12. Motifs, Clicks, & Clocks.

Internal to the drumKAT is a Master Clock called the **Tempo Clock**. This clock is both controlled and used by many areas of the drumKAT. You can send an external MIDI CLOCK based on the Tempo Clock. You can select a metronome MIDI CLICK and run up to 8 independent Motifs simultaneously off of this Tempo Clock. (A Motif is a **riff** or **pattern** that you can Record and assign to a Pad or Trigger.) Also, you can control the tempo with a Tap Tempo feature that adjusts the clock speed to track your playing.

RECORDING MOTIFS :

There are a variety of ways to Record the Motif patterns that you can use on your drumKAT Pads. The Standard Motif Recording process allows you to select a Countoff, the tempo to Record under and quantizing. Ready Record allows you to pre-setup a Pad to cause both the Recording of a pattern and immediate Playback of the pattern **live**. Step Record lets you enter in hits of Pads in a time step mode where your timing is not used - just the notes you play. External (MIDI IN) Recording lets you play from an external keyboard or drum machine straight into the Motif generator of the drumKAT.

STANDARD MOTIF RECORDING :

Depress and release **Footswitch1** to get to the **PRE-EDIT** type selection screens (don't hit a Pad while Footswitch1 is pressed down!) Now hit **PAD6** and you will see:

```
#6 = RECORD EDIT
to confirm type
hit pad #6 again
FOOTSW1 TO EXIT
```
:PRE EDIT SCREEN 6

Hit PAD6 again to confirm that you want to **RECORD** a **Motif**! Now you see:

(1-8)   (RECORD OR STEP)   (OFF, ON)

```
motif01RECcord0FF
countoff=4 kit01
tempo 100 08beat
quantize T01/16T
```
(3-8)   (01-30, D1-D4)

(39.2-250)

(1-96)

(Various Choices)

:MOTIF SCREEN 1

On this screen you can select which Motif you want to **RECORD** (8 Motifs are available on the standard drumKAT), which **Kit** you want to play from, a **COUNTOFF**, a **CLOCK TEMPO**, the number of **BEATS** you want in your Motif, and a **QUANTIZATION** setting. QUANTIZATION occurs at recording time.

When you start actual recording, avoid hitting PAD1. We will explain why later!

Now get "**OFF**" blinking and hit **VALUE ADV**ance (Pad 6). This changes the "OFF" to "**PRE**" and starts the **COUNTOFF**. The COUNTOFF is lower pitched than the RECORD click track. When the COUNTOFF is finished, the Motif starts **RECORDING** immediately. Now simply play on your Pads or triggers (avoiding PAD1!) and you will be recording a new Motif!

When the recording stops, get back to PLAY (Footswitch1) and hit Pad 1 (assuming you still have it set for **Motif 1 playback**). You will hear the Motif playback!

READY RECORD :

The Ready Record feature allows you to start using Motif patterns in spontaneous ways - especially for solos or practice. Ready Record allows you to make up a pattern live - Recording & Starting & Stopping it with ease. The tempo and feel are totally under your control of the moment.
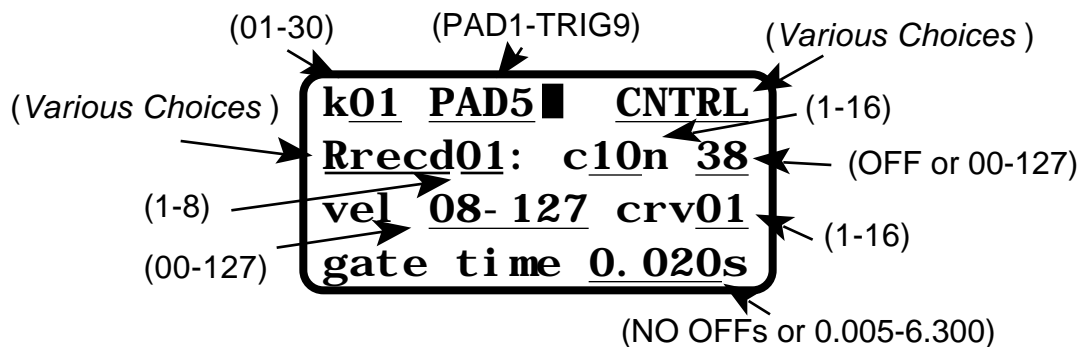
When you first hit a Ready Record Pad while in PLAY Mode, it immediately **plays** the **sound** assigned to the Pad and **arms** a **Motif** for recording. The **next hit** on any Pad or trigger **starts** the actual **recording**. Any other Pads or Triggers you play on will be recorded into the Motif **until**:

The **second** hit on a **Ready Record** Pad will stop the recording of the Motif and **immediately start playing** the Motif back in time with your hit.

When you hit the Pad a **third** time, the Motif will **stop** playing. **Next** hit will **start** playing again. Next hit Stop, etc.

When you enter a Kit that has a Ready Record Pad in it, you will see a screen that verifies that you have a Ready Record Pad active in this Kit.

To setup a Pad to do a Ready Record, get to KIT EDIT Screen 5 and select the **CNTRL** Mode and Ready Record as the Control Type:

(01-30) (PAD1-TRIG9) (*Various Choices*)

(*Various Choices*)

```
k01  PAD5▉    CNTRL
Rrecd01:  c10n 38
vel 08- 127 crv01
gate time 0. 020s
```

(1-16)

(OFF or 00-127)

(1-8)

(00-127)

(1-16)

(NO OFFs or 0.005-6.300)

:KIT EDIT SCREEN 5

Select the **#** of the Motif you wish to Record.
Select the Channel, Note # of the sound (if any), Velocity settings, and Gate Time that you want the Pad to play when struck.
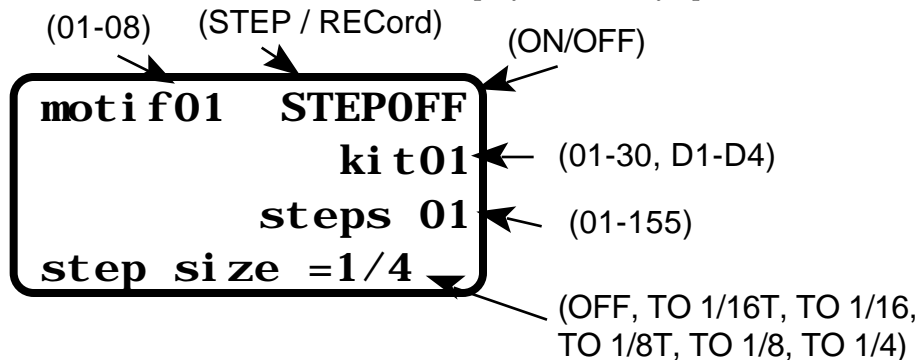To **"Re-Arm"** the Pad for re-recording, go to another kit and come back to the Kit that has the Ready Record Pad. Every time you enter a Kit, any Ready Record Pads in the Kit are Re-Armed.
Immediately following "Rrecd01" you will either see a ":" or a "P". The ":" means you are enabled to record. The "P" means this Motif is protected and you will be unable to record it. This setting can be changed here or on MOTIF Screen 4.

STEP RECORD :

You may also use **Step Record** to compose motifs. Step Recording gives you a more exact way to record a motif if you either need precision or want to play in a "tricky" part.

(01-08)   (STEP / RECord)   (ON/OFF)

```
motif01   STEPOFF
             kit01  ← (01-30, D1-D4)
          steps 01  ← (01-155)
step size =1/4
```

(OFF, TO 1/16T, TO 1/16,
TO 1/8T, TO 1/8, TO 1/4)

:Motif SCREEN 1.

Each hit of a Pad will put a fixed time step into the Motif with whatever sounds are on that Pad. The actual timing of the playing of the Pads or the notes is ignored. Each Pad hit is put one step of time (1/4 note for instance) after the previous.

You can enter a **rest** by hitting **PAD0** with FOOT4 depressed!

The **step size** can be changed by **Footfunction4** - **PAD7** and **PAD8** (reverse or advance the setting for step size).
(FOOTFUNCTION4 - PADs 7, 8 and 0 are normally Tempo Inc/Dec and Beeper On/Off - however when you are Step Recording the function momentarily becomes altered to modifying Step Size.)

EXTERNAL (MIDI IN) RECORDING :

You can **Record** a **Motif** using an **external** MIDI keyboard or controller. Simply plug the MIDI Out of the external device into the Left or Right MIDI IN of the drumKAT.

(gRECORD / gPROTECT)

(01-08)

(STORE /
IGNORE)

(NORECORD /
RECORD)

```
gRECORD   motifs
motif01   RECORD
STORE   noteoffs
NORECORD midiin
```

(RECORD /
PROTECT)

:Motif Screen 4.

To Record Motifs through MIDI IN, you should connect the Left MIDI OUT of the drumKAT to the MIDI IN of your external drum machine or keyboard that you are going to send the data from.

(Of course you will also need to connect the MIDI Out of the external drum machine or keyboard into a MIDI IN of your drumKAT.)

If the external device is a drum machine (or a sequencer, or a keyboard with a sequencer) you will probably need to select "External Sync" so that it will respond to the MIDI Clock that the drumKAT sends.

To Record from the MIDI IN follow these steps:
1) Select "**RECORD**" MIDI IN on line 4 of Motif Screen 4.
2) Decide whether or not you want to STORE / IGNORE noteoffs. <u>Generally, the setting should be set to IGNORE if you're using a drum machine - STORE if you are using a keyboard</u>.
3) Do 4 Screen Advances to get to the Motif Record screen.
4) Select the Motif you want to record, countoff, tempo, beats, and quantize settings you wish to use.
5) Move the Cursor to **OFF** at the top of the MotifXX RecordOFF or Step screen. Hit PAD6 to start the recording.
   If you are playing from a **keyboard**, play when the Countoff ends and stop playing when the Motif has stopped recording.
   If you are loading a pattern from a **drum machine** into the drumKAT, the drum machine should start playing out it's pattern when the drumKAT switches from Countoff to Recording and stop when the Motif is full. <u>If not</u>, make sure the drum machine is properly setup to receive external MIDI clock (from the LEFT MIDI OUT of the drumKAT) and that it is setup to respond to external Sequence Start/Stop - (the drumKAT sends out a Start when Countoff ends and a Stop when the Motif is done recording.)

   You may need to adjust the MIDI IN to OUT merging settings in the GLOBAL screens to prevent MIDI loops which can sound like feedback or flanging.

PROTECTING MOTIFS :

Motifs can be protected on an individual basis. After you select the Motif #, choose whether you want to be able to **RECORD** over it or **PROTECT** it.
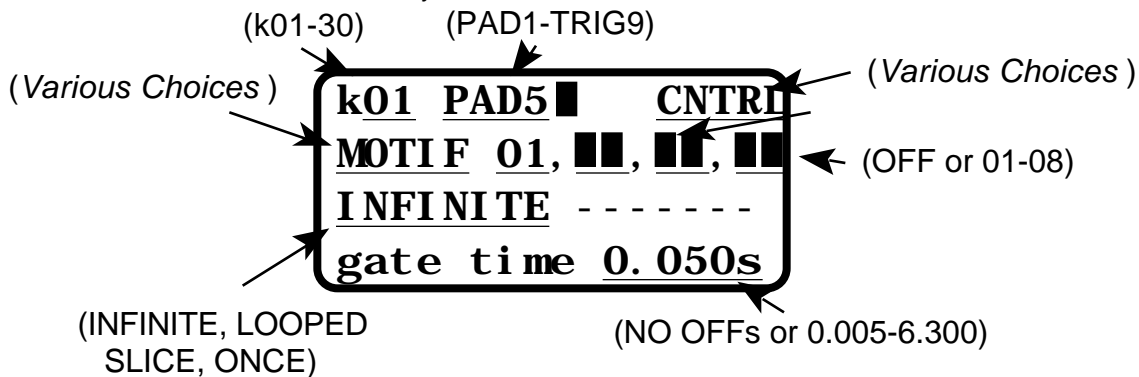
(gRECORD / gPROTECT)

(01-08)

(STORE / IGNORE)

(NORECORD / RECORD)

(RECORD / PROTECT)

```
gRECORD  motifs
motif01   RECORD
STORE  noteoffs
NORECORD midiin
```

:Motif SCREEN 4.
Get to this screen. Select the Motif # and Protect it (or not).
In addition to <u>individually</u> protecting Motifs you can also <u>globally</u> protect them. The top left parameter on this screen will globally allow recording or globally protect all your Motifs.

PLAYING MOTIFS :

Just as there are a variety of ways to Record a Motif into your drumKAT, there are a variety of ways to PLAY back and control your Motifs.

(k01-30)   (PAD1-TRIG9)

(*Various Choices*)   (*Various Choices*)

```
k01  PAD5▮    CNTRI
MOTIF 01,▮▮,▮▮,▮▮      ← (OFF or 01-08)
INFINITE - - - - - -
gate time 0.050s
```

(INFINITE, LOOPED SLICE, ONCE)   (NO OFFs or 0.005-6.300)

:KIT EDIT SCREEN 5

This screen allows you to select a Pad or Trigger to **playback** from 1 to 4 Motifs simultaneously.

There are 4 Motif playback Modes: INFINITE, LOOPED, ONCE, and SLICE.

INFINITE :

In INFINITE, the Pad (or trigger) will toggle the selected Motifs ON and OFF. (If one of the Motifs is already ON from some other Pad and the others are OFF when the Pad is hit, then it will alternate with the other Motifs when the Pad is hit!)

LOOPED:

In LOOPED, the Motif will loop the requested # of times unless the PLAY Motif Pad is hit again during the looping which will cause the Motif to stop. If more than one Motif is controlled in LOOPED Mode, the first Motif # from left to right will be the Motif that is counted. Any other Motifs selected with it will play along until the counted one stops.

ONCE:

In ONCE, each hit of the PLAY Motif Pad will restart the Motif to play through once.

SLICE:

SLICE allows you to play time slices of your Motif with each hit. This is a very powerful feature that has a variety of uses: It can resemble a tap tempo Mode in some circumstances and can provide interesting syncopation in other circumstances. It can also result in a very long Alternating pattern. Experiment with different slices and tempos relative to the quantization the Motif was recorded under.

"**SLAVE**" means that the Motif will playback at the prevailing TEMPO that happens to exist in the drumKAT when you start the Motif. If you specify a TEMPO, the speed of the drumKAT's internal **TEMPO CLOCK** will be **changed** to that TEMPO when you start this Motif.

The size of each Motif is limited to:
Motif 1: 380 EVENTS
Motif 2: 102 EVENTS
Motif 3: 102 EVENTS
Motif 4: 49 EVENTS
Motif 5: 49 EVENTS
Motif 6: 49 EVENTS
Motif 7: 49 EVENTS
Motif 8: 49 EVENTS

An "**EVENT**" is a <u>NOTE ON</u>, a <u>NOTE OFF</u>, or <u>2.5 seconds of silence</u> (@tempo=120bpm).

More events can be stored if you SCREEN ADVance to the 3rd Motif Screen (screens under Pad 6) and select that the Motif **NOT** store NOTE OFFs. If you are playing into a drum machine in which NOTE OFFs have no meaning, this is a good thing to do. If you are playing into a synth that needs to see NOTE OFFs to stop notes from being stuck on forever, then don't select this!

WARNING: If RECORDING will not start and "**EXT**" is displayed in the "OFF" "PRE" "ON" window of the RECORD screen, then you must screen advance twice to the screen that allows you to select that the drumKAT Motifs be controlled by an **External MIDI Clock** coming into the drumKAT's MIDI LEFT Input and change the selection to "**INTERNAL**".

If you start a Motif and then advance to another Kit that Motif may continue to keep playing. If you don't have a Motif Control Pad in that Kit, you won't be able to shut off that Motif! You can choose to have all Motifs stop when you change Kits (or not).
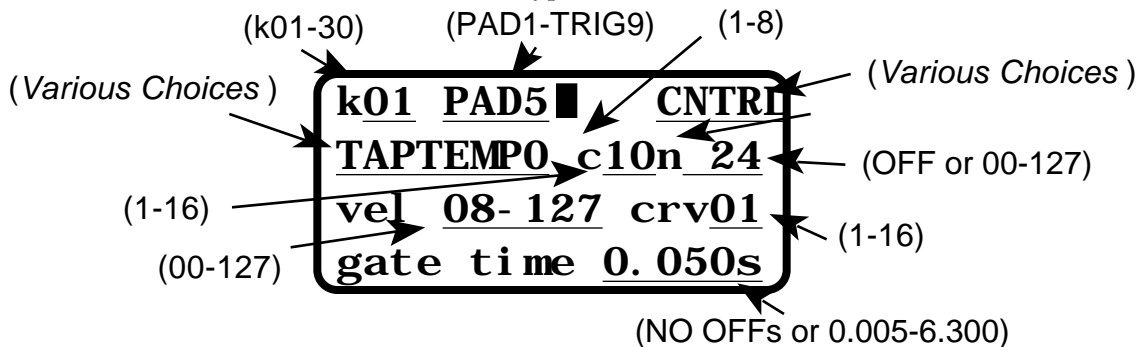See MOTIF Screen 7:

```
STOP  MOTIFS  WHEN
CHANGING  KITS?


        YES
```

(YES / NO)

:MOTIF Screen 7

<u>**TAP TEMPO**</u>:

TAP TEMPO Mode allows you to control your clock tempo by the timing you play on any Pad defined to be a TAP TEMPO Pad. Get to the 5th KIT EDIT Screen and select **CNTRL** Mode and then select Control Type to be TAP TEMPO:

(k01-30)   (PAD1-TRIG9)   (1-8)

(*Various Choices*)   (*Various Choices*)

(1-16)

(00-127)

(OFF or 00-127)

(1-16)

(NO OFFs or 0.005-6.300)

```
k01  PAD5█    CNTRL
TAPTEMPO c10n 24
vel 08-127 crv01
gate time 0.050s
```

:KIT EDIT SCREEN 5

If a Pad has been selected to be in TAP TEMPO Control Mode, that Pad sits waiting for a hit to <u>start</u> a TAP TEMPO MEASUREMENT. When the Pad is hit, the MIDI Sound selected will play (if you do NOT want a Sound to play when you are doing a TAP TEMPO adjustment, then advance the Note value to OFF). With quarter-note input (selected in the Global Screens), if a **second hit** occurs between .25 seconds (240 beats per minute) and 1.5 seconds (40 beats per minute), the drumKAT's internal **TEMPO CLOCK** will instantly be adjusted to the new TEMPO.

If an **internal Motif** is playing, or an **External MIDI CLOCK** is being sent, *their* tempo will be instantly adjusted by any TEMPO CLOCK change. Both the internal Motifs and the External MIDI CLOCK are driven by the same internal TEMPOCLOCK in the drumKAT.

Now get back to PLAY and strike Pad 1 twice at a reasonable tempo. Do two hits again a bit faster, then do two hits a bit slower. Notice that for every pair of hits the **clktempo** value displayed on the **PLAY screen** changes in response to the tempo of your pair of hits!

In the Motif Screens, you can change the TAP TEMPO to read 1/16th notes, 1/8th note triplets, or 1/8th notes, as well as 1/4th notes.

This is not intended to act as a mind reading mode where ghost notes are ignored and revolving windows allow you to play complicated patterns on the TAP TEMPO Pad and somehow only your tempo is magically extracted. This is a simple TAP TEMPO Mode where you should only hit the TAP TEMPO Pad when you actually want to dictate a change in your clock rate.

MIDI CLICK CONTROL :

The internal **Tempo Clock** of the drumKAT can drive a CLICK metronome. This CLICK gives you a Tempo reference to use for practice or for timing during a song.

The CLICK produces a click sound on the CLICK output on the back of the drumKAT, however we suggest not using that since it causes a ground connection to your mixer from your drumKAT. Instead, use a MIDI Note that is driven by the same CLICK timing. The second MOTIF Screen lets you set the appropriate settings so that the MIDI CLICK may be any sound you want:

(B,N,R,L)

(1-16)

```
CLICK= MIDI NOTE
Bch10noteC#2= 37
velocity =   64
gate time 0.085s
```

(OFF or 00-127)

(00-127)

(NO OFFs or
0.005-6.300)

:MOTIF SCREEN 2

1/4, 1/8, 1/16, 1/8T CLICK SETTINGS

The MIDI Click inside the drumKAT can be assigned to the following sub-divisions... 1/4 notes, 8th notes, 8th note triplets, and 16th notes.

(SLAVE /
NotSLAVEto)

```
Click Control
SubDiv 1/4 NOTES
SLAVE TO  RECORD
NotSLAVEto  Play
```
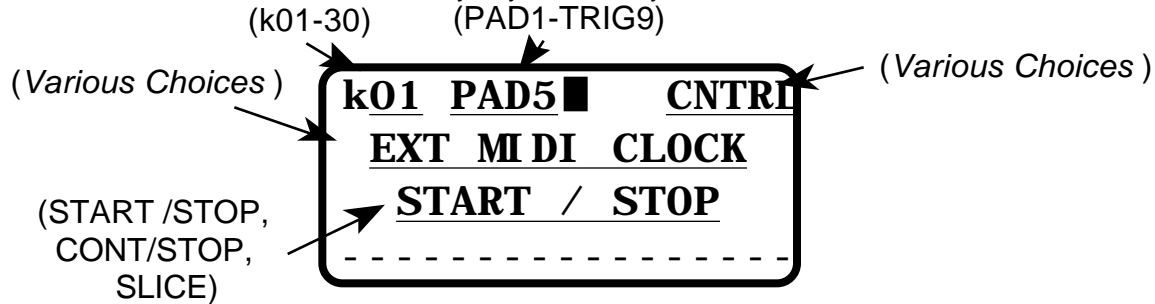
(1/4 NOTES,
1/8 NOTES
1/8 TRPLT,
1/16 NOTES)

:Motif SCREEN 3

Choose the Sub-Division you want to hear. Then choose whether you want the Click to be controlled by Recording or be controlled by Playing of the Motifs , or both, OR have the click run independently from stopping and starting of Motifs.

If you are running the Click independently, it can be turned on and off by assigning FOOT3 to control the Click. FOOTFUNCTION4 with PAD9 will also turn the Click on and off.

MIDI CLOCK CONTROL :

There is a **TEMPO CLOCK** running inside of the drumKAT at all times. This TEMPO CLOCK becomes an **EXTERNAL MIDI CLOCK** (out the Left pair of MIDI OUTs only!), controlling the speed of external sequencers, if you send a Sequence START or a Sequence CONTINUE by any of a variety of means (see index).
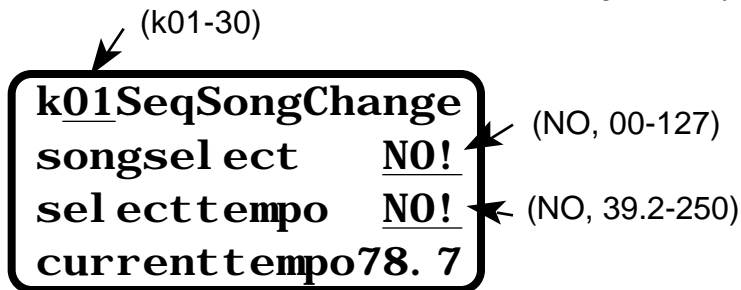
(k01-30)   (PAD1-TRIG9)

(*Various Choices*)   (*Various Choices*)

```
k01  PAD5█      CNTRL
EXT  MIDI  CLOCK
START  /  STOP
- - - - - - - - - - - - - - -
```

(START /STOP,
CONT/STOP,
SLICE)

:KIT EDIT SCREEN 5

This TEMPO CLOCK will also control the speed of RECORDING and PLAYBACK of internal drumKAT MOTIFS.

The **speed** of this TEMPO CLOCK can be **changed** in a variety of ways: by TAP TEMPO, by the starting of PLAYBACK of a MOTIF, or incrementally by Footswitch4 and Pads 7 and 8.

Also, with the following screen you can choose to have the **speed** of this **TEMPO** CLOCK change instantly when you **enter** this **Kit**.

(k01-30)

```
k01SeqSongChange
songselect      NO!
selecttempo     NO!
currenttempo78.7
```

(NO, 00-127)

(NO, 39.2-250)

:KIT EDIT SCREEN 13

You will not always want Kit Changes to change your CLOCK speed. If you don't want Kit Changes to change your CLOCK speed, then select "NO!" here and SAVE the Kit.

Also, you may have the drumKAT respond to *someone else's* MIDI CLOCK that is coming in your Left MIDI IN. See MOTIF Screen #5.

If your drumKAT is set to be synced up to an external MIDI clock, the PLAY display will show you this...

```
* PLAY MODE ON *
 k01 General Midi
SONGMODE IS OFF
clktempo = EXTbpm
```

: PLAY SCREEN

If one is not coming in your Left MIDI IN your Motifs won't do a thing.

SONG SELECT:

If you have a drum machine that allows you to store different songs, you may want to send a sequence start to start these songs from the drumKAT. Now you can select a different one of these Songs each time you enter a drumKAT Kit.

The Song Select Number will be sent whenever you enter this Kit.

(01-30)

```
k01SeqSongChange
songselect      NO!
selecttempo     NO!
currenttempo78.7
```

(NO or 00-127)

(NO or 39.2-250)

:KIT EDIT SCREEN 13

1) Select the Kit #.
2) Select which Song # you want the drumKAT to send.
3) Select the Tempo you want the song to play at.

Now, as you step through your Kits, different Songs can be called up on your sequencer. Different Tempos can be sent as well.