

y POWER USER

MUSIC PRODUCTION and PERFORMANCE
With the Motif

MASTER CLASS SESSION: RESAMPLING

A Step-by-Step Tutorial

RESAMPLING WITH THE DUAL INSERTION EFFECT

Skills

- Learn about how VOICE mode uses the EFFECTS
- Select Voices - create a Pattern Section - apply the Insertion Effect to a MIX Part
- Setup to RESAMPLE using MUTES and SAMPLE+NOTE function
- Learn how to optimize each track with the full power of the on-board Effects

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The Problem: How do I get Motif Voices to sound the same as they do in Voice mode when I put them in a MIX?

If you have asked this question, then this article is for you. To begin let's start with why a Voice sounds different when you activate it in a MIX. Voice mode is where the individual instruments reside – each instrument can be a combination of 4 multi-samples (Elements). Voices combine to make a Performance. PERFORMANCE mode is *single* channel multi-timbral – you can split/layer up to 4 Voices. And MIXING represents the Motif in *multi*-channel, multi-timbral mode. A MIX can contain up to 16 VOICES simultaneously. The difference in how a Voice sounds when placed in either a Performance or a MIX has to do with allocation of the Effect Processors in the different modes.

The four principal modes:

Voice Mode: This is the principal Playing mode. The Effect routing, as we will see, can be very complex and is where the programmer's spent many hours finishing each Voice with effects and controller sets that allow you to real-time control those effects.

Performance Mode: These are like mega-Voices because they combine up to 4 Voices. This is where you would expect to find the obligatory layer combinations and splits.

Song Mode (the setup is called Mixing): This is where you can use the sequence recorder to create a linear MIDI/audio composition.

Pattern Mode (Mixing): This is where you can construct your music in cycling Sections that can be real time arranged.

Let's take a look at each mode from the point of view of the Effect processors.

Voice: Reverb, Chorus, and Dual Insertion

Performance: Reverb, Chorus, and Variation - plus 1 Part can recall its Dual Insertion routing from Voice Mode

Song/Pattern Mixing: Reverb, Chorus, Variation, plus 1 Part can recall its Dual Insertion routing from Voice Mode

The article "Introducing Motif Effects"¹ talks in depth about each mode and the access to the Effects – it is required reading for more background information. In brief:

¹ This article can be found in the Behind the Manual Section of the Motifator website.

- **In the VOICE mode:** There are up to 4 Elements (multi-sampled instruments) in a Voice. They can be individually assigned to the INSERTION EFFECT block, which is a dual block (INS1 and INS2) that can be routed in series or in parallel (see the routing as 1 → 2, 2 → 1 or parallel). Each Element has a signal path connection to the Insertion block – you can choose to activate or not. The two System Effects (reverb and chorus) each have their own send levels for the entire Voice - all elements together (not a *per* element on/off setting like the Insertion effects). Then the entire signal goes through the Master EQ (a 5-band EQ) then on to the stereo output. An important thing to understand about the VOICE mode effects is that it is the *Insertion Effect assignment* can be recalled for a particular Part when that Part is used in a multi-timbral setup in SONG/PATTERN mode or in PERFORMANCE mode. The System Effects are lost when you place the VOICE in a multi-timbral setting.

A Voice, in Voice mode, has access to the 2 System effects, and a Dual Insertion Effect (always treated as a pair). The System effects are: A Reverb processor (12 room simulations), and a Chorus processor (25 time delay effects). The Elements (multi-samples) of a Motif Voice are all sent through the "System" effects together as a group. The amount sent is controlled by the Rev Send or Cho Send parameters. The powerful Dual Insertion Effect processor has a more **intricate** relationship with the Voice structure. Each Element of a Voice can be routed individually to one, or the other, or neither, or both of the Insertion effects. The Dual Insertion Effect in the Motif is of the quality and depth that you would expect to find in a separate, professional rack mount unit. It is made up of two processor units – a 'small' unit (INS1 with 25 types) and a 'large' unit (INS2 with 104 types). Naturally, the programmers of the preset Voices used this processor set to give certain Voices extra **personality**. By that I mean, any crunchy, distorted guitar sound, naturally, requires a "big assist" from the Dual Insertion Effect processor – without the effect the sound is wimpy. And as we will see they also programmed MIDI controllers to interact with the Effect algorithms. In Voice mode the programmers could route one Element into one processor and another Element into the other, as required by the Voice they were making. You can route signal to the two units in parallel (side-by-side) or you can route to them in series (one into the other 1→2 or 2→1). These

are some powerful effect algorithms. The Amp Simulator effect type, for example, is based on physical modeling of classic tube amplifiers and speaker cabinet types. You would be crazy as a programmer not to take advantage of the effects to enhance the Voice. Certain Organ sounds would be like “no where” without the Rotary Speaker effect – again found in the Insertion Effect. The Rotary Speaker effect algorithms in the Motif are powerful enough for their own article. For a complete listing of the Effect algorithms and the parameter ranges available see the DATA LIST booklet that accompanied the Owner’s Manual.

SUMMARY: When you switch from Voice mode to either a Performance or to a Mix, the same Reverb, Chorus and Dual Insertion Effect processors are available – the way you are connected to them is a bit different. Only one of the Voices can recall its complex Dual Insertion Effect setup from Voice mode. The Reverb and Chorus processors become configured as “System” effects. Where in Voice mode the send amount represents all Elements together, when you go to Performance or a Mix each individual part has a send control **to** the System processors and the return **from** the processor is a composite single that is mixed to the stereo output.

However, there is one more thing to consider: both Performances and Song/Pattern Mixes have access to an additional processor – one that was not available in VOICE mode. It is called the VARIATION processor. Now let me try and make this real for you: It is called Variation because you determine whether it joins the SYSTEM effects (the Reverb and Chorus) or it is used as an additional INSERTION Effect – it all depends on how you route signal to it. The Variation processor has identical algorithms (25) to the ‘small’ Insertion unit, INS1.

The VARIATION processor can be configured so that you can feed signal to it in the manner of a System Effect (via a Send and Return scenario) or you can configure it as an additional Insert Effect by manipulating the DRY LEVEL of the particular PART you want to send.

System Effect: works like the “aux send” on a console. You send a portion of the signal via an auxiliary send knob to a bus that is connected to an off-board effect, like a reverb. The signal is returned to the stereo mix. The stereo return in

such a scenario is a composite of all the different parts that are sent in. Were you to hear the RETURN from a reverb isolated, it would sound like the band was off in the distance – it would be a mix of all of the different channels that were sent via the channel sends. The effect signal is called “wet”. The DRY signal is the portion of the signal that did not go through the processor.

Insertion Effect: works like a situation where “all” of the signal of a source goes through the processor. Think of a situation where the channel flow is interrupted and the entire signal is routed through a device like a compressor – an “insert” or patch point in the signal flow. Typically the return signal is not a composite of many channels, it is just the one sound returned in line.

One key difference between System and Dual Insert in a synthesizer control context: the Dual Insertion Effect is likely the one that you would want to control in real time, during a playing performance. Think about it this way, a System effect, like “reverb”, is a representation of the “room” the musicians are in. You are not likely to change this in real time during the performance. However, a rotary speaker, or a guitar amp simulation, a vintage distortion, etc., etc., these effects you may want to assign a MIDI controller and manipulate certain parameters *during* the performance. In this manner the Dual Insertion Effects have an intimate relationship with the VOICE – it becomes like part of the Voice. The Dual Insertion Effect parameters can be assigned to MIDI controllers directly via the Control Sets found in **Voice mode** EDIT/Common/F4 Ctl_Set. These assignments will be applicable in a MIX, when you select the PART to recall the INSERT EFFECTS. We will see how this is done. The active Part will have its MIDI controller assignments active, as well.

If you want to configure the VARIATION processor as an additional Insert effect, you must manipulate the Variation send control to 127 (maximum) and the DRY LEVEL send control to 0 (minimum).



The Variation Send and DRY LEVEL parameters are found as follows: From the MIXING screen press F4 EF SEND – here you have a series of knob icons that represent your various sends. Maximizing the VAR SEND and minimizing the DRY LEVEL has the same effect as interrupting the signal flow and routing 100% of the signal to the processor. (Within the processor you

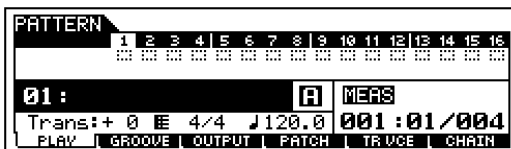
can manipulate Wet/Dry balance, if and when necessary). Although you can mimic the routing to make this behave as an additional Insert effect, you will not have the ability to control it real time via MIDI controllers (because it was unavailable for Voice mode). Real time control is one of the key advantages of the Dual Insertion Effect. If you need more background on the Variation processor please see the "Introducing Motif Effects" article.

Okay for the background, so how do I get my music to sound as if more than one sound is recalling its "personality" from Voice mode? The answer, if you haven't got it by now, is RESAMPLE, set the sound up as you'd like it to sound – apply all the effects to it and re-record it. RESAMPLE is the art of bouncing or re-recording MIDI tracks turning them into audio tracks. This is all done in the digital domain (where there is negligible quality lost). Specifically, here we will take tracks that were originally recorded as MIDI data and convert them, one at a time to audio tracks. The idea is to record them first as MIDI data, take advantage of the tools MIDI supplies us, dress the sound up with effects and then resample it.

In this tutorial we will take you through the process. First, we will select some Voices, exploring what makes them tick and then assemble them into a MIX. Then we will RECORD a User Pattern (create Phrases), resampling specific tracks as we go to create audio versions of our MIDI phrases, and finally we will PATCH them to create different musical Sections.

In order to follow along with this tutorial you should have expanded your Motif with SIMMs RAM (non-expanded machines will undoubtedly run out of sample memory). Follow the examples here closely before trying your own selections – this way you are sure to see the points that are made. I will try and make it worth the trip. You should start with a blank Pattern or CLEAR one, so that you do not inherit anything that you do not know about.

The Main Pattern Screen:



TR VCE or Track Voice parameter should be ON for all tracks. This parameter is found from the main Pattern screen when you press F5. TRACK VOICE ensures that when a Phrase is recalled it will recall the Voice that it was recorded with – this will allow us to activate Phrases on any track and still have each Phrase recall the right sample Voice or internal Motif Voice that it was recorded with. This is *critical* when working with sample data – and we will be, when we resample. Each audio sample is placed in a different Pattern Sample Voice – and the correct one must be recalled for the data to play properly. What we refer to as an "audio track" is, in fact, a Voice that is triggered by a note-on event – much like every other sampled sound. Because the audio track can contain a long continuous piece of audio means that there is a MIDI note being "held" for as long as the audio clip lasts. As you will see the Integrated Sampling Sequencer will automatically create the MIDI note-on data necessary to trigger and hold the audio sample when we set up to record.

But first...let's start from VOICE mode...because this is typically where you would make the decisions about what sounds you are going to use.

Analyzing Effects in VOICE mode

Let's dig in and analyze a single Voice, in Voice Mode, particularly its effects – following the signal flow chart. We will select one that will definitely be a candidate for RESAMPLING because it gets so much of its *personality* from the DUAL INSERTION EFFECTS. So let's learn how to take a Voice apart – and really look at its Effects – up close.

- Select PRE 1:035 (C03) Kb: Touch Clavi



- Press the INFO button to learn about this Voice:



This Voice is in bank 063/000 (PRESET1 to the front panel), is a single Element, it is in poly mode, no Portamento, and has the default Pitch Bend values (up and down a whole step). The Clavinet sound has a Touch Wah (INS1)

and 3-Band EQ (INS2) assigned from the Dual Insertion Effect. REV ROOM 3 and PHASER1 are selected for the System effects. With a little further investigation we learn that this Voice has some unique controller assignments. Navigate to the COMMON mode Control Sets:

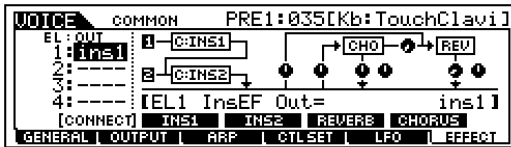
- Press EDIT
- Press COMMON
- Press F4 CtlSet
- Use SF1-SF3 to view the assignments



In the diagram above you see Control Sets 1 and 2 (SF1). The Modulation Wheel has been programmed to control initial cutoff and resonance parameters of INS1 – the “Touch Wah” effect. Explore the other Control Set to see the other assignments. These assignments will be available when this Voice is placed in a MIX **and** the INSERTION EFFECT is activated for the PART in which the “TouchClavi” Voice is placed.

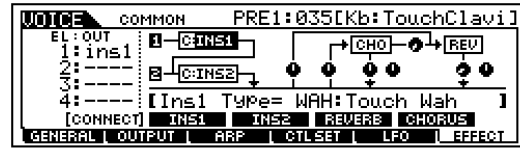
From the main Pattern Screen navigate to the EFFECT routing screen, as follows

- Press EDIT
- Press COMMON
- Press F6 Effect
- Press SF1 Connect

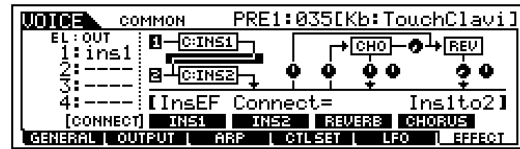


This screen shows the internal routing, left-to-right, of the signal as it goes from each element (left column) through the effects (boxes) and on to the output. The knob icons represent SENDS (up) and RETURNS (down) and PAN. Notice that Element 1 (the only element in this particular Voice) is routed to INS1. (If there were other elements they would be listed next to the numbers 2, 3 and 4 and could be routed to INS1, INS 2 or THRU. The cursor in the screen above is in the upper left corner highlighting Element Out 1, “EL:OUT” and is indicated as:

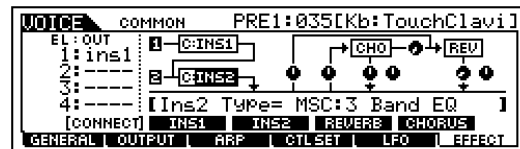
“[EL1 InsEF Out= ins1]” – this translates to Element 1 OUTPUT is connected directly to INSERT EFFECT 1 input.



The cursor above is highlighting the INS1 processor – we have moved the cursor to the right twice. You can see that it is selecting “[Ins1 Type= WAH: Touch Wah]”. WAH is the *category* (C) of effect – a Touch Wah is one that is velocity sensitive and responds to your note-on events rather than the auto-wah, which is controlled by an LFO. You can see in the diagram that the output of INS1 is connected to the input of INS2. Move the cursor to highlight the connection between the INS1 and INS2:

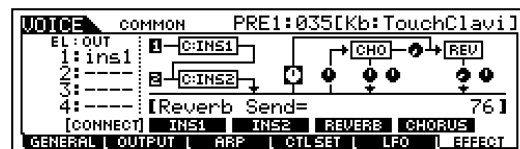


By highlighting this connection, you can change the routing. Currently it is set to “[InsEF Connect= Ins1 to 2]”. Your other options are “Ins2 to 1” and “para” or parallel. This can make a huge difference depending on the effect types selected. Series means “in-line”, while Parallel means each Insert is addressed individually.



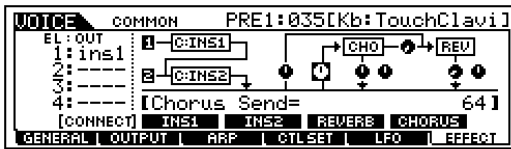
Above the highlight is now over INS2, which indicates:

“[Ins2 Type= MSC:3 Band EQ]”. The “MSC” is the MISCELLANEOUS category. In the flow chart above the output of EL 1 is going to the Touch Wah which goes to the 3-band EQ. The signal then joins the main flow (which until now had no signal – remember *all* of the signal of the Clav element is going through INS1→INS2).

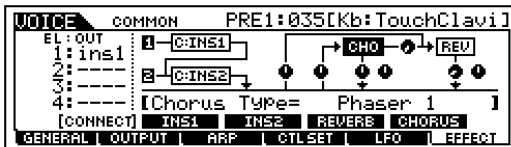


The cursor above is highlighting the Voice’s REVERB SEND amount (76). Notice how this

line leaves the main left-to-right flow and sends *some* of the signal up and over to the REVERB processor (it is a direct send to the Reverb processor). The line “left-to-right” represents all Elements together (and the signal post the Insertion Effects).

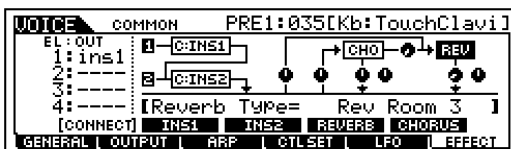


The cursor above is highlighting the CHORUS SEND amount (64). Notice that again *some* of the signal leaves the main left-to-right flow and goes directly to the Chorus processor.



Now the cursor is highlighting the Chorus processor itself (Cho). When you highlight you can use the DATA WHEEL to select different effect types. In the example above it is set to:

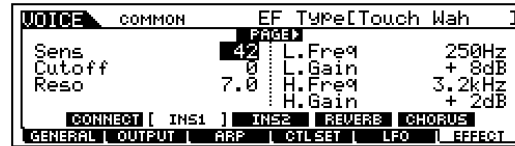
“[Chorus Type= Phaser 1]. Directly below it is the Chorus Return knob icon and next to the Return is the Return PAN knob icon.



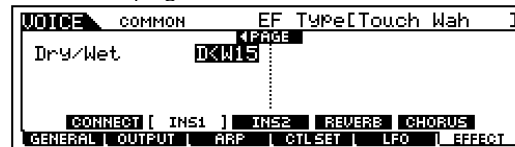
The cursor above highlights the Reverb processor itself (Rev). It is set to:

“[Reverb Type= Rev Room 3]”. Directly below it is the Reverb Return and next to the Return is the Return PAN. In between the Chorus and Reverb is a knob icon to control how much of the chorus processor’s output arrives at the Reverb’s input. This routing gives you greater flexibility when using multiple effects. For example, if the Chorus processor is set to a Delay with multiple repeats, by sending signal through this CHORUS TO REVERB control, **each** delay would have reverb applied to it. This would be very different from using the REVERB send directly, because only the original signal would have reverb (not each of the delays).

Notice in all the Effect Connect screens above that you can view/edit the parameters for each processor: INS1, INS2, REVERB, and CHORUS via the (sub function) SF2-SF5 buttons. If you press INS 1 (SF2) you will drop down a level and can edit the Touch Wah parameters:



You can page right (cursor) to see an additional page.



Please learn to explore your Voices while in Voice mode. To return to the CONNECT flow chart screen press SF1. Learning to explore is as simple as paying attention to which F (Function) and SF (Sub-function) buttons are active. We will now pick some Voices, paying close attention to what the effects are doing, and then move on to our recording process.

VOICE SELECTION

I’ve decided to create my composition initially in Pattern mode. The decision to work in one mode or the other is really up to you. As you explore the Motif you will learn that there are several JOBS that make it easy to move data back and forth between Song and Pattern modes. If a particular function is only available in Song mode, I can move data from a Pattern Phrase to a linear Song, accomplish what I need to and move it back. I will first work on the “Hook” Section of the song. It is basically a four measure Section that will repeat several times. First, let’s go through Voice mode and pick out some sounds for the band. [We will choose sounds in **Voice mode** as part of the tutorial. This way you can learn to judge which effects are doing what to the sound...this is the first step in learning what to expect (and not expect) when you put this Voice in a MIX or in a Performance.

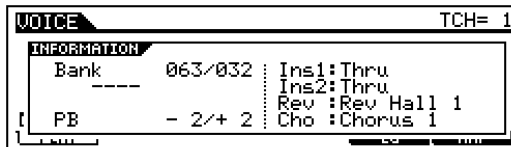
First, select **drum kit**: PDR:010 (A10) Preset Drum Kit number 10: R&B Kit 1. The short cut to select Drum Voices is to **hold** the DRUM KIT button (sometimes called the COMMON or FAVORITES button) **and** touch either PRESET 1 or USER. The combination of DRUM KIT+PRESET1 will select the Preset Drum kit bank with 48 kits. The combination of the

DRUM KIT+USER buttons will select the USER DRUM bank with 16 locations.

DRUMS



- Press the INFO button.



Above, the R&B Kit1 is in Bank 063/032 (Preset DRUM bank)²; there are no Insertion Effects active. It is using the default System Effects RevHall1 and Chorus1. Press the dedicated BYPASS button for the INSERTION EFFECT to get an idea of how this Voice will sound when you use it in a Performance or in a Song/Pattern MIX *without* its Dual Insertion Effect: It sounds the SAME! Naturally, both INS1 and 2 are “thru” (not used). [Useful information]! It would be *silly* to leave the Insertion Effect assigned to this Part when used in a MIX. Now bypass the SYSTEM EFFECTS (Reverb/Chorus) and see how this will effect the Voice. Press the dedicated BYPASS buttons on the Motif front panel.

BASS



Press INFO:

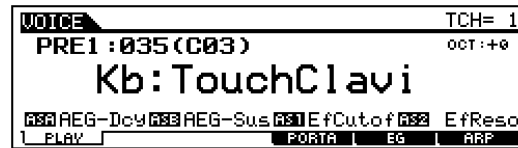


The Bass sound I've selected is in bank 063/000 (PRESET 1), it is 3-Elements, is in poly mode, Portamento is OFF, it has PB set to up/down a whole step, it has a 3-Band EQ in the small INSERT 1 effect, while INS2 is thru. The default RevHall 1 and Chorus1 are used. If you test this Voice with the INSERTION EFFECT BYPASS you will notice

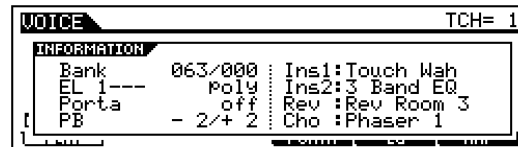
² Wondering why the Drum Voice didn't indicate the Element count? Each note of a Drum Kit could have a different number of velocity layers – each is an element.

that the 3-BAND EQ is missing. But there is not a major difference in the overall sound. In making a decision about which Voices to resample, this will be low on the priority list.

KEYBOARD

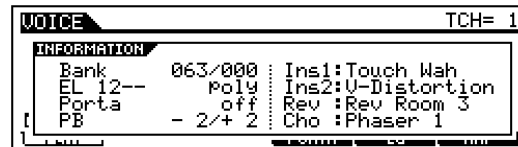
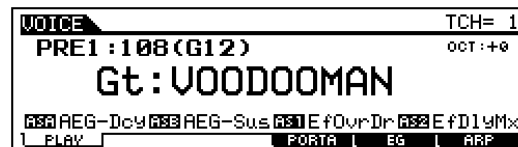


Press INFO:



We discussed this Voice already. Press the dedicated BYPASS button for the INSERTION EFFECT to see how this Voice will sound when you move it to Performance mode or to a Song/Pattern MIX. This sound will suffer greatly without its Insertion Effect. [This is a prime candidate to Resample]!

GUITAR

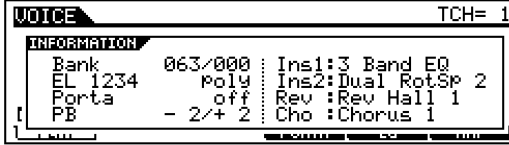
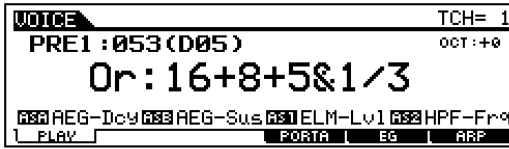


The VOODOOMAN guitar is **very** dependent on the Dual INSERTION EFFECT for the Touch Wah and the (Vintage) V-Distortion Effect. Additionally it has Rev Room 3 and Phaser1 assigned as the System effects. When it joins the MIX community, as a PART, this Voice will need to have the Dual Insert Effect, plus a reverb and a Phaser, to sound exactly like it does in Voice mode. One other thing of significance about this sound – it has AT or Aftertouch assigned to Filter Cutoff. You can view this by navigating to the Control Sets (CTL SET) as we did in the TouchClavi Voice –

- Press EDIT
- Press COMMON
- Press F4 CTL SET.

File that in your memory banks as well – we will need to setup to record AT. [This Voice is another prime candidate for Resample]!

ORGAN

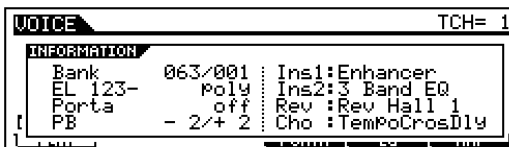


This Organ Voice, one of my favorites, has an EQ and the powerful Dual Rotary Speaker2 algorithm plus the default Reverb and Chorus. [Resample]! Explore this Voice and you will discover how the MOD WHEEL is assigned (via a Control Set) to transition the Rotary Speaker effect from the SLOW setting to the FAST setting. Dual Insertion effects are often related to a Voice in a specific way.



The screen above shows the Control Set 1, where the Modulation Wheel is assigned as the Source to control the INS2 EFFECT. It is controlling specifically the “EfSpCtl” which translates to the Effect Speed Control. As you raise the Modulation Wheel you flip a “switch” from the Slow setting to the Fast setting. When you go and edit the Effect itself, (F6/SF3 INS2) you will discover that you can set the Slow speed, the Fast speed, **and** importantly, the transition time. Cool! When this Voice is placed in a MIX situation and you select it as the Part to recall its INSERTION EFFECT routing, quite naturally the Controller Setups from the Voice mode assignments are recalled, as well. Very Cool!!!

REED/PIPE



The Sweet Flute uses a Harmonic Enhancer (INS1) and 3-Band EQ from the Dual Insert. The System Effects are the default Reverb Hall 1 and the Chorus is set to a Tempo Cross Delay. [Resample]! The Tempo Cross Delay will derive its repeat rate from the stored tempo and will adjust to the tempo of the Song or Pattern it is used in (if you manually select it for the Chorus processor). In Voice mode the Tempo is derived from the internal clock (the same clock that controls the arpeggio).

As you can hear, a lot of what gives the Touch Clav, the VOODOOMAN, the 16+8+5&1/3 and the Sweet Flute Voices their *personality* is the effects, specifically the Dual Insertion Effect. Sometimes, as is the case with the VOODOOMAN and SweetFlute sound, the Rev or Chorus processor may have a pivotal role as well. The Tempo Cross Delay in the SweetFlute Voice, for example, if you want that type of thing in your song you would have to select that algorithm for the Chorus processor. A Phaser algorithm is found in both the Chorus processor and the Variation processor.

As you have learned by now the Motif is most powerful when in Voice mode, where each Voice can use the Dual Insertion Effect to its advantage. The complex routing allows real time MIDI controllers to interact with the Voice. A particular part of a Voice can be married to an effect – making the effects an essential part of how the Voice performs. A Mod Wheel or Foot Control to change speeds on the Rotary Speaker effect is essential³. Rather than just effects that you set and forget – the Dual Insertion Effects are “alive”. And it brings life to your act when you can control a powerful effect processor *during* the performance. That is the concept of the Dual Insertion Effect – for the player who is performing “live” you have a very powerful, real time controllable effect processor that you can manipulate – you can control specific parts of a specific effects – this is essential. The Reverb and Chorus settings are not recalled automatically when a Voice is activated in a Performance or a MIX. You will be customizing Effects for *your* music. (I doubt very much if the Presets always work for your song when it comes to the Reverb and Chorus

³ The default is the modulation wheel because every Motif will have a modulation wheel, programmer’s never select Foot Control because a Motif on display in a store would likely not have the FC7 connected. Customize your sounds to your preferences as you go and store your setups to USER Voices.

presets...please, please tweak away...it's your music!!!)

PATTERN MIXING



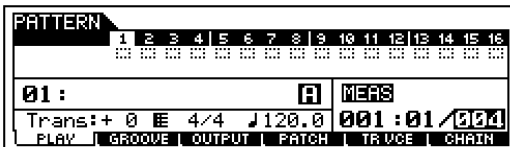
Here are the Voices we discussed setup on the first 6 Parts of this PATTERN MIX. You arrive at the above screen by pressing MIXING/ F3 Voice. Via your favorite method, input the first 6 Parts as outlined above. Use the cursor and Data Wheel to navigate and make settings. Set all the Voices in the MIXING screen, and then STORE the MIX.

Press STORE:



When you get to select your own favorite multi-setups, you can make them into a TEMPLATE. Templates memorize your favorite MIX setups so that you can recall them at any time – many writers use the same basic setup to begin a composition and this function can make the process of setting up quick and easy. Press F5 Template. Name location 001 “MySetup”, or “ForR&B” or whatever is appropriate, then press SF5 PUT. This will, literally, “put” the current MIX in TEMPLATE memory location 001. This will be stored with an ALL PATTERN or ALL data file. Anytime that you need this “band” you can go and “GET” it – which restores it to the current MIX location. Cool!

SET THE LENGTH and TIME SIGNATURE FOR THE PHRASE:



Prior to recording any Pattern phrase move the cursor to the far right of the main PATTERN screen and set the LENGTH of the phrase you are getting ready to record. This parameter (to the right of the slash) is the “measure counter” – it will keep track of measures – and can be used to set the record length of each Phrase prior to pressing

the RECORD button⁴. My Phrase is going to be 4 measures (the default setting). You can set this to any length up to 256 measures. You should also set the Time Signature prior to recording, if your music requires something other than 4/4. You must set the time signature and LENGTH prior to recording a Phrase. Once recorded that length and time signature are memorized. There is no way to alter the time signature later. The only way to alter the LENGTH of a Phrase later is to use a JOB to either **SPLIT** it (to make it shorter) or to **APPEND** it (to make it longer). This length and time signature information is held in a special Phrase Header. The header contains pertinent data concerning the Phrase that allows Phrases to recall the associated Voice and the proper triggering events (MIDI note data). Why?

The Motif’s Integrated Sampling Sequencer (ISS) needs to know **how many** measures each Phrase is to be. It needs to know what the time signature is in order for it to do the correct math when setting precise durations for note-on⁵ events. This information is also necessary for calculating properly time shifting Play Effects (like Groove) and figuring the duration of Sliced data, and tempo driven effects, LFO clock, arpeggiator sub-divisions, etc, etc. Okay, we have selected our ‘band’ – let’s record...

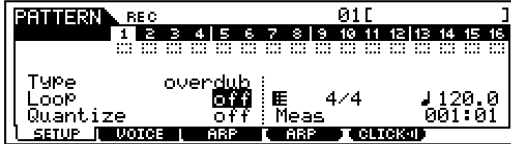
The RECORD process

We have selected our “musicians” (the Voices in the MIX) and are ready to setup for record. Select Track 1. Illuminate the TRACK SELECT and SECTION buttons on the right side of the Motif front panel, if they are not already illuminated. With these 2 LED lit you can use the front panel buttons [1]-[16] to select TRACKS and the Bank and Memory buttons to select the musical SECTIONS.

- Touch TRACK 1
- Press Record to view the RECORD STANDBY screen.

⁴ As we will learn in a minute it is NOT an indicator of how many measure are in a phrase nor is it the overall Pattern Section length – it is simply a counter that we can use to set how many measures we are GOING to record.

⁵ Both the SAMPLE+NOTE and SLICE+SEQ Sample Types automatically create the MIDI note-on data to trigger the audio sample(s). For the gate times (duration) of the note-ons to be accurate the mathematics of the Phrase Length is critical and stored as part of the Phrase header information.



When in Record Standby you can at F1 Setup select the Record Type, select whether the Pattern Loops during record, and whether it is quantized on the way in. I have set LOOP to OFF – it will stop at the end of the 4-measure recording⁶. A quick word on Quantize: this is timing correction “on-the-way-in”. 480 pulses per quarter note, therefore a setting of Quantize =120 means it will auto-correct to the nearest 16th note.

- 60 = 32nd note
- 80 = 16th note triplet
- 120 = 16th note
- 160 = 8th note triplet
- 240 = 8th note
- 320 = quarter note triplet
- 480 = quarter note

Go ahead and lay down a drum groove. Use whatever settings make you comfortable. Take your time - get something you are relatively happy with. You can take several passes at it, if you wish. You may prefer to put LOOP ON so that you can continue to record as it loops – and you can use F6 ERASE to clear mistakes as it cycles. (I just prefer not to record in a Loop – it is your choice). Once you have recorded a drum groove that you can live with, select track 2 and come up with a bass line.

To select TRACK 2: With the TRACK SELECT button illuminated on the far right front panel press track 2. When you have come up with an idea for a bass part, press Record and lay down the bass line.

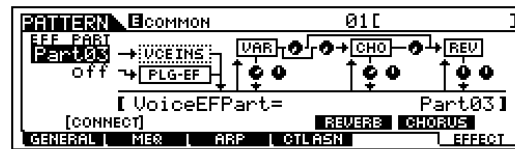
In a similar fashion while listening back to your Drums and Bass, select track 3 and practice a Clavinet Part. But hey, wait, where is that Touch-wah effect that we know is the *personality* of this sound?

Let's activate the INSERTION EFFECTS on PART 03 because this Voice really suffers

⁶ Unless you are very comfortable to this kind of recording (in a looping pattern) you may find it more convenient to have the sequencer STOP at the end of a pass. If you record with LOOP ON, be careful not overlap and record on top of yourself. (Doubled events sound like, well, doubled events). Also any sloppy sustain pedal work will wreck havoc on playback. Careful.

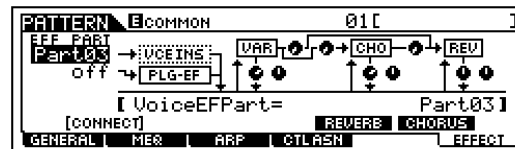
without its INSERTION EFFECTS. Here's how to assign it in your MIX:

- Press MIXING
- Press EDIT
- Press COMMON
- Press F6 Effect
- Press SF1 Connect
- Set the EFF PART = Part 03



EFFECTS SCREEN: the FLOWCHART

The screen above although similar to the one we saw in Voice mode – is actually a little different, look closely. It shows the EFF PART - the Part that will recall its INSERTION EFFECT from VOICE mode (VCE INS) in the upper left corner⁷. When reading this screen, signal is flowing from left-to-right. Use the DATA WHEEL to set values. As you play on the keyboard you should hear the TouchClavi Part now has its touch-wah back! STORE the MIX (in general, any time you make a change to the MIX you should store it –WHY? – were you to return to Voice mode you would lose any changes not yet stored).



Take a closer look at the screen above: PATTERN/ EDIT/ COMMON/ F6 EFFECT/ SF1 Connect. The VAR or Variation Effect has a SEND from the “left-to-right” main flow, it has a return to the main flow and a PAN control. Look close at the CHO (Chorus) and REV (Reverb) SENDS – where are the level controls for SEND amount? We are looking at a PATTERN MIX screen and **each** Part will have an individual SEND. And logically it is found on the MIXER – where we can view **each** individual channel's settings. Here's where: press MIXING/ F4 EF SEND.

⁷ Notice that the VCE INS box is in dotted lines – this signifies it is not accessible here. You reach it only via Voice mode. If you want to change what INSERTION Effect is active on a Voice it is part of the Voice mode parameters. The routing is intricate to that Voice.



Please do not feel like we are locking things in stone permanently. True, when we print it as audio you have *committed* but we will keep the original MIDI note data performance so do not worry.⁸ You can always go back and fix something and reprint the audio track again, later. The best of both worlds, actually...

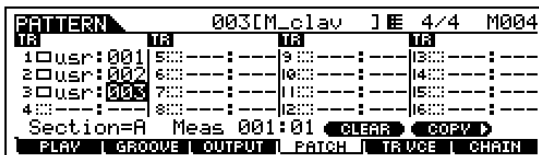
Setup and then record a Clav part to track 3. When you have satisfactorily recorded a TouchClavi part. Return to the main Pattern screen.

- Push PLAY to listen back.

One of the most important parts of any recording session is listening back. Study what you have done. Now is the time to correct any flaws in the track. Use the Event list and/or the Pattern JOBS to help you correct the data. Quantize it, erase any unwanted events, modify the Velocity of the performance, etc. While studying your CLAV part, tweak all the effects. Focus on the CLAV. Feel free to use **all** the available processors, i.e., the Reverb, Chorus, and Variation to make the Clav track “as you like it”. We are going to resample it –which will record it with the effects.

To view what we have done so far from the main PATTERN screen, press the F4 PATCH button:

PATCH



Notice that the sequencer has placed our first three recordings each in its own USER (usr) Phrase. Each with a unique number (optionally you can name each Phrase individually if you wish using the Phrase Name JOB – this only is necessary when you

⁸ Your original MIDI phrase will still be there available for you to change something later. All you need do is temporarily “Patch” it in to a Section and work on it, then redo your Resample.

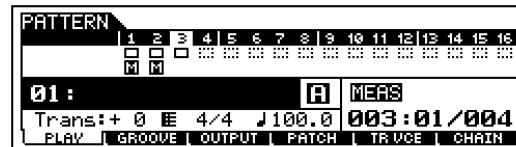
are creating many variations. I’ll show it here so you can see the difference between the MIDI and AUDIO phrases). The name of the currently selected Phrase appears on the top line as you selected a track.

- USR:001 = Drum Groove phrase
- USR:002 = Bass line phrase
- USR: 003 = “M_clav” phrase (MIDI version)

Note: The upper right corner of the PATCH screen shows the Time Signature and Phrase Length of the selected Phrase. It is possible to have different time signatures and lengths active simultaneously (if that is what you need).

MUTE

- Use the front panel MUTE/SOLO function to MUTE tracks 1 and 2.



The screen above shows this condition – you will see an inverse video “M” signifying the track is MUTED.

- Select Track 3 and raise CS3 (Control Slider 3) to the maximum – you want to maximize the playback level of the CLAV part.

The default playback level setting is 100 – we want to set it to 127. This is because we are getting ready to RESAMPLE a single track by itself and we will probably need to maximize level. (One track does not easily fill the headroom allowed in resampling so always make it a point to maximize the output – when resampling *multiple* tracks you may have to adjust levels so as not to distort the resample. There is no danger here because a single track is not enough *usually* to overload the system by itself).⁹ Your mileage will vary.

The RESAMPLING process is using the **sequencer** to playback a track (or group of tracks) while we target a new track. In Pattern mode this will place a new user PHRASE on the target track. That Phrase will contain the MIDI

⁹ If you are a light-handed player and your MIDI velocity data never breaks 80, you may have difficulty with low levels when re-sampling. You can use the Modify Velocity JOB to increase velocity values while maintaining the performance dynamics.

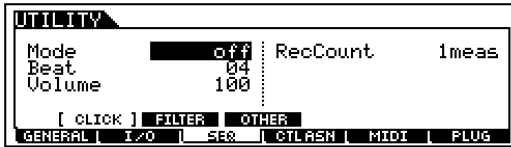
data to trigger the audio recording of the TouchClavi (with the TOUCH WAH effect plus others active). Turning the data into audio - which will allow us to reassign the valuable INSERTION EFFECT (and others) to our next PART.

Metronome not needed in Resample

Now before we go to the sampling page, let's turn the metronome OFF. Although the metronome is helpful while recording original MIDI tracks, it will be of no use in the automated audio recording process of the RESAMPLE. To turn the METRONOME CLICK OFF, from Pattern/Song MODE:

- Press UTILITY
- Press F3 SEQ
- Press SF1 CLICK
- Set Mode = off

The default is "Mode = REC", however, since RESAMPLING uses the sequencer to RECORD, we need to set this to OFF - to avoid recording it into the audio track.

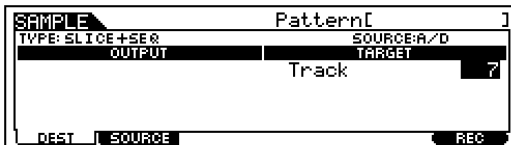


- Return to PATTERN mode.
- Press F4 PATCH

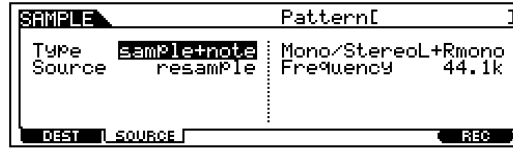
INTEGRATED SAMPLING: THE RESAMPLE

- Press the INTEGRATED SAMPLING button.

Because we have entered Integrated Sampling from Pattern mode the Motif can automatically create the Sample Voices and MIDI Phrases as necessary to contain and recall the audio data and the MIDI data that will trigger it. It all depends on our next group of setup selections. Let's setup for the Resample.



First, F1 DEST or Destination - This tells the Motif what track the data will be associated with. Select Track 7 (empty) as the Target track. The ISS will use this track to temporarily house the Sample Voice.



Press F2 SOURCE. This tells the sampler what kind of sampling we are going to do. Set the parameters as in the screen above.

TYPE: Sample+Note – this will not only map the audio to a MIDI key but it will create the NOTE-ON data to trigger the playback of the audio. Normally (if you selected SAMPLE) you would have to create this note-on event yourself, but the "Sample+Note" Sampling Type does this for you.¹⁰

SOURCE: RESAMPLE – this connects the outputs of the Motif to the inputs, internally - in the digital domain.

MONO/STEREO: L+R MONO – this will sum the left and right channels to mono. Stereo uses twice as much memory (obviously) and unless you gain a specific benefit, you might as well record in Mono. If you are recording a Stereo sound, by all means, set this to stereo.

FREQUENCY: 44.1k – this is your sample rate. You can grunge things down by selecting 22.05k, 11.025k or even 5.5125k (not for the squeamish).

Once you have selected SAMPLE+NOTE as the Sample type for PATTERN mode, the sampler knows to create an audio phrase on the selected track, targeted to a specific key, of a special Sample Voice and to create the MIDI note-on data to trigger it. If you have properly input the time signature and the Phrase Length, the Integrated Sampling Sequencer has the information it needs to control playback precisely. Plus it has memorized the Voice it used as part of the Phrase header.

- Press F1 DEST

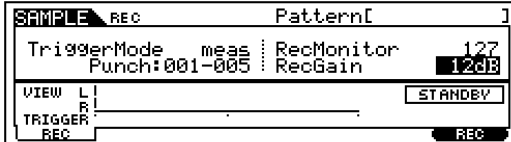
Set a specific NOTE. The default note is C3. If this is okay, you can skip going back to F1 DEST. But since we are learning...PRESS F1 DEST and verify that your resample will be targeted to note C3 (middle C). This parameter was not there the first time you looked at F1 –

¹⁰ Any sampled audio that is to be played back by a MIDI sequencer requires a MIDI note-on, precisely placed to trigger the start of playback. The sample can be precisely controlled as to how long it plays by editing the duration (Gate time) of the note-on. An audio sample triggered by a note-on will require that that note-on occur in order to start playback. You cannot start in the middle of an audio sample, so to speak...This is an important CONCEPT to understand.

it appears after selecting a Sample TYPE. Since we selected SAMPLE+NOTE it now gives us a selection as to *which* key the sample will be targeted.

- Press F6 Record.

This takes you to the RECORD STANDBY screen, where you select *how* the sampler is to start/stop. Additionally you need to set the recording gain level:



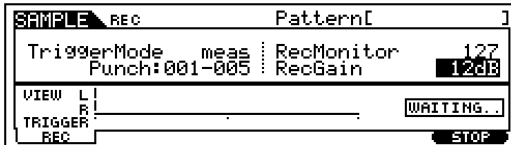
Set the RECORD STANDBY parameters as in the screen above.

TRIGGER MODE: MEAS or Measure – this will let you set a PUNCH IN and OUT point for the sample. It also sets the duration (GATE TIME) of the MIDI note-on event created because we are using the SAMPLE+NOTE type. We set the PUNCH OUT point to measure 5 because it will punch out immediately upon completing *all* of measure 4.

RECORD MONITOR: 127 – this is the listening level as you record.

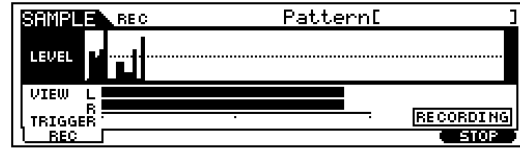
REC GAIN: 12dB – this is a gain boost. Set this to +12 because we are only re-recording a single track it will probably not nearly fill the headroom by itself, so max this out if your level is low.

- Press F6 REC, again.



It will change to WAITING – meaning it is awaiting the **trigger mode** we have selected. We selected MEASURE, therefore it is WAITING for measure 1 (for us to start the sequencer). Notice F6 has changed to STOP – you can manually press Stop at any time once you have begun recording. But if all is going well, the Motif will punch you out when it reaches the top of measure 5.

- Press Sequencer PLAY [>]

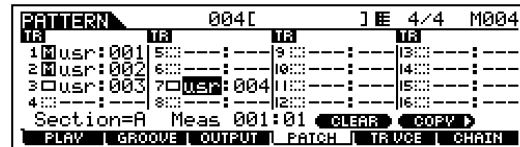


The track begins to play and simultaneously the sampler begins to record. You see the waveform as the data is recorded - the level bars show the record level. If you see little lightning bolts to the right of the bar graph, they denote clipping. Sampling will STOP automatically at the top of measure 5.

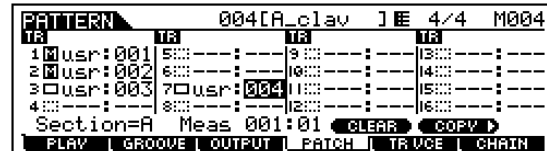
******Troubleshooting******

If you make a mistake and need to retry this procedure please jump to the Troubleshooting paragraph on the last page of this document for a special note.

- Press PATTERN to return to the Pattern Patch screen.



For clarity, I'll use the Phrase Name Job to name this new audio Phrase, "A_clav". This is done by pressing JOB/ F4 Phrase/ Job 09 is Phrase Name.

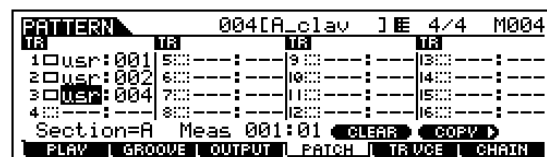


Re-Patch Phrase and Reassign Effects

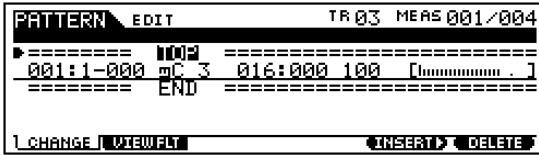
The new recording is usr:004 "A_clav", and is currently on track 7.

- Use the Data Wheel to highlight "usr" and turn it counterclockwise until it is set to "--" off.
- Move the cursor to the left to highlight usr:003 "M_clav"
- Change phrase usr:003 to usr:004 on track 3.

We have now substituted the new audio ("A_clav") Phrase for the original MIDI (M_clav) Phrase.



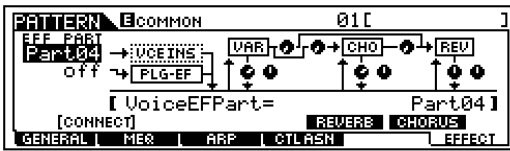
- Press Edit from Pattern mode to view the event list of our new MIDI Phrase



SAMPLE+NOTE input a MIDI note-on (C3) at the punch in point 001:01-000 with the precise duration 16:000 beats, at a Velocity of 100 to trigger the audio sample every time the phrase loops around. Raise the Velocity from 100 to 127 to maximize playback level.

Playback what you have up until now. UNMUTE tracks 1 and 2, and then use the Control Sliders, CS1-CS3, to balance your new mix.

NOTE: The “M_clav” phrase (usr:003) is not gone for good - it is just unassigned in any Patch. We will keep it just in case after our resample we change or minds about the effects. We have now printed an audio version of the MIDI clav part and can reassign the effects to optimize our next track.



Go to the MIXER and reassign the INSERTION EFFECT to PART 04 (our VOODOOMAN guitar).

- Press MIXING
- Press EDIT
- Press COMMON
- Press F6 Effects
- Press SF1 Connect
- Set EFF PART to PART 04
- STORE the MIX.
- Return to the main Pattern screen.

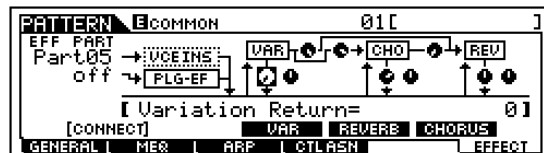
Use the Track Select button to select track4.

Rehearse a part for the VOODOOMAN Guitar. It now can recall it’s DUAL INSERTION EFFECTS: TOUCH WAH and V-DISTORTION. If the PHASER is really important to my track I can assign the CHORUS Effect of the MIX to PHASER 1 and use it to help recreate that part of the VOICE mode sound. Always tweak and optimize your Voice’s sound. This is an opportunity to use the “FULL POWER” of the

Motif effects on your track. After all, we are setting up to resample it as audio.

Before you record the VOODOOMAN sound as MIDI, remember that it has Filter Cutoff on Aftertouch. The Motif Sequencer defaults with a RECORD FILTER set to filter Aftertouch – this is to prevent heavy-handed players from recording tons of AT data without knowing it. If you know you want to record **with** Aftertouch, then you must set the RECORD FILTER.¹¹ This is found in UTILITY /F3 SEQ /SF2 Filter – put an “x” in the box next to ChAT / IN or “Channel Aftertouch going IN to the Sequencer”. Also before recording the VOODOOMAN you may want to reactive the CLICK for REC mode (found in UTILITY /F3 SEQ/ SF1 Click). When you have a musical idea for the guitar, place track 4 in RECORD and lay down a guitar part. It will automatically be PATCHed to track 4 as the lowest numbered empty User Phrase: **usr:005**.

Once you have it recorded the phrase as MIDI data, make your corrections to timing and note performance. Next, mute the other tracks (1, 2 and 3) and maximize the level of track 4 with CS4. Tweak the effects as you see fit.



Above you can see how the Variation effect is being sent to the CHO and to the REV independently – you have many options to route signal to get the sound you are after. Although the Variation Return is 0, signal is routed directly to the CHORUS and directly to the REVERB and then in turn they each return the signal to the main flow. Be creative. (Remember the individual sends for each PART are found in MIXING/F4 EF SEND.

Turn OFF the CLICK (UTILITY /F3 SEQ /SF1 Click) and setup to RESAMPLE. You will conveniently find that most parameters will already be setup from our previous session. But be vigilant in reviewing the DESTINATION TRACK/NOTE assignment.

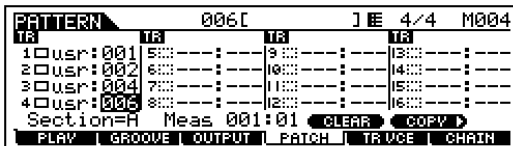
- Press INTEGRATED SAMPLING
- F1 DEST - set it to track 8

¹¹ Even though you hear the AT when you play the VOODOOMAN Voice, the sequencer filter is set to ignore that data.

- F2 SOURCE – already set from previous resample
- F1 DEST – target key C3
- F6 REC STANDBY – already set from previous resample
- F6 REC WAITING
- Start the Sequencer to begin Playback and Sampling simultaneously.

The sequencer sample Stops automatically. The Sample+Note sample type has created a new user phrase on track 8: **usr:006** (the next lowest number that was empty). Go to the PATCH screen – from the Main Pattern screen press F4 PATCH. Deactivate Phrase **usr:006** on track 8 and replace **usr:005** on track 4 with the new **usr:006**. Reassign the INSERTION EFFECT to PART 06 (our 16+8+5&1/3 Organ sound). And so on and so on...

The Section "A" PATCH below shows our original Drum Phrase (001), original Bass Phrase (002), the **audio** version of the Clav Part (004) and the **audio** version of the Guitar Part (006).



Continue to add tracks as you see fit. Move the INSERTION EFFECT to each track before you record and then resample it. After recording/resampling the Organ w/Rotary Speaker, add the SweetFlute Voice to the recording/resampling party...you are only limited by your sample RAM. Make a decision about which tracks will benefit from resampling their Insertion Effects.

Other alternatives include making sub-mixes. Depending on your music, you may find it convenient to sub-mix the entire rhythm section into a STEREO sample, or combine 4 backing vocal parts to a Stereo sub-mixed sample. In this manner you can create your own Sample Loop phrases. Make use of pan positioning as a powerful tool. For example, in a funk groove situation you may have the Clavinet playing a chordal harmonic role opposite the rhythm guitar part. Pan the clav phrase hard left and the rhythm guitar phrase hard right, mute the other tracks, tweak with effects as necessary and resample them in STEREO as a pair. The possibilities are truly endless.

Related topics:

Here's a tip concerning the SAMPLE+NOTE type of sampling and pre-roll recording. Now that you understand how the Integrated Sampling Sequencer can create the MIDI note-on event to control sample playback, you can take advantage of this fact when you need to set up a pre-roll. Often when you are overdub/sampling, you need to hear the music leading up to the punch-in spot. If the measure punch-in is set to measure 1 this makes pre-roll punches impossible. Here's the tip: Let's say you have an 8 measure Section and you want to punch the vocals in at the top (measure 1). Record the backing music tracks as 8 measure phrases, as normal, but when you set up to record the vocal phrase, set the Phrase Length to 16 measures (twice the normal length). Now when you setup to overdub/sample the vocal set the TRIGGER mode MEASURE punch parameter to IN at 9 and OUT at 17. This will punch you in on the second cycle of the Section – after it has played through once. This gives the singer a chance to feel the groove before singing. You can use the SPLIT PHRASE job to divide the Phrase into a new empty location at M009. Then you can "Patch" this new Phrase into your Section.

There you have the Master Class on Resampling. You should now be adept at selecting sounds and knowing what to expect when you place a sound in a MIX. Many things about a Voice will be different when they join the community in a MIX. Each Voice is placed in a PART and the PART parameters can be customized for each Pattern Mix and Song Mix as necessary, without permanently changing the original Voice. Cool! For example, the pitch bend range from Voice mode is overridden when the Voice is placed in a MIX, you can set a new Note Limit, Velocity Limit and response, you can even re-route the output to the assignable outs or AIEB2, if you have one. Resampling also is the way to beat the polyphony issue. If you create one of those mega Performances that uses multiple stereo Voices layered – with resampling you can take a part that was using 24 or 32 notes of polyphony down to one or two (depending if you resample is stereo or mono) and record it with full effects.

Enjoy....Get Motifated!

Phil Clendeninn
Product Support Group
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******Troubleshooting: Resample******

If you make a mistake during resampling, you cannot just *replace* what you have done by doing it over. For example, you targeted C3 as the key to assign your audio phrase, you make a mistake and STOP before completing the sample. If you were to target the same key and attempt it again, you will simply place an additional sample on that key. Remember samples can be stacked on a single key (127 deep). Do not worry you can DELETE any sample even if there are multiple samples on the same key. Here is how:

- Press the INTEGRATED SAMPLING button if necessary, to enter this mode.
- Press JOB/F1 Keybank
- JOB 2 is DELETE – you can delete samples assigned to a KEY, even if multiple samples have been assigned to a single key.

MORE BACKGROUND FOR THE CURIOUS:

In order to do velocity switching, multiple samples can be assigned to a single key – remember you can stack samples as deep as want and give each a specific Velocity Range (a maximum of two samples can be triggered simultaneously in a specific range – this is to accommodate stereo). But you could place (stack) stereo samples at different velocity points so that a different one is triggered as the velocity is varied. You can use the INTEGRATED SAMPLING /EDIT /F1 KEYBANK screen to “SELECT” between the samples in the same Keybank. Let’s say you mistakenly assigned two samples to C3 of a particular Pattern Sample Voice while resampling. To differentiate between them here’s what to do:

- Press INTEGRATED SAMPLING
- Press EDIT
- Touch the F4 Range button.
- Set the RANGE to 1-63 – this sets the trigger range for one of the samples.
- Touch SF2 SELECT – the Range will change to 1-127 again – the other sample’s data will be selected. They both looked the same until a second ago.
- Set the Range of this sample to 64-127 – now you can clearly differentiate as to which sample is which.
- Press F1 Keybank
- Press and HOLD [KBD] (the INFO button) + touch the Key C3 softly. This will recall the data for one sample – strike the key firmly for the other sample. Or you can toggle between them with the SELECT

(SF2) button (you can clearly see a difference in the range parameter). You can use the AUDITION (SF1) button to hear each.

- The upper right hand corner of the screen will show you the high VELOCITY of the currently selected sample.
- Press JOB
- Press F1 – Job 2 is DELETE

You can now clearly tell which one you are going to delete – its upper velocity will show in the corner of the screen. Delete the unwanted sample then go back to EDIT/ F1 Keybank and fix the range of your sample back to 1-127 or as necessary.

PC