



POWER USER

MUSIC PRODUCTION and PERFORMANCE With the Motif ES

RECORDING PERFORMANCES TO THE SEQUENCER

A Step-by-Step Tutorial

Skills Learned

- Learn about how analyze a Performance
- Gain an understanding of how Performances are placed into MIX PARTS
- Understanding the recording of the Arpeggio to the Sequencer
- Copy a Performance to a Pattern Mix
- Record a 3-Part Performance to a Pattern w/Arpeggio
- Reassign MIDI channels to Parts of a MIX
- Learn about Pattern mode: PHRASE VOICE/TRACK VOICE

Phil Clendeninn
Senior Product Specialist
Technology Products
©Yamaha Corporation of America

Performance

A Performance can be up to four VOICES layered and/or split on the keyboard simultaneously. Often five different arpeggios are associated with the Performance - they can be responsible for a drum grooves or guitar arpeggios or maybe even several different bass lines. The Sub-Function (SF) buttons allow you quick, real time access to the associated arpeggios. If you decide that you want to record yourself playing this complex setup you must be aware of how this will translate to a Song MIX or Pattern MIX. As mentioned you are playing up to four *different* complete Voices at one time. The Part or Parts that are assigned the arpeggio are not directly following your note-ons. Oh, it is responding to the notes that you finger all right but it is just using these as input to do what it does. In the case of a set of drum grooves, for example, the drum patterns are simply triggered (started) when you touch the keys. It is following a predetermined FIXED NOTE pattern. You are not literally "playing" the drums. In the case of a set of guitar patterns, the guitar Part is not responding directly to your note-ons (one for one), the notes that you are holding influence/determine the pattern. It is doing a scan or 'search' and is responding to the notes you are holding. You are not literally "playing" the guitar Voice directly. If you were to press the ARP ON/OFF button to stop the arpeggio, then you would be playing that Part directly from the keys. This obvious difference between you playing and the arpeggio playing a Part must be appreciated for you to understand how to record this type Performance. In short, you are not "playing" the arpeggio Part - the arpeggiator is. Stated simply: The PART assigned to follow the arpeggio data, can follow your direct commands (ARP OFF) or the arpeggiator's commands (ARP ON)...but not both simultaneously - this is how an arpeggiator works. This will come into play a little later.

All the PARTS in a Performance are all on the same MIDI channel - this is how they respond to MIDI channel messages like PB, modulation, Volume, etc. Even the arpeggio Part is on the same MIDI channel only its notes go through the arpeggiator before they arrive to trigger the Voice. If you are new to MIDI the significance of this fact may not have the full meaning, but what it means is that you will have to record your Performance in two separate passes. Think about it, the arpeggiator is speaking to just the PART assigned to it - while the others are played in a one-for-one manner, directly by your note-on events. Therefore, you will have to separate the arpeggio Part from the other musical sounds when attempting to record. The Motif sequencer can record your note-ons (of course). It can record

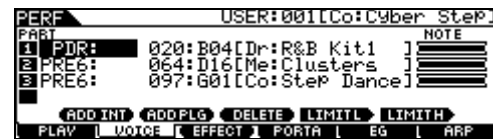
the output of the arpeggiator (of course). But it cannot record them both at the same time while you play. It must be set to record either your playing or the playback of the arpeggiator. This is true and always true. However, if you follow this tutorial, you will see that it 'feels' exactly the same as when you play the Performance.

COPY PERFORMANCE to MIX mode and Record it to a Pattern



Let's use a specific Performance as an example and take a close look at it so that you can learn how all this happens. Recall the first Performance "USER:001 (A01) Co: Cyber Step" and let's analyze what is going on.

- To do this, press the F2 VOICE button.



Here you will see that this Performance is made up of three PARTS. "Parts" are Voices that are assigned to a Performance (or MIX). The Voices themselves can be found in Voice mode - they are combined in this Performance on a single MIDI channel (so that you can play them all together). PART1: PDR: 020: (B04) "Dr: R&B Kit 1" PART2: PRE6: 064: (D16) "Me: Clusters" PART3: PRE6: 097: (G01) "Co: Step Dance"

INSERTION EFFECTS are set in Voice Mode

With a little more curiosity and investigation (looking up the VOICES in their Voice mode locations) you can discover that the following Dual Insertion effects are assigned to these Voices: PDR: R&B KIT 1: None

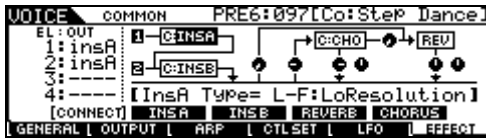


ME: Clusters found in Voice Mode at PRE6:064 (D16): **INS A** is a 2-band EQ and **INS B** is a Tempo Cross Delay





CO:Step Dance: PRE6:097 (G01): **INS A** is LoResolution and **INS B** is Vintage Flanger



In other words, by actually going to Voice mode and recalling each individual Voice to see how it sounds and plays as an individual will give you a better perspective of how they change when combined in a PART of a Performance, and then ultimately as a PART in a MIX.

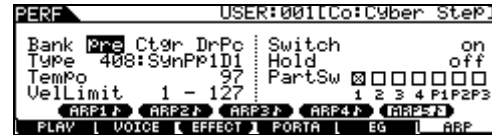
The Dual Insertion effects (which are real time controllable) are a part of the Voice. It is selected and programmed in Voice mode. And will be available in a Performance or Mix, if you activate the INSERTION Switch. All four Parts of a Performance and any eight Parts of a Mix can have their Voice mode Dual Insertion effects active.

The other two Voice mode effect processors are the Reverb and the Chorus – these become the System Effects for the entire Performance or Mix. Each PART of a Performance or Mix must *share* the System Effects, although each Part will have an individual send amount control. The example (analogy) in the non-electric world I like to explain this is as follows: Let's consider the Reverb System effect. Reverb is technically speaking the decay in sound after the signal source has stop generating sound. It is the acoustic environment – influenced by the size, shape and materials of the space the sound takes place in. A musician practicing the acoustic guitar at home in his or her room plays within the acoustics of that room. When they go to the studio or club, they do not 'bring' the room from home. They must *share* the acoustic environment with the other musicians. If you like the particular settings for Reverb and Chorus of a Voice, you can COPY those to the current Performance or Mix, but all the other Voices will share them as the overall System Effects for the Performance or Mix.

Back to our Performance

Let's continue our analysis of the Performance by viewing the Arpeggiator setup.

- To do this, from the main Performance screen press the F6 ARP button.



Here (the quick edit view) you can see that this Performance is associated with 5 different arpeggios – as you press a SF button the arpeggio's Bank and Type will be recalled. This is accomplished by selecting one of the more than 1700 arpeggios, and then holding STORE + Sub-Function button [SF1-5]. Initially when recalled the Performance is set to play ARP 5: Bank is 'Pre' (preset bank), Category is 'DrPc' (Drum/Percussion), Type is '408 SynPp1D1', Tempo is '97 BPM'¹ and Part 01 is set to be triggered by this arpeggio. However if you use the SF (Sub-Function) buttons you will see that they select four other arpeggios type 421, 416, 409 and 407. As you play you can trigger these buttons to recall the "Next" arpeggio. The switch is made at the top of the next measure so the transitions can be smooth.² Try this out. You may want to activate the HOLD switch to latch the drums ON so that you can remove your hands from the keyboard and have the drum pattern continue. This is your choice. If you prefer the HOLD function ON, set it to ON and press STORE to store this to the Performance. Recalling variations on the Arpeggio patterns can be accomplished in real time and, yes, this can be recorded into the sequencer. This will allow you more real time access to building a drum track by mapping/recording it before laying down your musical parts. We refer to this as "painting" – as in, you are *painting* the track with these phrases.

Let's continue our analysis of this Performance by viewing the overall Information on this Performance.

- To do this, press the INFORMATION button.

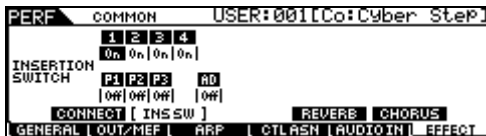


¹ The Motif ES clock will determine the TEMPO of all selected arpeggios – therefore all arpeggio patterns within the same Performance will share the same tempo. However you can offset the tempo via the UNIT MULTIPLY parameter found on the full edit screen. Press EDIT→ press COMMON→ F3 ARP→ SF3 PlayFX.

² Alternatively, you can select "realtime" transition – this is set in full edit).

Here you will discover what PLGs you have installed (if any), on what PARTS the Dual Insertion Effects are being recalled (a dark box means that the Dual Insertion Effect is activated for that PART) and you can see to what algorithms the System Effects (Reverb and Chorus) are set.

In this case the 4 internal PARTS have their Dual Insertion effects active – but this Performance has only three PARTS! Well, if you were to add a layer to this Performance it is already set to recall its Insertion effect (think about it – it is the way you want it). The Reverb is set to the new and powerful “R3 Hall 1”. The ProR3 is a very powerful 32-bit Yamaha studio effect processor from which these algorithms were derived. And the Chorus is set to “Tempo Delay 2”



Armed with all this information we are now prepared to appreciate just how much data is copied to the MIX when we perform the PERFORMANCE COPY routine. Without this next function you would have to get a piece of paper and write down all the different settings and recreate them in the Song MIX or Pattern MIX each time you wanted to build a song or pattern around a Performance. I should also mention here that not all parameters of a VOICE are maintained when you place it in a PERFORMANCE PART or a MIX PART. In fact, some data is routinely stripped off of the VOICE and/or returned to a default setting in the PERFORMANCE or MIX. As mentioned, eight PARTS will be able to recall their DUAL INSERTION effects from Voice mode (the other eight Parts will have them stripped off). The Arpeggio Switch is set to OFF and no particular arpeggios are assigned to an init mix. Note Limits are returned to full range, Velocity Limits are returned to full range, and the overall Voice Volume is set to a default value (100) for all Parts. However, when you COPY data from a Performance into a MIX much of the Performance settings are maintained.

SELECT A BLANK PATTERN

Go to the PATTERN you want to work with (this will also work for Song mode). We will use a Pattern as an example because there is a few additional considerations that are specific to Pattern mode that need to be pointed out. In order to use the Performance Copy function you should be working on a blank pattern, since the function will copy the Performance mode Parts to

the first locations of the MIX starting at PART 01.³ Because our example has three PARTS, it will overwrite the data for the first three PARTS of the current PATTERN MIX.

- Press PATTERN and select a blank Pattern
- Press MIXING
- Press JOB
- Press F5 PF COPY



Here you can select any Performance from which you want to copy data. Use the cursor arrows and Data Wheel to make your selection. Place a mark in the box next to each feature you wish to copy from the Performance: REV, CHO, ARP, and the INSERT EFFECT SWITCHES (as shown above).

- Press ENTER to execute the Copy

All three PARTS and their data have been copied to the first three PARTS of the mix respectively. 'DR:R&B Kit 1' on PART 1, 'ME:Clusters' on PART 2 and 'CO:Step Dance' on PART 3.



Now when you select Track 1 you can play them all (they are all currently assigned to be played from Track 1). If you are unclear on the difference between a PART and a TRACK – let’s clear that up right now. A PART is a set of parameters that control a VOICE assigned to a PERFORMANCE or a MIX.

- A Performance has up to 4 PARTS - you can place a VOICE in each PART. All the PARTS of a Performance are on the same MIDI channel.
- A MIX has up to 16 PARTS; you can place one VOICE in each PART. Each PART receives on a selected MIDI channel.

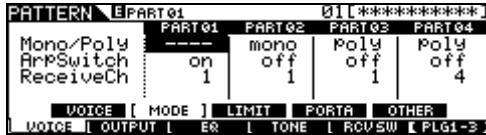
A TRACK, on the other hand, is a function of the sequencer – it records data and plays it back. The PART (VOICE) makes the sound. The data on a track is always MIDI data, like note-ons, and controller values. A Track transmits on a single MIDI channel. It can transmit, as in this case, to several MIX Parts. In default condition the

³ If you are working on a pre-existing MIX use the EXCHANGE TRACK functions to clear room for the PF COPY function to work with the lower number locations.

sequencer typically transmits on 16 MIDI channels.

As you now know we have just copied three PARTS to the same MIDI channel. Let's see:

- Press MIXING
- Press EDIT
- Touch TRACK 1 to select PART 01
- Press F1 VOICE
- Press SF2 MODE



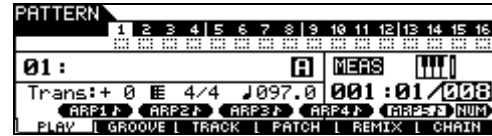
Here you can see that the first three PARTS are all set to receive on MIDI channel 1. So if you select TRACK 1 (TRACK SELECT button lit) you will be playing all three PARTS that we copied. (Digest that if you are new to MIDI). Currently, if you were to select Tracks 2 and 3 you would hear *nothing* because there are currently no PARTS assigned to receive MIDI channels 2 and 3.

Okay, select Track 1 and play. Ooops! What's up, it sounds too fast. Correct! The original tempo of the Performance was 97 BPM and the default tempo for a blank Pattern or Song is 120. Adjust the tempo of the PATTERN (or Song) by pressing the PATTERN button to return to the main PATTERN screen and cursor to the TEMPO parameter and set it to 97. We are almost ready to get to the recording phase of this tutorial. If you are following our tutorial step-by-step, and you are set to record in PATTERN Mode, I mentioned there are a few considerations specific to PATTERN mode. We need to tell the sequencer how many measures we intend to record prior to recording. The recordings in a Pattern "cycle" around as opposed to the linear nature of a Song track – in order for the sequencer to 'know' when to start repeating you need to tell it how many measure you intend to record. (In song you just play until you get tired or you reach measure 999, whichever comes first).

- On the main PATTERN screen move the cursor to the Measure Counter's Length parameter. The default Length is 004 – it can be set to any length, **per Phrase**, from 001-256 measures.⁴ Set it to the number of measures you wish to record. Default 001:1/004 For

⁴ That's right, each track of a Pattern Section can be a different Length. This allows you to overdub a long guitar solo over a 4 measure drum loop or sing a long vocal passage on one track while the other tracks loop an 8 measure vamp.

our purposes set the record Length to 8 measures: 001:1/008



- Press RECORD. The Record Setup (F1) screen appears and "REC" appears on the top line.

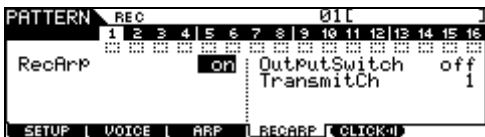


Here we will tell the sequencer what we plan on recording and how. If you can remember all the way back to the start of this article, you realize that the sequencer can record *either* what we play as note-ons on the keyboard **or** it can record the output of the arpeggiator, but not both simultaneously. So here is what I suggest you do. Record the drums first (this is a pretty standard tactic anyway). You can play along with it (although the sequencer will be ignoring you, you can use the pass to practice what you are going to record on the real take). In order to set the sequencer to record the drums here is what you must do.

- Select either 'REPLACE' or 'OVERDUB' record TYPE
- Turn LOOP = OFF. Loop recording is one of those Pattern mode items that really gets in the way when attempting to record arpeggios. It is *highly* recommended that you turn it OFF while attempting to record the output of the arpeggiator – this avoids completely any double notes at the cycle point.
- Set the Quantize parameter as you want. Quantize will automatically force notes to the selected musical value. Your choice. Hint: when recording guitar strum arpeggios you will most likely want to keep the quantize set to OFF because the strumming effect depends on subtle offsets to clock timing.
- Double check your TEMPO – should be 97.0
- Press the F3 ARP button and review your Arpeggio settings (these were copied with the PF COPY function). You can decide to set the HOLD function – this means you do not have to keep your finger on a note during the recording.



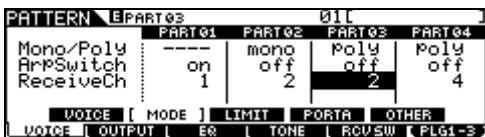
- Press F4 RECARP (Record Arpeggio) button and switch the function ON. This will mean that it will not record your keyboard note-ons but will record the output of the arpeggiator (the drum groove) to track 1.



- Press PLAY to start the one measure (default) count-in. You **must** play a note on the downbeat for the arpeggio to play in time. The recording will begin after a 4 count – with ARP#5 active. You can play along if you'd like to – remember it is not recording the keyboard on this pass, just the drums. Let it play for 7 measures. During measure 7 press the ARP#2 Sub-Function button to select ARP 2 as NEXT. When measure 8 begins ARP 2 will play measure 8 (like a fill-in). The recording will automatically stop at the end of measure 8 (LOOP = OFF).
- Turn the ARP ON/OFF switch to OFF. Please do not forget to do this, as you will be arpeggiating the arpeggio (which is not recommended).

Normally, here I would tell you to “play it back” to see if you were paying attention. If you do you will hear a disaster. All three sounds will be playing back the drum part. Well, duh...all three sounds are on MIDI channel 1. **Before** playing back you must edit your MIX and place the “CLUSTER” and the “STEP DANCE” sounds to MIDI channel 2. Here's how:

- Press MIXING
- Press EDIT
- Touch TRACK 2 to select PART 02
- Press F1 Voice
- Press SF2 Mode



- Set the MIDI Receive channel for PART 2 to Channel 2
- Set the MIDI channel for PART 3 to Channel 2

- Select Track 2. Now when you play from Track 2 you will hear both PARTS 02 and 03 (Selecting Track 3 will not let you hear PART 03 because PART 03 is assigned to playback through Track 2 – which is set to Channel 2). See how it works?
- Record on Track 2 overdubbing your musical part to the drum groove. Remember you can set the Length of this new Pattern Track prior to recording it. If you want to record 48 measures you can, if you want to record 4 measures you can or if you want to record 8 measures you can (it is currently set to eight – because it remains at the last value you set). Just set that length (on the main PATTERN screen) **prior** to pressing the record button.
- Overdubbing the two, layered musical sounds to the drums should ‘feel’ just like playing the Performance...remember you weren't really “playing” the drums anyway, the arpeggio was. The sequencer is playing back the drums while you play on top with the two-layered Parts. It is much more complicated to explain all this than to do it. But by going through this exercise you have gained many of the skills required to make your own Performances and Mixes and that was the purpose of this article.

Summary

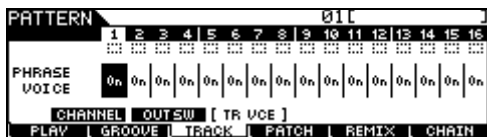
We took the extra steps here of analyzing the Performance prior to recording it. We looked at the VOICE layout, we viewed the arpeggio assignment, and we looked at the overall Information of the Performance. It is a very important step when attempting something crafty like this. If you had programmed the Performance yourself, then you would already be aware of what Voices are used and how they are programmed and assigned. When you are using someone else's Performance, I highly recommend that you do the analysis. Think you've got it down? Try User Performance 015 “Co:HoodBeater”. This one is a bit tricky because there are two PARTS following the arpeggio (there are two drum kits layered – rather a unique setup but very effective – pun intended).

PATTERN MODE Specialties

We also learned some things about Pattern mode and setting the Length of the recorded Phrase. Phrases are an important part of the Pattern mode concept. At first, many users are confused by the Pattern mode structure but you will come to appreciate it the more you use it. Phrases contain a bunch of information stored so that Pattern Sections can repeat seamlessly. A Phrase has a length that can control when it starts over (we talked about how this is different than a linear

Song mode track). All the measures of the Phrase are the same Tempo and the same Time Signature (if you say, "Of course they are" – then you must realize that in Song mode all the measures of a Song do not have to be!!!) This timing information, contained in the Phrase header is necessary for the sequencer to repeat the phrase in a timely fashion. You have 16 Tracks and each track can contain one Phrase per Section. Each track of a Pattern Section can be a different Length (and Time Signature) if you wish. This means if you are doing dance music and need a "four-on-the-floor" kick drum phrase, you only need record it for a Length of 1 measure, 4/4 time and that Phrase will repeat. More would be wasteful. Against that you can play a 16-measure bass line, a 12-measure guitar part, a 4-measure snare drum part, an 8-measure hi-hat part, etc., etc. Then you can overdub a 56-measure synth solo...hey it is up to you. If you want all phrases in a Section to be the same length – well, of course, you can do that. The Motif ES sequencer allows for nested looping - tracks of various lengths – this means your Sections do not have to sound exactly the same every time, they can evolve. Think outside the box! Because the Length of a Phrase is stored in the Phrase Header (a special location for all this data), you cannot simply lengthen or shorten the Phrase. You can, however, APPEND (add to) or SPLIT (divide) Phrases as necessary with a PATTERN MODE JOB. This affectively *rewrites* the phrase header information.⁵

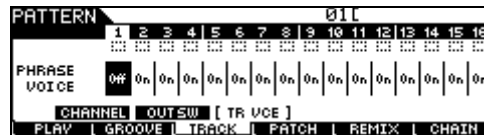
Additionally, Pattern Tracks default to memorizing the sound that you used to record them. This is an important function also stored in the Phrase header, especially when you are recording audio (sampling) to a track. This means that the sequencer will always remember what sound was used when you recorded the Phrase. This function uses what is called TRACK VOICE/PHRASE VOICE. Of course, if you change your mind about the sound, you can change it. The TRACK VOICE parameter can be set per track. From the main PATTERN screen press F3 TRACK/ SF3 TR VCE.



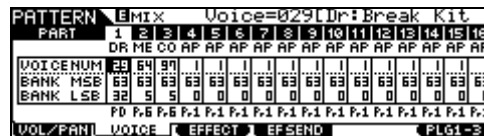
Basically when set to ON the PHRASE VOICE applies – the sound that is registered in the current Phrase's header. This means that on track

⁵ Alternatively, if you use the COPY EVENT Job you can increase the length of a Phrase.

1, in Section A you could use R&B KIT1, and in Section B automatically switch to Break Kit. Each Phrase can automatically recall a different KIT – simply select that kit prior to recording – and it will be written to the Phrase header.



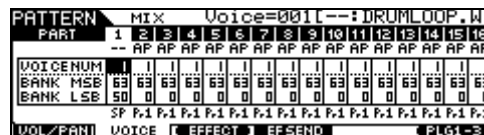
When set to OFF the TRACK VOICE applies – this is the Voice you select on the MIXER. It will apply to all Phrases placed on track 1. That is, Phrases for all 16 Sections on track 1. Therefore, if I wanted to change the kit to Break Kit for all Sections, I would set the Phrase Voice to OFF and navigate to the MIXING Voice select screen and change the sound assigned to PART 1. Try it...



Once I make a change to the Mix view, I would STORE the MIX. If you left the "PHRASE VOICE" parameter ON for a track, you will notice that your changing the MIXER is only temporary. When you moved away from this Pattern Style can returned later – the Voice will have mysteriously reverted back to the original Voice you recorded it with. Now you know why!

Understanding: Track Voice / Phrase Voice

This PHRASE VOICE/TRACK VOICE function is really necessary when you sample. Recording audio to a track of the Motif ES is about creating a user Sample Voice for each recording. These User Sample Voices are created in a special Bank MSB/LSB 63/50.



Each sample you do will increment to the next Voice number (see screen above for the VOICE NUM, BANK MSB, BANK LSB identifications). Phrase Voice is what allows the Motif ES to keep track of what sample Voice goes with what MIDI trigger data. You see...you do not really record audio to a track – that is just an expression. All tracks of a sequencer *always* contain MIDI data – think about it – you know that. On the track is a MIDI note-on event that triggers playback of

audio. The audio is contained in a Voice. The Motif ES' - ISS (Integrated Sampling Sequencer) can automatically place the MIDI note-on trigger events when you sample. The "Sample+Note" and "Slice+Seq" sampling types automatically create the note-on data based on either when you trigger sampling or by punch in/out points or by analyzing where the slice segments occur to a resolution of 480 pulse-per-quarter note. The note-on data is precisely timed to trigger the playback of the audio perfectly. It is the Track Voice/Phrase Voice function that allows this to work – as it always keeps track of what sample data goes with what MIDI data (what Voice goes with what Phrase) – it's a no-brainer. Without it, you might record yourself singing on Track 1 of Section A, using the Sample+Note sampling type. This would create a note-on to trigger the playback of you singing the Verse in Section A. You are happy with your performance and the sequencer has automatically created a User Sample Voice (63/50 location 1) for this sample of the Verse. You then call up SECTION B, which you want to be the Chorus. Of course, you are setup to record on track 1. You go ahead and record yourself singing on track 1 Section B. Without the PHRASE VOICE parameter being ON, then User Sample Voice 63/50 location 1 would apply and you would hear the Verse instead of the Chorus you just sang. However, if Phrase Voice is set to ON, the ISS will automatically place a marker in the Phrase header reminding it to recall USER Sample Voice 63/50 location **2** anytime this Phrase is recalled. Smooth! Even if you activate this Phrase in another Section – perhaps by the time you get to Section K, you realize that the vocal should be exactly the same over a slightly different music bed, you can activate this user Phrase number in Section K using the Pattern mode's PATCH function. It will automatically recall the correct sample with the Phrase, automatically, no matter what track or Section you recall it in. Very Smooth!!

Phil Clendeninn
Senior Product Specialist
Technology Products
©Yamaha Corporation of America