

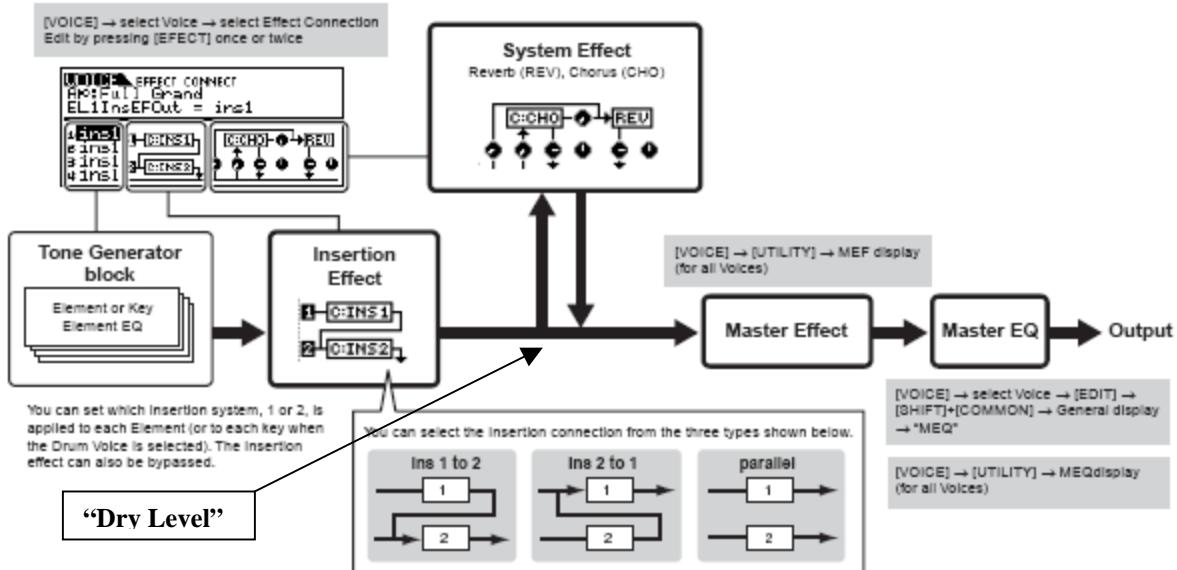


POWER USER

MUSIC PRODUCTION and PERFORMANCE With the MOTIF-RACK ES

Introducing Motif-Rack ES EFFECTS

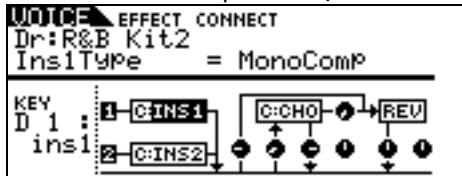
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NOTE: The parallel connection is not available for Plug-in Voices.

Special Case: Signal flow in a Drum Voice

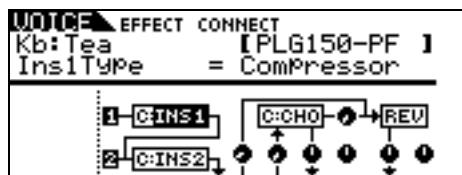
Each Drum (Key) can be routed to either one or the other of the Dual Insertion blocks. The routing of INS1 and INS2 can be in series INS1→INS2, in series INS2→INS1 or in parallel (shown below).



In a Drum voice each KEY is a separate entity and has its own routing to the Effect algorithms selected for the KIT. Just as in a Normal Voice, one set of Insertion Effects can be selected for the entire KIT – you choose to use it or not, per Key. With this scenario it is possible to have reverb on a snare drum, and none on the kick drum. You can compress the snare drum on D1 (as shown above), while another drum Key has none. You can touch a key on your Controller while holding the [SHIFT] button on the Motif-Rack ES to recall the routing of each Drum Key, as necessary. A drum kit's special routing is maintained when the Kit is placed in a PERFORMANCE or MULTI setup, when the KIT PART is selected as one of the PARTS designated to recall its Insertion Effect. Also maintained are any individual drum Keys that are routed to individual outputs. The individual output assignments are recalled when the KIT PART is set to OUTPUT SELECT = "drum". This allows the individual routing assignments to be respected when a kit is used in Mix where you want to isolate certain drums to individual outputs.

Signal flow in a PLG150 PLUG-IN Voice:

The routing in a PLG150 series board is similar to that of a Normal Voice. The waveform of the PLG150 board is always treated as a *single* Element (whether it is, in fact, or not).



For example, although the PLG150-PF (sampled piano board) has multi-Element Voices (up to four), they are delivered to the Motif-Rack ES as a whole – and are treated as if it were a single Element. Each PLG150 board has to be considered because there are different technologies involved – this is why you cannot define an **Element** simply as a *multi-sample* - not all the Yamaha boards are based on *sample* playback technology. Some of the PLG150 series boards will have their own built in Effect processing (on-board, so to

speak), allowing you to use the Motif-Rack ES effects elsewhere.

The PLG100-XG board has its own three System Effects (Reverb, Chorus and Variation) and cannot use any of the host product's processors nor can internal sounds use the effects on another PLG board.

The PLG100-VH **cannot** be used with the Motif-Rack ES at all (no A/D input or PLG-Effect bus).

PLG150 Board: On board Processing

PLG150-AN - Distortion, EQ
 PLG150-AP – Reverb, Chorus, Insertion (fixed)*
 PLG150-DX – no effects
 PLG150-DR – Reverb, Insertion
 PLG150-PC – Reverb, Insertion
 PLG150-PF – Reverb, Chorus, Insertion (fixed)*
 PLG150-VL – no effects

*The PLG150-AP & PF (sample playback boards) allow the user simply to alter the pre-programmed effects. You cannot change or select the assigned Board effect type. However, you can offset the available parameters. Remember the PLG150-AP & PF are **pre**-programmed Piano Voices. The "Flange Piano" on the PLG150-PF is called this because the Flanger is the assigned effect processor and is an effect on the Board. It is flanged without using the resources of the host product. You can alter the speed and depth but you cannot select a Phaser or a Distortion or a Chorus for the "Flange Piano" Voice. The other PLG-boards listed above that have Effects allow the user to program them completely. PLG Boards cannot use the PART EQ (PART EQ is reserved for the 16 internal PARTS only). In all cases (except PLG100-XG), however, you can add effects of the Motif-Rack ES.

Background

The algorithms (a fancy word for recipe or specific arrangement) in the Motif-Rack ES Effects are deep. Please refer to the DATA LIST booklet to see the individual parameters and effect types. On page 27-28 of the DATA LIST you will see a list of the different Effect Categories and Effect Names. Page 29-36 will list the parameters available in a convenient form to see them all and the ranges of control. This is worth a look. The TABLE Number heading is for those that need to know the exact value of each setting – refer to the charts on pages 37-42 for exact values for each parameter setting. Basically settings are made to taste (by ear). However, knowing what is subjective and what is objective is what separates a *bogus* mix from a *brilliant* mix.

So much of working with sound is subjective (meaning it is up to you) but some of it is very objective (meaning there **is** a right and wrong). Sorry, it's true. Knowing the difference between these two concepts is the key to greatness in the audio business. For example, when routing signal to an effect do you return more than you send or

send more than you return? Gain staging is the objective part of audio. Making sure that you work on the side of SIGNAL when dealing with the SIGNAL-to-NOISE ratio. The rule of thumb: Send up to the limit of clean audio and return just enough to taste. If you are sending signal to an effect processor that you have configured as an EQ, how much signal do you send? Again this is not subjective, there is a right and wrong. Send all the signal through the EQ. If you were to return dry signal from certain routing scenarios you can cause phase cancellation – a situation where you will be adversely affecting the signals integrity. Knowing what you are doing with effects can mean confident utilization with stunning results. Just experimenting willy-nilly can lead to bogus results. Of course, you could eventually wind up with something useable but “knowledge is power”. In most instances the Motif-Rack ES will not let you get in too much trouble – sometimes you are prevented from controlling certain things because it would be illogical or lead to bogus results...those decisions are made by the designers. For example, you will see where a subjective return is allowable a DRY/WET balance so that you can mix your amount of effect return, but from a device like an EQ there is no balance control (signal from a device like an EQ should be all WET).

Each Voice has a Dual Insertion Effects (pair) and, of course, the System Effects (Reverb and Chorus). And while when you go to Performance mode the number of Dual Insertion Effects increases to all 4 Parts, and when you go to Multi mode it increases to 8 Parts, the System Effects (Reverb and Chorus processors) must be shared by all the Parts. This is very important to understand. They are called “System” because all Parts of a Performance and all Parts of a Multi must share them. They are accessed in these modes via individual send amount controls – this very much parallels the AUXILIARY Send concept on a recording console. The Aux Send 1 is then patched to a system reverb, and the Aux Send 2 is patched to a delay (chorus) processor. The return from these off-board devices is a composite signal (contains a combination of all the signals sent in) and it is combined to the stereo mix just prior to going to the Master Effect and the Master EQ.

The Processors

The **REVERB** processor has 20 algorithms available. When working with a reverb algorithm you can select it by size environment: HALL, ROOM, STAGE, PLATE, WHITE ROOM, TUNNEL, BASEMENT and CANYON. Yamaha was the first company to introduce digital DSP based effects that were based on the actual dimensions of the great concert halls of the world. Rooms have a

definite size factor to the space. A Stage is usually a loud reverberant environment. A PLATE is a brilliant emulation of the old 10-foot boxes that used to contain these reverb chambers that used a transducer (driver) at one end and second transducer (microphone) at the other...in between was a large aluminum plate $1/64^{\text{th}}$ of an inch thick. You sent signal from the mixing board's aux sends and returned up to a maximum of 5 seconds of cool reverb. This was the standard for drums and percussion “back in the day”. The WHITE ROOM will help you design your own environment and can teach you about how the other presets were made. The WHITE ROOM lets you set width-height-depth of the walls and the ‘wall vary’ lets you set the reflective texture of the surface from rug to steel. Also important in working with reverb is an understanding of how it works in the real world. In most listening situations you are hearing a certain amount of signal, directly from the source, while the rest of the signal bounces off the environment you are standing/sitting in. If, for example, you are 30 feet from the stage you will hear a portion of the sound direct from the stage but most of it will bounce off of the walls, floor and ceiling to arrive at your position. Because we often record and/or amplify musical signal with a technique called “close-miking”, reverb became a necessary evil (if you will). Close-miking allows us to *isolate* a particular sound from others in the environment but there is a trade off...we lose that sense of distance and environment. To regain some of the distancing we use *artificial* reverb to do the trick. Recognize that when you put a different amount of reverb on the snare than you do on the flute this does not occur in nature. All the musicians in the same room would naturally have the same reverberant environment with very subtle differences due to positioning in the room. This gets back to the *subjective* part of the audio business. SO WHAT? You can use effects to taste. There is no rule that says everyone has to have good taste. An important parameter in all the reverbs is the INITIAL DELAY this is the time before the reverb receives the signal and can help position the listener near-far from the instrument source. The HPF and LPF are there to help you shape the reverb signal itself. There is a rule of thumb here: low frequencies reverberate less than high frequencies. Low frequencies tend to hit a surface like a wall and spread out, while high frequencies hit a wall and bounce back into the room. This is why when you are sitting next door to the party you only hear the bass through the wall – all the high frequency content ‘reverberates’ and stays in the source room. So use the HPF (high pass filter) to allow the highs to pass through to the reverb and block the lows from reverberating. Reverb on bass just adds MUD. MUD is not a subjective term but if it is

what you want go for it (but yuck, it is mud). Low frequencies don't bounce back they tend to hug the walls and spread out – moving the surfaces they hit. If you want cutting, punchy bass leave the bass "dry" (without reverb).

The Motif-Rack ES Reverb processor features the new effect algorithm set based on the heralded Yamaha "Rev-X" technology (SPX2000). "REV-X" is a whole new generation of Yamaha Reverb with the richest reverberation tone and smoothest decay. There are "Hall", "Room" and "Plate" algorithms. Newly introduced parameters like ROOM SIZE and DECAY envelope also bring much higher definition and finer nuances. Check out the LARGE HALL, MEDIUM HALL, WARM ROOM, WOODY ROOM and RICH PLATE algorithms to hear these new reverbs.

The **CHORUS** processor has 49 algorithms available. These are short time period delays from flanging, to chorusing/phasing and on out to multiple repeats and echoes. There are also tempo control delays that can be synchronized to the BPM of the music. Flanging is a very short time delay. If two identical signals arrive at your ear-brain, you will not be able to perceive them as two separate signals until one is delayed slightly. Imagine 2 turntables in perfect synchronization playing the same record. You would perceive the second one as just making the first signal louder until you delayed one of them a bit. If one slips 1ms behind the other you will perceive what we call "flanging". The actual name comes from two reel-to-reel tape decks playing the same 2-track material. This was used as a real time effect, "back in the day". You would have 2 identical 2-track decks running in sync (no, there were no protocols to sync them – you pressed the buttons at the same time!!!) The engineer would slow one down by placing his thumb momentarily on the *flange* (reel holder). The resulting swirling sound is called "flanging". Any delay between exact sync and 4ms is considered flanging. Delays of 4ms-20ms are considered chorusing and somewhere beyond 20ms the ear-brain starts to perceive two separate events, called doubling or echo. Multiple playback heads (let's all thank Les Paul) were used to get multiple repeats. Among the 'time-delay' algorithms in the Chorus processor you will find: Chorus, Celeste, Symphonic, Ensemble Detune, Flanger, Tempo Flanger, Phaser, Tempo Phaser, Delay L/R, Echo, Cross Delay, Cross Delay Mono, Cross Delay Stereo, Tempo Delay Mono, Tempo Delay Stereo, and Tempo Cross Delay.

The Tempo driven effects will derive the BPM from the Motif-Rack ES's clock. The same clock that is responsible for the Arpeggios. If the clock is set to external MIDI control, then the effect will wait for an incoming clock source. Within the Effect

parameters you will find musical subdivisions to control the time: i.e., half note, dotted quarter notes, quarter notes, eighth notes, sixteenth notes, etc.

The **DUAL INSERTION EFFECT** is made up of two identical units (INS 1 and INS 2), and each has 116 innovative effect types. These effect types can be the subjects of intense study. We will try and introduce you to some of the more unusual and unique ones in this article. In addition to all the reverbs, delays, echoes, cross delays, tempo delays, etc., you get some that are available nowhere else. The V-Flangers, for example, are a simulation of the classic *vintage* flanger devices. The Vintage Mono and Vintage Stereo Phasers faithfully reproduce the response of the old guitar stomp box of the '70's. The Early Reflections and Gate Reverb/Reverse Gate are great to recreate classic drum sounds. The Karaoke delays (basically cheesy repeats for that sing-along sound) should not be overlooked. The Auto Pan has settings for front-rear as well as left-right to give a circular "feel" to a stereo panorama. There are many combination and multiple effect algorithms.

Distortion + Rotary Speaker
Overdrive + Rotary Speaker
Amp Simulator + Rotary Speaker
Distortion + 2-way Rotary Speaker
Overdrive + 2-way Rotary Speaker
Amp Simulator + 2-way Rotary Speaker
Distortion + Delay
Overdrive + Delay
Compressor + Distortion + Delay
Compressor + Overdrive + Delay
Auto wah + Distortion
Auto wah + Overdrive
Touch wah + Distortion
Touch wah + Overdrive
Wah + Distortion + Delay
Wah + Overdrive + Delay
2-way Rotary Speaker
Dual Rotary Speaker

Among the innovative effects from the Yamaha Samplers A4000/5000 are the Lo-Fi, Low Resolution, Noisy Delay, Attack Lo-Fi, Digital Turntable, Digital Scratch, Auto Synth, Tech Modulation, Jump, Isolator, Slice, Voice Cancel, Ambience, Talking Modulator, Beat Change, Ring Modulator, Dynamic Ring Modulator and Dynamic Filter.

There are two different Multi-band Compressor algorithms that are great for fixing and punching up specific frequency ranges. Multi-band compressors are used to finalize mixes and bring out (punching up) specific frequency bands without raising overall gain. The Digital Turntable algorithm adds "record surface noise" to your mix. You can program the tone of the noise, the

frequency and randomness of the clicks and pops, and you can even program how much dust on the stylus. Digital Scratch creates ripping scribbles and wild panning effects. Jump takes wild panning effects to the **nth** degree. The Slice effect can divide the audio into musical timed packets that it can pan left and right in tempo. You can select a quarter note, eighth note or sixteenth note slice and there are 5 different pan envelopes and some 10 different pan types.

Why is it called “Insertion Effect” and what is the difference between it and a “System Effect”?

On an audio console you have a series of channels. Channels carry **input** or **returns** from a multi-track (we refer to them as Input Channels or Track Channels depending on their role). Each channel has an on/off button, EQ, a fader, and a set of auxiliary sends. These ‘aux’ sends allow each channel to send a **portion** of the signal on what is called a bus (a group of wires carrying like signal). That bus can then be connected to an offsite effect processor in a rack. The return comes back to the board and is mixed to the stereo signal. That scenario is an example of what happens in Motif-Rack ES with the **SYSTEM EFFECTS**. That is, when you are in **MULTI** mode, the **REVERB**, and the **CHORUS** Effects are arranged so that access is just like the auxiliary sends of a console – each channel (Part) has an individual send amount to the system effects. The Multi-Part Editor’s graphic icon very much follows this kind metaphor.



There is a composite return signal that is mixed to the stereo output.

An Insertion Effect on an audio console is usually accessed via ‘patch points’ (interruption points in the channel’s signal flow) that allow you to reroute **all** of a single channel’s signal via a patch bay through the desired effect or device. You are, literally, inserting a processor on that specific channel alone. This is how the **INSERTION EFFECT** block works on the Motif-Rack ES.

Examples: Typically, when a reverb effect is setup, just a portion of each sound is sent to it. This is the perfect example of what a System effect is about. However, things like rotary speaker (organ) or amp simulator (guitar) are effects that you might want to isolate on a specific channel. Therefore these type effects are usually accessed as an Insertion Effect. One **important** advantage of the Insertion Effect is that it can be controlled in real time, during the playing performance. Since the Insertion Effects are programmed at the VOICE level you can use the Control Sets (there are 6) to route your physical controllers to manipulate the parameters of the Insertion effect in real time. You can change the speed of the rotary speaker, or you can manipulate the Guitar Amp simulation setting while performing the guitar sound. This type of control is beyond just the send level (you are given access to System Effect send level only from the Voice mode Controller assignment). In the real world, the size of the room does not change (hopefully) so System effects like reverb are pretty much “set it/forget it”. However, changing the speed of the rotary speaker effect is something that you may want to *perform* during the song.

Just how are you able to control certain parameters in an Insertion Effect? ...via MIDI commands, of course. In the hierarchy of modes, VOICE mode is the most important when it comes to programming. This is where Yamaha spent hours and hours developing the sounds you play. The programmer’s, with great care assembled the multi-samples into waveforms, and combined the waveforms into the Voice and worked with the envelopes, the response to velocity, the pitch, the tuning, the filters and so on. Each sample in the Motif-Rack ES has its own EQ; the meticulous programming goes on for months at a time. Of course part of the arsenal available to the programmers were the Effects. Take a close look at a Voice and its effect structure (again the graphic on page 61 makes the routing clear). Notice the Insertion Effect block, the System Effect block, the Master Effect block and the Master EQ block. Contrast this to the graphic on page 62, which shows the blocks in **MULTI** mode. The Dual Insertion Effect is available for any eight Motif ES (PART 1-16 or P1, P2 part, if they contain a PLG150 series board).

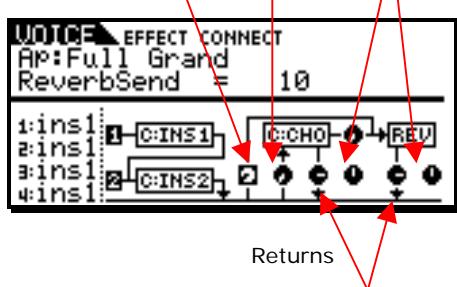
How do the diagrams on page 61-62 relate to the EFFECT/CONNECT screen?

Navigate to the Motif-Rack ES Effect connection screen.

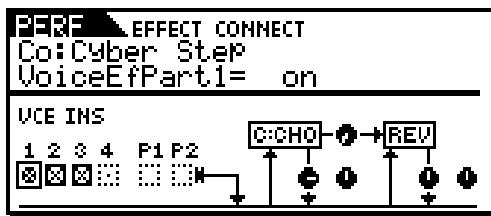
- Press [EFFECT]

Use the PAGE [<]/[>] arrows to navigate:

Voice Mode:

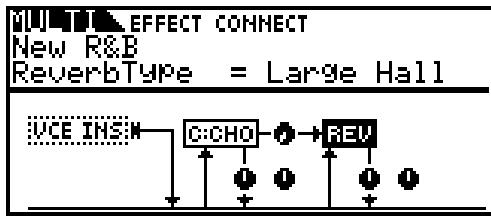


Performance Mode:

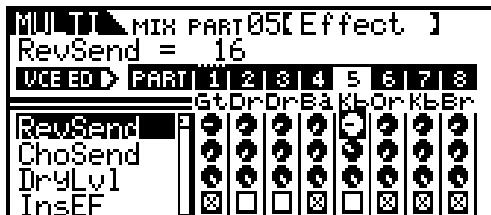


There is no Chorus send knob or Reverb send knob because **each PART** will have its own individual send in PART EDIT mode. This particular Performance has PARTS 1, 2 and 3 recalling their Dual Insertion Effects from Voice mode.

Multi Mode:



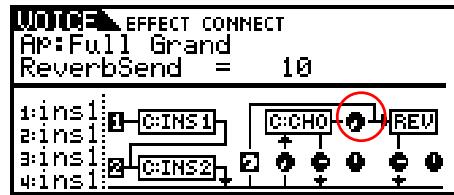
The is no Chorus send or Reverb send knob because each PART will have an individual send in "quick access" screen (shown below):



To navigate to this screen from [MULTI] mode:
Press [MULTI] a second time to see the quick access screens. PAGE [>] to select {EFFECT}.
Also on this screen you can see that in this particular MULTI Mix Parts 1, 4, 6, 7 and 8 are set to recall their Dual Insertion Effects. You can use

the front panel buttons to select and view Mix Parts 9-16 when necessary.

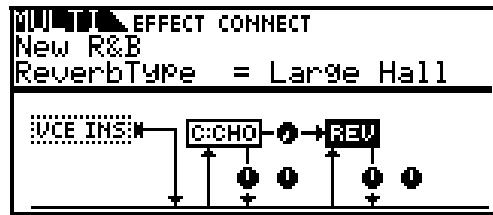
Neither the Performance nor Multi screens have send level controls **to** the Reverb and Chorus. This is because the send level is not a 'common' parameter but is on a **per PART** basis. Each Part will have its own control for the amount of signal sent to the System Effect on the Part Edit level or as is the case with the Multi both on the Part Edit level and on the quick access Multi Part screen.



Chorus → Reverb level (circled above)

Notice in all scenarios that between the Chorus processor and the Reverb processor you have a level Send control knob: Chorus-to-Reverb Send. This can be used to create a situation where the System effects are used in series (one after the other) rather than in parallel (side by side). An example of how this can make a difference is when you select a DELAY as the effect for the Chorus and a HALL for the Reverb...when parallel routing is selected, you could send a signal independently to the delay and to the reverb. Only the initial note event will have reverb, each repeat would be dry. By routing "0" send to the Reverb, but send the signal through the Chorus first, then through the "Chorus-to-Reverb" send, on to the reverb, you will now have a signal where *each* repeat of the Delay will have reverb...quite a different thing.

As you move your cursor to the right in the CONNECT screen (shown below) you can highlight the CHO or REV effect and select from among the different algorithms. The letter "C" (in the Chorus processor) can be highlighted and denotes "category" allowing you to search the effects by category.



So where do you edit the Insertion Effects? Notice the VCE INS box is a dotted line – denoted it is "grayed out" or unavailable from this Multi Effect Connect screen. The Dual Insertion Effects are simply *activated* from the Voice mode. The

Insertion Effects do not appear in the Multi EFFECT CONNECT screen because the Insertion Effects are part of the VOICE mode edit parameters. If you need to radically change an Insertion Effect from the original programming then you will need to create a USER Voice with your new Insertion Effect edits and STORE it.



As is the case with the Motif ES workstation keyboard, the Motif-Rack ES has the ability to edit a Voice directly while still in a Multi Mix. Press [EXIT], if necessary, to leave EDIT mode but **press [MULTI]** (a second time) to view one of the three MIX PART *quick access* screens (shown above). These three screens are "Voice", "Output" and "Effect". The Motif-Rack ES allows you to drop into **full** Voice Edit for any internal Normal (non-drum/non-PLG) Voice while on any of the three Mix Part screens

- Press the [SHIFT] + [EDIT]

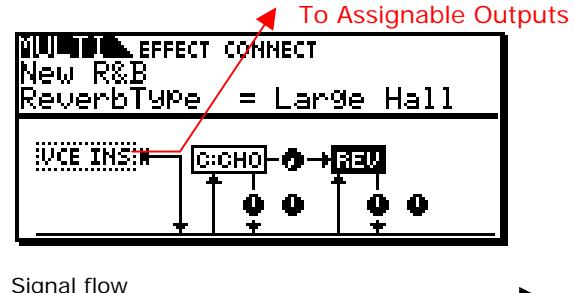
This will select "**VCE ED**" (Voice Edit) mode – you can tweak the Voice completely in context of your Multi and you can STORE the results to one of the three USER banks. Doing so will automatically replace the Voice in your Multi Mix with this new one.

This allows you to edit a Voice and its Dual Insertion Effects, etc., while you are using the sequencer so that edits can be done in the context of the music sequence. When you STORE this edited Voice to a USER bank location it will automatically replace the Voice in your MIX. Although the Voice is now in your MIX you will still see the inverted video "E" which denotes you still need to STORE the Multi, if you are willing to accept the changes you have made.

Rule: Store the Voice –then Store the Multi...
[SHIFT] + [STORE], then press [ENTER] twice.

Assignable Outputs

If you can follow the routing then you can know what is possible. Any Part of a Performance or Multi can be routed to an Assignable Output. The assignable output would be just after the VCE INS (Insertion Effect).



See diagram above for the position of Assignable output. Therefore a Part going to an individual output could have its Dual Insertion Effects active and its Part EQ active but obviously it cannot have the Chorus, the Reverb, the Master Effects or the Master EQ applied to it... since these are all *post* the direct output. When you know where the connection is you don't have to ask, why! As in "Why can't I send the sound with Reverb to an assignable output?" You can, but not with the System Effect. The main reason is the routing doesn't allow it and, secondly, you wouldn't want to send the signal that way. Signal sent to an assignable output is sent there to *isolate* it from the main stereo signal. Any signal sent to the System Effects (the Reverb and/or the Chorus processors) is summed and returned to the stereo mix and is a *composite* signal – a sum total of all the signal channels sent in. This defeats the purpose of sending it to an assignable out (isolation). That said, if you want reverb on the assignable out signal, you can... simply use one of the two Insertion Effects set to a Reverb algorithm type. Remember all the algorithms of the System Effects are duplicated in the 116 Dual Insertion Effects. That Voice will be the only sound in that reverb chamber – it will have the 'room to itself', so to speak. It will not have to share it with the snare drum, the piano, the synth lead, etc., etc. So it is possible, if you understand the routing.

Master Effects

The Master Effects are "*post*" everything but the Master EQ. So they are applied to the overall System signal (stereo). These are 8 effect algorithms that you will find duplicated in the Dual Insertion Effects types, as well.

And in a similar manner to the System Effects, there is only one Master Effect setup – they are System settings and not available to the assignable output.

The Master Effects are:

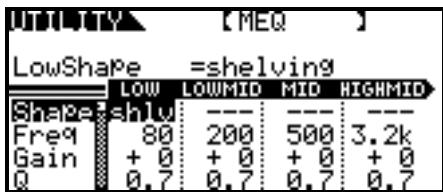
- Control Delay2 (stereo)
- Lo-Fi
- V-Distortion
- Isolator
- Dynamic Filter
- Slice
- Ring Modulator
- Multi-Band Compressor1

These are typically called "DJ"-type effects, for lack of a better term, because, like a DJ would, they are applied to the entire recording. DJ's are either playing back a record or CD that is a finished mix. So the effects that they add are always *post*, they cannot put a Dynamic Filter on just the snare drum, if you get my meaning, so "DJ-style effects" – applied to the entire mix. These Effects are applied to the entire SYSTEM signal. Don't be afraid to use your imagination with these Master Effects – they are radical. You may not fashion yourself a DJ but Master Effects can 'finalize' a mix and make it sparkle. Things like putting a Control Delay on the final hit of the song so that it repeats and fades...or using a frequency Isolator to roll out all the bass for a section of a song, then bringing it back in for dynamic impact...or wacky panning effects with the Slice algorithm where you can pan signal left and right in tempo with the groove. Also on the normal side, you are given a powerful Multi-band Compressor for pumping up the frequency bands of the final mix. Awesome tools...experiment!!!

Master EQ

Although not technically an "effect" (EQ is an essential utility for any mixer), the Master EQ is the last process the signal goes through prior to the outputs.

And in a similar manner to the System Effects and the Master Effects, there is only one Master EQ setup – they are System settings.



In Voice mode, the Master EQ is setup and is global for the entire mode (applies to all Voices).

While in Voice mode:

- Press [UTILITY]
- PAGE [<] or [>] to select the "MEQ" screen shown above

Here you find the full 5-band parametric EQ (PAGE [>] to see the HIGH frequency band). Parametric means you can select the Frequency, the Gain and the Q (or width of the bands). Within each VOICE you will find the MEQ OFS or Master Equalizer Offset. This allows you to add to or subtract from the overall global setting made in Utility on a per Voice basis.

In PERFORMANCE mode or in MULTI mode you can setup the Master EQ on a **per** program basis

- Press [EDIT]
- Select [COMMON] parameters
- PAGE [<] or [>] as necessary to select the "MEQ" screen.

In general, the Master EQ can be used when you are in an environment that is not musician friendly – like a bar or pub with a glass mirror behind the stage, or a gymnasium with lots of wood floors (good) and ridiculously high ceilings and miles of glass windows (bad)... You can use the Master EQ to set an overall EQ for the environment. You can then use the MEQ OFS (offset) to tweak each program individually.

Copying Voices/Performance with Effects

There are copy functions that will let you to copy one Element to another within a Voice, to copy a Voice from Voice mode to a Performance or copy a Performance to a Multi. A common use for this might be to duplicate either the Effect routing that the Voice had in Voice mode and/or the 5 associated Arpeggio patterns that the Voice had in Voice mode... (it is simply a short-cut to duplicate work already done).

There is a copy function that will let you copy a Performance (and its Parts) to a Multi. The purpose would be to duplicate the up to 4 Parts of a Performance mode program as the first Parts of a Multi. This allows you to play up to 4 Parts layered (Part01~04) on a single MIDI channel while your sequencer plays the other 12 Parts. In this function you will be able to select what attributes of the Performance you wish to duplicate in the Mix.

Before we get into this, a clear understanding that the number of resources does not increase when it comes to the System Effects (the Reverb and Chorus processor). This means that all Parts will still share the single Reverb processor and the single Chorus processor. So those that want every sound to sound exactly like it does in Voice mode may be defeated or have to find a different way to accomplish this goal. In other words, if a particular Voice (while in Voice mode) uses a Tempo Delay for its Chorus effect, and another Voice uses a Tempo Flange for its Chorus effect –

you cannot copy the effects of both of these to a Performance/Multi and have each retain its Voice mode System Chorus effect. Only one set of System Effects is available. You will need to do some programming. Fortunately, as mentioned, all of the effect types found in the System Effects are duplicated in the 116 algorithm types of the Dual Insertion Effects. So you can reprogram one of the Voices to use its own Insertion Effect. This will only be a limitation if you let your knowledge of the available effects limit you.

Found in UTILITY mode, the Copy Job is what we call context sensitive. If you are in Voice mode you go to UTILITY, the COPY Job will allow you to Copy Voice. This Job will let you copy either the Common parameters from a selected Voice to the current Voice you are working on, or it will let you copy 1 Element from the selected Voice to the current Voice you are working on.

Copy Performance:



If you are working on a Performance and you want to bring in the Arpeggios and/or System Effects associated with a Voice that you have placed in a Part, then you would go to UTILITY and select Copy Performance. Say you have the Folk Guitar (USER1:002) Voice in Part01 of the Performance you are working on and you want to copy the 5 associated Arpeggios from Voice mode of this particular Voice. Once you placed the Folk Guitar in your Performance you can go and 'get' the Arpeggios by setting the dialog box as shown above.

- Press [ENTER] to execute.

The dialog box translates: The Voice currently in PART01 is the source, you are going to import the ARPEGGIOS associated with it and bring into the current Performance.

In a similar fashion you can Copy in the System Effects of the Folk Guitar by setting the dialog box as shown below:



You can place an 'x' in the box for the System Effect you wish to apply to the Performance. Remember these System Effects will apply to the entire Performance – any other Parts in the Performance will be able to send signal to this effect via the Part Effect Send amount parameter. Each Part will have an independent send amount control. Above the mark denotes that the Reverb is selected, the Chorus is highlighted but not yet selected. You can select it by turning the Data Wheel.

Copy Multi:



If you enter the UTILITY mode from MULTI mode and select the COPY function, then you will see the COPY MULTI function. This works exactly like the Copy Performance function detailed above. When you are working on a Multi you can designate any Part (Part01~Part16, P1, P2) and copy the selected parameter TYPE to the current MULTI.

- Press [ENTER] to execute.

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