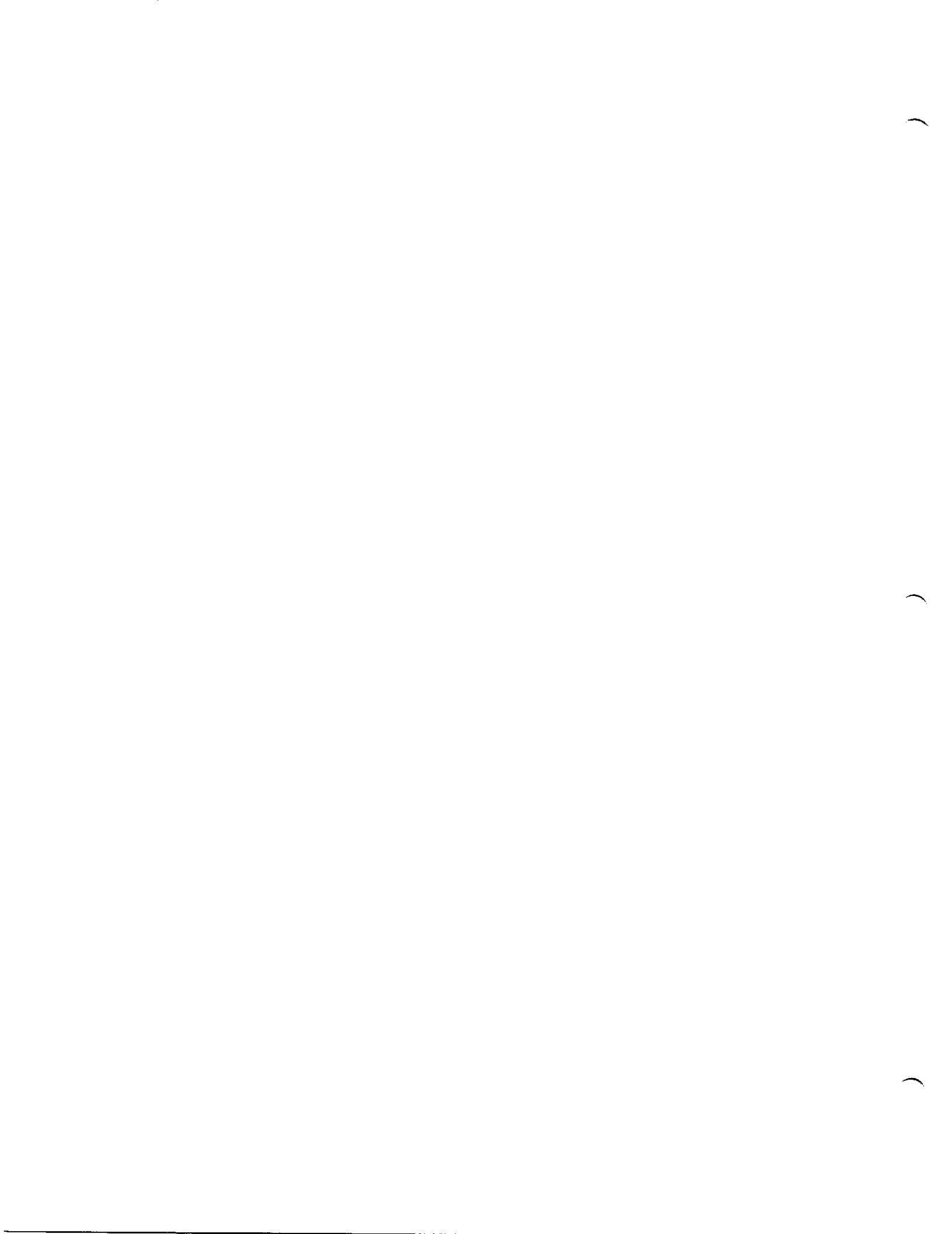
**TO RE-INITIALIZE THE R-8**

As you power up the R-8, press and hold PAGE and SELECT down. Then press ENTER twice.

**TO RE-INITIALIZE THE S3**

As you power up the S3, press and hold the STOP and "S1" buttons. Then press the +/YES button.





Hello KATperson,

Congratulations on your purchase of the **midIKITI!** Your **KITI** is part of a new breed. You have the newly released **midIKITI PRO!** It includes a variety of new features and capabilities that were not in the original **midIKITI.**

These sheets will explain these new features and how you can put them to use in your playing. First a quick listing of the new features:

1. The **midIKITI PRO** can play up to 4 different Sounds for each trigger in each **KIT.** You can use these 4 Sounds to play four sounds in a simultaneous stack, alternating, or by velocity shift (how hard you hit on your pads or triggers controls which sounds play).
2. **INTERACTION SUPPRESSION** is done with a new **INTERACTION SUPPRESSION MATRIX.** This new "matrix" allows your **KITI PRO** to eliminate interaction between pads or drums that cross trigger each other *without* affecting drums or pads that are not involved. There is a new **AUTO** training mode for **INTERACTION** that will set up this **MATRIX** for your kit.
3. The trigger inputs can now do a **KIT ADVANCE** or a **KIT BACKSTEP.** You can use pads or triggers to change kits!
4. **MERGING** of **MIDI IN** data to your **MIDI OUT** can be enabled and disabled.
5. On **midIKITI PROs** that have an optional extra jack on the side a footswitch may be used in conjunction with a pad or trigger to create a **HIHAT** mode with selectable Open, Closed, and Foot sounds.
6. The Channels for **MIDI PROGRAM CHANGE RECEIVE** and for **MIDI PROGRAM CHANGE SEND** can now be specified in each **KIT.**
7. New **HOME BASE** feature for syncing alternating pads.
8. New **GAIN** display for **GAIN AUTO TRAIN** and **GAIN** can be changed in **PEAK VIEW.**

**Now for the explanations of what these new features can do for you and how you can control them.**

## 1.1.1.1.1.1.1.1. 4 SOUNDS PER TRIGGER 1.1.1.1.1.1.1.1.1.

### WHAT?

Now your **midIKITI PRO** can play 4 Sounds for each of your 9 triggers. These sounds can be totally different in each kit and can be used in totally different ways for each trigger in each kit.

You can have 2, 3, or 4 sounds play **SIMULTANEOUSLY** (Multiple) each time you hit the trigger. You can have 2, 3, or 4 sounds **ALTERNATE** or rotate as you hit the trigger. Or you can have 2, 3, or 4 sounds **VELOCITY CROSSFADE** so that which sounds you get is controlled by how hard you play the trigger.

### WHY?

The reasons that these new features are useful are many. You can use **ALTERNATING** with different samples of the same drum to add a subtle variety to your playing. Or you can alternate latin percussion sounds in 2, 3, and 4 sounds per trigger on three different triggers and create incredible rhythmic patterns using the three triggers.

Using 2, 3, or 4 sounds **SIMULTANEOUSLY** can give you either that really **FAT** sound you've been looking for or a fresh new sound like floor tom blending into a massive gong.

Using 2, 3, or 4 sounds in **CROSSFADE** will give you the control to play the bell of a cymbal, a crash, or a ride all on 1 trigger depending upon how hard you play it.

### HOW?

So how do you select this fancy new mode and how do you specify what the actual sounds are?

**TO SELECT:** The selection of this new **MODE** is hidden in the **VELOCITY CURVES** (of all places). There are 16 **NEW VELOCITY CURVES** which allow you to select a **CROSSFADE**, **SIMULTANEOUS**, or **ALTERNATING MODE**. (In case you were wondering, when one of these "tricks" is selected the **VELOCITY CURVE** used internally to control the Dynamics of the sounds you are controlling is actually Velocity Curve #1 of the normal curves.)

Select VELOCITY CURVE as your CURRENT FUNCTION.

There used to be 16 VELOCITY CURVES now there are 16 more! The 16 new ones are gotten to by incrementing the VELOCITY CURVE value above 16 (or decrementing below 1). You know when you are in a fancy VELOCITY CURVE selection when the "0" RED LED (light) is **blinking** on and off as you look at the VELOCITY CURVE setting (when you've *released* <SELECT>).

1-4,6-7 are **CrossFades** in 2, 5 is 2 sounds **Simultaneously**, 8-10 are **CrossFade** in 3, 11 is 3 sounds **Simultaneously**, 12-13 are **Crossfades** in 4, 14-16 are **Alternating**.

The 16 settings of VELOCITY CURVE (when the RED "0" is blinking) are:

1. Sound 2 comes in only for hardest hits.
2. Sound 2 comes in for hard hits.
3. Sound 2 comes in at medium hits.
4. Sound 2 comes in at lower hits.
5. Sound 2 doubles Sound 1 for all hits. (Simultaneous 2)
6. CrossFade of Sounds 1 and 2 where they mix in the middle.
7. CrossFade of Sounds 1 and 2 where there is an exclusive switching from one to the other in the middle.
8. Sound 3 comes in for only the hardest hits, Sound 2 comes in for hard hits.
9. Sound 3 comes in for hard hits, Sound 2 comes in for medium hits.
10. Sound 3 comes in for medium hits, Sound 2 doubles Sound 1 all the time.
11. Simultaneously play sounds 1, 2, and 3.
12. Sound 4 comes in for the hardest hits, Sound 3 for medium, Sound 2 on soft.
13. Soft hits play Sounds 1 and 2, hard hits play Sounds 3 and 4.
14. Alternate sounds 1 and 2.
15. Alternate sounds 1, 2, and 3.
16. Alternate sounds 1, 2, 3, and 4.

To select one of these new modes use <SELECT> and <UP> (or <DOWN>) to get VELOCITY CURVE as your Current Function. Then release <SELECT> to see the VALUE of VELOCITY CURVE. If the "0" is blinking you are current in one of the 16 new trick modes. If it is not, use the <UP> arrow to increase the value BEYOND 16. Then release the <UP> to see the value. Do this until the "0" blinks. When the 0 is not blinking for the VELOCITY CURVE value the **midIKITI** will play only 1 sound per trigger.

#### TO SPECIFY THE 2-4 SOUNDS:

First select one of the fancy new modes through the VELOCITY CURVE Function as described above.

Next, use <SELECT> and <UP> to select **MIDI NOTE** as your Current Function. If you have successfully selected one of the 16 new sound tricks you will see 1,2,3, or 4 red leds at the bottom lit up *when you are holding <SELECT> down* and **MIDI NOTE** is your Current Function. This means that in *addition* to the single red led between "14" and "NOTE" (that tells you that **MIDI NOTE** is your Current Function) you will also see the "1" led, or both "1" and "2", or all of "1", "2", and "3", or all of "1", "2", "3", and "4" lit. This simply tells you whether you will see the value of NOTE 1, NOTE 2, NOTE 3, or NOTE 4 when you *release* the <SELECT> switch.

To advance to seeing the next NOTE, simply hit the Current Trigger *while* you are holding <SELECT> down. Each time you hit the Current Trigger *while* holding <SELECT> down, you will see the bottom red leds advance to the next NOTE. How many NOTES that you rotate through doing this is determined by which of the 16 new "Curves" you have selected. For example for new Curve #1 - #7 you only rotate through 2 values because only two sounds are used in these modes. For new Curves #12, 13, and 16 you will rotate through 4 NOTES because 4 different sounds are used.

**NOTE:** For the CrossFade Curves best response is achieved if you have done a good job of setting your Minimum and Maximum Dynamic values. See your manual index if you are in doubt.

Sounds 2, 3, and 4 all share the Channel, Minimum Velocity, Maximum Velocity, and Gate Time of Sound 1.

## 2.2.2.2.2. INTERACTION SUPPRESSION MATRIX 2.2.2.2.2.

### WHAT?

Your **midIKITI PRO** now deals with INTERACTION or cross-triggers of pads on the same stand or triggers on neighboring drums in a new way. You set-up an **INTERACTION SUPPRESSION MATRIX**. Sounds pretty technical doesn't it? Well internally it is pretty technical! Luckily it is incredibly simple for you to use (once you learn how) and it works! For each particular trigger you simply select which other triggers it causes to false trigger when it is hit. The **midIKITI PRO** then stops this group from cross triggering when the specified trigger is hit - **without** affecting other triggers that are not involved.

**CAUTION:** Be sure to NOTE that these settings are forgotten when the **midIKITI PRO** is turned off **unless** you specifically **SAVE** them into *permanent memory*. (This is described at the end of **HOW?**) This is because you may want to temporarily change your Interaction settings just for one particularly flimsy drum riser you are stuck on for a one night gig. When you go home you may want to immediately get back your previous settings.

### WHY?

Because you'll probably need it!

Interaction occurs when a large hit on one trigger also causes a small "cross-trigger" of another neighboring trigger. If you put two trigger pads on the same bar of a stand or a drum-rack they will very likely cross-trigger when you play either of them hard. Two acoustic drums with trigger pickups or mics will often trigger each other when one is mounted above the other. But at the same time there are other pads or pickups that don't interact with the first group at all.

If some of your triggers physically interact or cross-trigger you can raise the THRESHOLDS of the triggers or lower their GAINS to make them less susceptible to Interaction. However this also makes them less sensitive when you are playing on them alone. You actually want to raise the thresholds of the pads that interact only for a brief moment *after* one of the pads that interact with it have been hit. If no other trigger has been hit recently (or at least not any that cause a problem) then let all the triggers keep their normal high sensitivity. **ONLY** protect triggers when some other specific trigger that bothers this one has been hit! This is precisely what the **INTERACTION SUPPRESSION MATRIX** does.

## HOW?

So how do you set this up and use it? Actually it is pretty easy. We have provided a new **AUTO TRAIN** for **INTERACTION**.

First, select **INTERACTION** as your Current Function. You may now see all hell breaking loose on your green trigger leds. If so, just ignore that for now.

Second, hit the pad or trigger that you want to work on to select it as your "Current Trigger".

Third, press **<AUTO>** and release it. Now the two yellow leds do a new dance, kind of like railroad crossing lights, alternating back and forth. This tells you that you are now in **INTERACTION AUTO TRAIN MODE**.

Third, hit your Current Trigger (the solid green light) as hard as you will when you are playing. The lights will all stop for a couple of seconds. The **midIKITI PRO** is taking a "snapshot" of any cross-triggering that happens on all your other 8 triggers when you strike the Current Trigger hard. When the yellow railroad lights start blinking back and forth again, the **midIKITI PRO** will show you your Current Trigger as a solid green led and any cross-triggered triggers as blinking green, the % of suppression needed to protect from this is shown on the red leds. If no greens are blinking then no triggers interacted on that hit. Try hitting the Current Trigger again. Each hit causes a totally *new* snapshot to be taken of any cross-triggers.

As an example: Sometimes 2 and 3 may both cross-trigger from a hit on 1 and other times 3 and 6 may trigger from a hit on 1. This would tell you that you need protection for *all* of 2, 3, and 6.

Also after each hit of the Current Trigger in **INTERACTION AUTO TRAIN MODE** a safe Suppression % value is selected and shown on the red leds to protect you from what was seen during the last snapshot. If you use the **<UP>** or **<DOWN>** buttons now the **INTERACTION SUPPRESSION %** can be raised or lowered. The values shown for **INTERACTION SUPPRESSION** are in multiples of 12%. 1=12%; 2=25%; 3=37%; 4=50%; ... 8=100%; ... 16=200%. A value of 4 means that the cross-trigger was slightly less than 50% of the size of the full hit on the Current Trigger. This means that with this setting immediately after a hit on the Current Trigger the other trigger will not play unless it is above 50% of the size of the hit on your Current Trigger.

As mentioned briefly earlier these settings are temporary unless you consciously **SAVE** them. To **SAVE** these settings you must:

- a. Have INTERACTION as your Current Function
- b. Be in INTERACTION AUTO TRAIN MODE (yellow Railroad)
- c. **WHILE** holding down <SELECT>, press <SAVE>.
- d. All 9 green trigger leds burst with the red Interaction led to tell you that the Interaction Matrix for all 9 triggers has been saved.

(This is different than saving a MIDI KIT which is what typically happens when <SELECT> <SAVE> is done.

When a save of a MIDI KIT is performed the top 8 red leds burst with the 9 green Trigger leds - to tell you that all MIDI settings for all 9 triggers are being saved. However, when your Current Function is INTERACTION only the **INTERACTION MATRIX** for all 9 triggers is saved.)

To add (or remove) a specific trigger to (or from) the Interaction group of some particular Current Trigger simply hit that specific trigger. You will see the led for that other specific trigger either start or stop blinking. (This can only be done when you are in INTERACTION AUTO TRAIN MODE (yellow railroad))

A hypothetical example may help.

Suppose you notice that when playing your KIT hitting trigger 2 sometimes causes 4 or 7 to trigger. You will need to do an INTERACTION AUTO TRAIN for trigger 2.

You select trigger 2 as your Current trigger by hitting it.

You select INTERACTION as your Current Function.

Press and release <AUTO> to enter **INTERACTION AUTO TRAIN MODE**. This starts up the yellow railroad display.

While yellow railroad is running you hit trigger 2 hard. After a delay (hypothetically) you might see the green 2 led solid and the green 4 led blinking with a value of 1 on the red leds (4 cross-triggered at a less than 12% of the size of the full hit on trigger 2).

While the yellow railroad is still on you hit trigger 2 very hard again and after a delay see green 2 on solid, green 4 and 7 both blinking and a value of 3 on the red leds (4 and 7 both cross-triggered this time at a little less than 37% of the full hit on 2).



Still a third time while yellow leds alternate in INTERACTION AUTO TRAIN MODE you hit trigger 2 hard again. After a delay maybe this time you see green 2 on solid and green 7 blinking with a value of 2 on the red leds (7 cross triggered at a little less than 25%).

So you decide you want to have both triggers 4 and 7 (green leds) in the group with a suppression value of 3 or 4 (red leds) (37% or 50% suppression). In our example at this time only the 7 is blinking. If you would simply hit trigger 4 (while trigger 2 is Current Trigger and in INTERACTION AUTO TRAIN MODE) that will put it back into the group.

Suppose you accidentally tap trigger 6 and it accidentally gets put into the group for trigger 2. Simply tap trigger 6 again and it will leave the grouping for trigger 2.

To raise the red value of 2 up to 3 or 4 just push the <UP> once or twice. If you wanted to keep this setting then do a <SELECT> <SAVE> while in yellow railroad.

If you wanted to now do an INTERACTION AUTO TRAIN for *another* trigger you must first exit INTERACTION AUTO TRAIN by pressing <AUTO> and releasing it to clear the yellow leds. Then hit the new trigger to get it selected as the Current Trigger before you reenter the INTERACTION AUTO TRAIN MODE by pressing <AUTO> again while in INTERACTION as your Current Function.

**TO TEST:** To test to see if the suppression is working you need to go to any *other* function other than INTERACTION (because the display is already doing so much in INTERACTION that it is hard to see cross triggering). SCAN for example will do. Then strike your trigger very hard. See if any other green leds light up when you strike your trigger - if so either add the trigger that cross-triggered to the group for the struck trigger or raise the suppression value and try again.

In most situations a SUPPRESSION value of 1 or 2 (12% or 25%) will eliminate cross-triggering. In extreme cases higher suppression values may need to be used.

It is best, when possible, to have triggers that interact have similar GAINS, THRESHOLDS, and SCAN TIMES. This will prevent one trigger from being overly sensitive compared to the rest of the triggers.

### 3.3.3.3.3.3.3. KIT ADVANCE WITH TRIGGERS 3.3.3.3.3.3.3.

#### WHAT?

Now you can use you triggers to advance forward or backward through your kits. This allows you to change what your triggers are doing without having to push the buttons on the **midIKITI PRO**.

#### WHY?

You may want to change the sounds you are accessing on your triggers from drum set sounds to tuned percussion in the middle of a song. You may not have the time to push the up button on the KITI to advance to the next kit. If you are not using all 9 inputs on the KITI to play sounds then you could use a trigger pad to do kit advances each time you hit it.

#### HOW?

To get a trigger to do **KIT ADVANCE** or **KIT BACKSTEP**:

Hit that trigger to select it as your Current Trigger.

Select **NOTE** as your Current Function.

Raise the value of the **NOTE** for that trigger to 128 for **BACKSTEP** or to 129 for **ADVANCE**.

That trigger will remain dedicated to advancing or backstepping through your kits, in all **KITs** until you manually take it back out of **NOTE 128** or **129**. The actual **NOTEs** that were assigned to that trigger in all the **KITs** do not get changed, the **midIKITI PRO** just simply ignores them and performs a **KIT ADVANCE** or **BACKSTEP** for that trigger when it is hit.

To get back to your previous **NOTE** value simply do a manual **KIT advance** and then a **KIT backstep** to get the real values of your **KIT** back.

If you have two available inputs on your **midIKITI PRO** you can have one pad do **KIT ADVANCE** and another do **KIT BACKSTEP**. The 6" **DAUZ** pads are perfect for this.

#### 4.4.4.4.4.4.4.4. MIDI IN MERGE TO MIDI OUT 4.4.4.4.4.4.4.4.

##### WHAT?

The **midIKITI PRO** has a MIDI IN that can either be **MERGED** to the two MIDI OUTs or can be blocked from going back out the two MIDI OUTs.

##### WHY?

If you have a second MIDI controller (another **midIKITI**, a **drumKAT**, or a **malletKAT**) you may want to have both controllers control your chain of drum machines, tone modules, and sampler. Simply plug the other controller into the MIDI IN of the **midIKITI PRO**, enable the **MERGE** of IN to OUT, and plug a MIDI out of the **midIKITI PRO** into your chain of sound sources.

However, you may have just one simple drum machine and you have a MIDI OUT of the **midIKITI PRO** plugged into the IN of the drum machine. You also may have plugged the OUT of the drum machine into the IN of the **midIKITI PRO** for the purpose of easily **AUTO TRAINING** the **NOTES** on the **midIKITI PRO** by pushing the buttons on the drum machine and sending the **NOTE** value automatically into the **midIKITI PRO**. (See manual for details on **MIDI NOTE AUTO TRAINING**. In this situation sometimes when you get back to playing, the **midIKITI PRO** will send a **NOTE** to drum machine to play a drum sound. The drum machine may then send the **NOTE** *back* to the **midIKITI PRO**. If the **midIKITI PRO** then *merges* that same **NOTE** back to the drum machine etc., etc., you will very soon end up with quite a racket. To stop this you simply turn the **merge** off!

##### HOW?

If you hold down the **<SAVE>** button and then press the **<DOWN>** button (*while* **<SAVE>** is still being held) you will toggle the state of **merging** and either see just the red "0" blinking 3 times or all 16 red leds blinking 3 times. A blinking "0" indicates that you have just turned the **MERGE OFF**. All 16 reds blinking means you have just turned the **MERGE ON**.



### TO SPECIFY HIHAT SOUNDS:

Get your **HIHAT TRIGGER** to be your Current Trigger by pressing and releasing the footswitch.

Select **NOTE** as your Current Function.

Just as in the **Crossfade**, **SIMULTANEOUS**, and **ALTERNATING MODES** described above in 1.1.1.1.1 you will now see (*when* you are pressing **<SELECT>**), a value of 1, 2, or 3 at the bottom of the red leds. These stand for the 3 sounds of the **HIHAT**. 1 = **FOOT**, 2 = **CLOSED**, 3 = **OPEN**.

To keep straight which number of 1,2,3 applies to **FOOT**, **OPEN**, or **CLOSED** think of it physically. **FOOT** is at the bottom and a closed **HIHAT** is below an **OPEN HIHAT** just like the physical positions of the numbers 1,2,3 on the **midIKITI PRO** display.

Lastly, to specify **FOOT VELOCITY** (a footswitch is after all a switch - it is either on or it's off - there's no dynamics - so you must pick a specific # to send for **FOOT VELOCITY**) select the **HIHAT TRIGGER** as your Current Trigger by pressing the footswitch and releasing it. Now select *either* **MINIMUM VELOCITY** or **MAXIMUM VELOCITY** as your Current Function. Release **<SELECT>**. Now when you look at the **VELOCITY** value and depress the footswitch you will see the selected value for the **FOOT VELOCITY**. It can be changed with the **<UP>** or **<DOWN>** arrows *while* the footswitch is depressed. Like all the other **MIDI** values in your **KIT** you must do a **SAVE** if you want to keep this **VELOCITY** permanently.

The **HIHAT** is specified totally separately in each **KIT** so need to actually install it in each **KIT** you intend to use it on.

#### 6.6.6.6. MIDI PROGRAM CHANGE SEND and RECEIVE 6.6.6.6.

##### WHAT?

A **MIDI PROGRAM CHANGE** is a command sent over MIDI to cause a device to change **PROGRAMs** or **KITs**. This normally means you are trying to change the patch or voicing that the sound source will make.

When a **midIKITI PRO RECEIVES** a **PROGRAM CHANGE** it will change **KITs**. When the **midIKITI PRO SENDS** a **PROGRAM CHANGE**, it is trying to *change* the patch of settings on the device that the **midIKITI PRO** is plugged into.

Before in the **midIKITI**, the **PROGRAM CHANGE RECEIVE** Channel was stuck on 16 and the **PROGRAM CHANGE SEND** Channel was whatever the Channel of Trigger 9 was. That made for difficulties for some people as they got more gear so we found a way to make the **midIKITI PRO** be flexible enough to specify the Channel to Send and the Channel to Receive **PROGRAM CHANGES** on.

##### WHY?

So that you can have independent control over switching kits in your gear.

##### HOW?

Get **PROGRAM CHANGE** as your Current Function. You should notice those pesky 1,2,3 leds at the bottom lit up again when you have **<SELECT>** pressed and **PROGRAM CHANGE** is your Current Function. To rotate through 1,2,3 simply hit *any* trigger to advance to the next of the 3 values shown in **PROGRAM CHANGE**.

- 1 = **PROGRAM CHANGE SEND VALUE**, this is an automatically rotating 3 digit # that is sent when you enter this Current KIT in your **midIKITI PRO**. If you advance beyond 127 the leds will be off to indicate that **NO** value is sent.
- 2 = **PROGRAM CHANGE SEND CHANNEL**, this is a single bar-graph value ranging from 1-16. A value of 0 can be specified to cause **NO PROGRAM CHANGE** to be sent.
- 3 = **PROGRAM CHANGE RECEIVE CHANNEL**, this again is a single bar-graph value ranging from 1-16. A value of 0 means that the **midIKITI PRO** will *not* respond to **PROGRAM CHANGE** commands it receives on its **MIDI IN**.

How do you keep straight which of the 3 settings under **PROGRAM CHANGE** are which? It's easy! Only 1 of the settings is a 3 digit # - the **PROGRAM CHANGE SEND VALUE** - this is obviously #1 since it is the only one to be a rotating 3 digit #. 2 has to be the **PROGRAM SEND CHANNEL** because it only makes sense to stick it next to 1, the **VALUE** that gets sent out. That leaves 3 for **PROGRAM RECEIVE CHANNEL**.

### 7.7.7.7.7.7.7. HOME BASE 7.7.7.7.7.7.7.

#### WHAT?

**HOME BASE** *resyncs* all **ALTERNATING** triggers back to Sound 1. If a trigger is on **ALTERNATING 4** (*fancy* **VELOCITY CURVE 16**) you will hear the 4 sounds in a 1-2-3-4-1-2-3-4-1-2- etc. pattern. However, if a **HOME BASE** trigger is hit, the **ALTERNATING 4** trigger will reset to 1 for the next hit of that trigger (as will any **ALTERNATING** trigger).

#### WHY?

So who wants a **HOME BASE**? Anyone who wants to do a pattern using several **ALTERNATING** triggers in some specific pattern will find it useful to be able to get them all back to being lined up again.

#### HOW?

To select a trigger as a **HOME BASE** trigger simply select "130" for its **MIDI NOTE** in the **KIT** you want to use it in. Then when you hit that trigger it will not play a **MIDI NOTE** - it will simply reset the counts on any **ALTERNATING** triggers to 1.

**8.8.8.8.8.8.8.8. GAIN 8.8.8.8.8.8.8.8.**

**WHAT?**

The **GAIN AUTO TRAIN** now shows you what **GAIN** it will try on your next hit and then returns to blinking 0-11 to prompt you again for the next 3/4 strength hit.

**WHY?**

To reassure that the **midIKITI PRO** is still searching for the correct **GAIN** and let you know which direction it is heading.

**Also**, when **GAIN AUTO TRAIN** is finished the display freezes momentarily with pairs of leds on. Cool out and wait for the **KITI** to stop digesting.

**WHAT?**

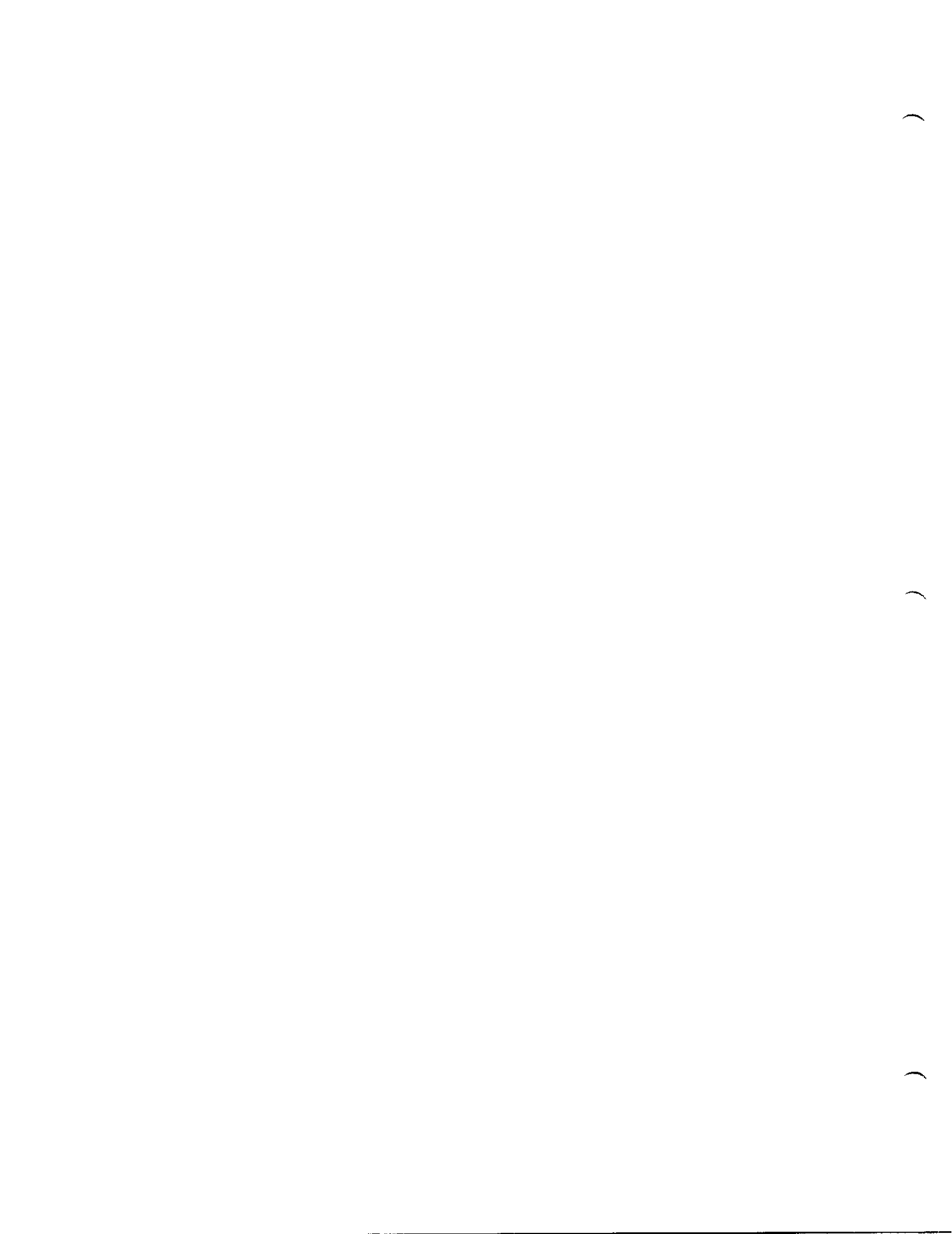
When in **PEAK VIEW** if you push **<UP>** or **<DOWN>** you will change the **GAIN** setting of the Current Trigger. The red leds will flash this new **GAIN** value to you before it returns to showing **PEAK VIEW** again.

**WHY?**

It is just a natural thing to want to adjust the **GAIN** when looking at the response of the Trigger.

**Well that is it. Enjoy the new features. Let us know what you think of them.**





October 1991

## ADDENDUM to the midIKITI UPDATE

There are a couple of things about the HIHAT that have been a bit confusing for a lot of people so this additional sheet will help explain these areas further.

### SELECTION OF HIHAT TRIGGER PAD

Although which channels and notes you assign to the HIHAT can be different in each KIT, the trigger you select to be the "HIHAT trigger" becomes the HIHAT trigger in *all* KITS. You can't have trigger 1 be the HIHAT pad in KIT 2 and have trigger 3 be the HIHAT pad in some other KIT. You can however select a KIT to have **NO** HIHAT in it at all. That is explained in the following section.

When you select a new HIHAT trigger (Hold down Footswitch and press <AUTO>, then release AUTO, then hit the trigger you want, then release footswitch) this causes the HIHAT trigger to be stored in **ALL** 16 KITS permanently. No **SAVE** of this action is required for it to take effect.

### HOW DO I GET RID OF HIHAT IF I DON'T WANT IT ON?

If you have a HIHAT jack (midIKITIPRO) and footswitch, power up the midIKITI with the footswitch plugged in. Select the KIT you want to remove the HIHAT from. Then hold down the footswitch and while it is being kept held down press the <AUTO> button (which starts the "pick-a-card" yellow and green lights rolling) and then press <SELECT> to actually select nobody. Now release the footswitch.

Now **SAVE** this change to your KIT by pressing <SELECT> and while **SELECT** is still down also press <SAVE>. A burst of the green lights and the top red lights verifies that this change has been saved.

Now the footswitch should have no effect in this KIT. If you want to remove it from *other* kits simply repeat the procedure described above.

If you can't use the above method (because you don't have the footswitch jack) your other choice would be to load in the Factory Default KIT into the present KIT. It will destroy your present KIT but it will get you out of Hihat mode. Do this by first getting KIT selected as your current function. Now release <SELECT>. Next press <AUTO> and while AUTO is being held, press <UP> and then also <DOWN> so that all three of AUTO, UP and DOWN are pressed at the same time. This will cause a quick burst of the top 8 red leds and the green leds to verify the default KIT being loaded in. Make sure and do a **SAVE** as described above - now a default KIT (with the Hihat disabled) has been loaded.

# The new midiKITI POWER CHIP by KAT

## NEW FEATURES INCLUDE

A third bank of "velocity curves" has been added to provide 16 automatic patterns as follows:

### Curve 1 ROLL MODE (toggle on/off with accent on downbeat)

When a pad is assigned to curve one, the pad will play a roll. The attack sound is played at your dynamic level while the rest of the roll is played at the MIN VELOCITY dynamic level. The roll is started and stopped by striking the pad. A note off command is sent only if the GATE TIME is set to zero.

### Curve 2 ROLL MODE (gate controlled with accent on downbeat)

When a pad is assigned to curve two, the pad will play a roll. The attack sound is played at your dynamic level while the rest of the roll is played at the MIN VELOCITY dynamic level. The roll is stopped automatically when the selected gate time expires. A note off command is sent only if the GATE TIME is set to zero.

### Curve 3 ROLL MODE (toggle on/off with no accent on downbeat)

When a pad is assigned to curve three, the pad will play a roll. The attack sound, as well as the rest of the roll, is played at your dynamic level. The roll is started and stopped by striking the pad. A note off command is sent only if the GATE TIME is set to zero.

### Curve 4 ROLL MODE (gate controlled with no accent on downbeat)

When a pad is assigned to curve four, the pad will play a roll. The attack sound, as well as the rest of the roll, is played at your dynamic level. The roll is started and stopped automatically when the selected gate time expires. A note off command is sent only if the GATE TIME is set to zero.

### Curve 5 thru 16 VARIABLE DELAY MODE (delay of 25 to 400 milliseconds)

Each of these modes will play four notes assigned to the pad with a delay inserted between each note according to the curve number assigned to the pad. Curve #16 is the longest delay and curve #5 is the shortest. Special Midi note #142 is designated as a "silent" note and will result in no note being played in the position it is assigned.

## PATTERN GENERATOR

A sequence recorder has been added that provides for the recording of up to 4 patterns containing 64 pad events each. To arm the device for recording, a pad must be assigned to a number between 131 and 138. Striking this pad while the footswitch is depressed will arm the recorder so that recording will start as soon as another pad is hit. The recording will stop when this pad is hit again or after the 64th event is recorded. If the arm pad was assigned a number between 131 and 134, the sequence is non repeating and, once the sequence has been recorded, will start when the arm pad is hit without the footswitch being depressed. If the pad was assigned a note number between 135 and 138, the sequence is repeated and will start as soon as it is stopped. The four patterns are assigned to note numbers as follows:

- Pattern 1 notes 131 and 135
- Pattern 2 notes 132 and 136
- Pattern 3 notes 133 and 137
- Pattern 4 notes 134 and 138

## VARIABLE FOOTSWITCH VELOCITY FOR HI HAT

The footswitch will now operate at the velocity of the last hit on the pad defined to be the hi hat pad.

## OTHER FEATURES

Note number 130 is the HOME BASE note number and will stop all patterns

All trigger settings are now made to be permanent memory so that no saving is necessary.

