Getting Started with the VM-7000

Application Guide

Welcome!

Congratulations on your purchase of the VM-7000 digital mixing system. Your VM-7000 combines incredible sound quality with a powerful suite of mixing tools.

The VM-7000 is very easy to use, as you'll see. You can quickly get to everything you need to do, usually with just a few button-presses.

We've prepared this application guide as an overview of the VM-7000's architecture, and as a quick introduction to its basic operation. You'll also learn about some of its more advanced features.

About this Application Guide

A great mixing system like the VM-7000 must be flexible so that there's always a quick way to do what needs to be done in a session or during a performance. The steps in this application guide don't always describe the *only* way something can be done—sometimes they describe a recommended way of doing things, or merely *one* way. As you get to know your VM-7000, you'll find your own favorite methods.

Button, jack, screen and setting names in this application guide are presented as they appear on the VM-7000 itself.

The V knobs and F buttons beneath the console display perform different jobs depending on what you're currently doing. When we refer to one of these knobs or buttons, we'll refer to it by name and include its current function in brackets, as in "V1 [SELECT]" or "F1 [SET]."

Please read the guide in order from front to back, since it builds your knowledge of the VM-7000 step-by-step. Jumping in and out at different places may not result in as clear an understanding of the system. It'll probably take you an hour or two to work your way through the entire application guide.

From time to time, we'll refer you to pages in the *VM-C7200 /C7100 Owner's Manual* for further information about the topic at hand.

Notes, tips and warnings throughout this application guide are signified by symbols located to their left:

Notes provide information relating to the topic under discussion.

Tips offer suggestions for using the feature being discussed.

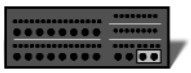
Warnings contain important information that can help you avoid possible damage to your equipment or yourself.

I. The Components of a VM-7000 System

A basic VM-7000 system consists of two components: a mixing processor and a console. A VM-7000 system can contain one or two processors and one or two consoles. This application guide primarily discusses the operation of a one-console/one-processor system.

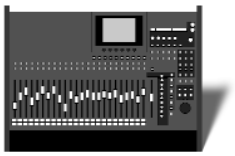
Let's discuss what these two different components actually do.

VM-7200 mixing processor



The mixing processor is where the real power of the VM-7000 system lies. In addition to supplying most of your inputs and outputs, all of the system's digital mixing operations actually occur in the processor. Effects are also produced there. Automated mixing takes place in the processor as well.

VM-C7200 console



The console, on the other hand, controls the mixing processor. It resembles a traditional mixer—and it works a lot like one, too—but all it's really doing is making things happen in the mixing processor. That's not to say it's not important—it's where you do *your* work. The console also provides some useful connector jacks.

Together, the mixing processor and console provide a system that can do everything a traditional single-piece mixer can do and much more.

II. Adding Options

Roland offers a variety of options that add additional power and convenience to your VM-7000 system. Each of these options can be purchased separately.

Effects

You can augment the built-in effects by purchasing as many as three VS8F-2 Effect Expansion Boards for each processor. With three VS8F-2s, a processor provides eight stereo—or 16 mono—effects plus a stereo master effect.

Digital R-BUS Connections

R-BUS

You can also add a VM-24E I/O Expansion Board. The VM-24E provides three R-BUS™ connectors for a total of 24 channels of digital I/O ("Input/Output"). Roland's exclusive R-BUS digital audio format sends and receives eight channels of up to 24-bit digital input and output signals through each 25-pin D-sub R-BUS connector. A growing family of Roland products offer R-BUS connectivity, including the VM-3100Pro, VSR-880 and XV-5080, as well as a host of I/O devices such as the ADA-7000 analog I/O expander and AE-7000 AES/EBU interface.

A DIF-AT Interface Box lets you digitally connect ADAT® and Tascam® digital recorders to a VM-24E R-BUS connector. Since the VM-24E has three R-BUS connectors, three DIF-AT boxes provide up to 24 ADAT/T-DIF channels of digital I/O.

More Channels

You can expand your VM-7000 mixing system to a whopping 94 channels of audio processing by adding a second VM-7200 mixing processor and VM-24E to your system. If you need fewer additional channels, you can add a VM-7100 instead. In either case, the VM-24C Cascade Kit allows you to connect your two mixing processors.

Adding Options (Continued)

More Convenience

The following options for your console make using a VM system even easier and make it look even more visually attractive.

Though the console already provides a big built-in display, you can also add an MB-24 Level Meter Bridge. The MB-24 helps you see at a glance what's going on in the system by adding 28 LED level meters, a multi-mode time counter and a set of status LEDs.

The VM-C7100 console is rackmountable. To mount it flat in a rack, you can buy a RO-C7100 Rackmount Angle. If you want to mount it at an angle, you'll need a RO-7000 Rackmount Angle.

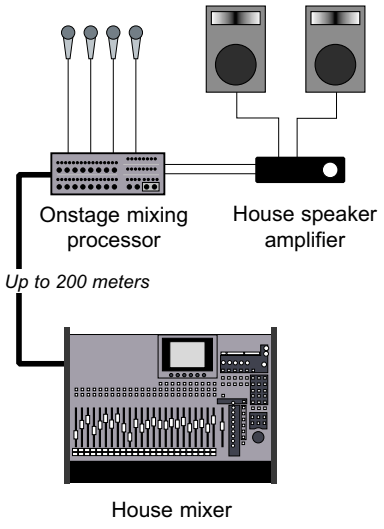
You can also purchase wood-grained side panels for your console—the VM-SP72 for a VM-C7200 console, or the VM-SP71 for a VM-C7100 console.

Installing Options

All of the options we've mentioned come with their own installation instructions. You'll want to install the options before rackmounting your mixing processor and before connecting speakers, amplifiers, mics, instruments and so on to your system.

III. Listening to the VM-7000

Since the VM-7000 can be used for live or studio sound, how you'll listen to it depends on your situation. We'll describe how to listen to the system in stereo in this *Application Guide*. To learn about setting up for surround sound, see p. 91 in the *VM-C7200/C7100 Owner's Manual*.



Live Sound

If you're doing live sound, connect the mixing processor's L and R MAIN OUTs to the left and right inputs of your stereo house amplifier. The front panel of the processor provides 1/4" MAIN OUT jacks, while the rear panel provides XLR MAIN OUTs. The console's MASTER fader controls the overall level of your mix.

If you're working in mono, you can use either a L or R MAIN OUT. If you use only one MAIN OUT, be sure to pan your signals to the selected output for optimum levels. If you use both outputs, pan your signals to the center of the stereo field. (We'll discuss panning later.)

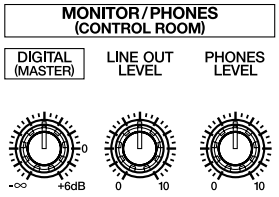
You can also set up monitor feeds for your performers using the VM-7000's FLEX BUS OUTs. We'll discuss Flex Busses a little later on.

Studio Sound

In a studio, you can connect the VM-7000's left and right monitor outputs to powered monitors or to the stereo amplifier driving your monitors. Use the analog 1/4" L and R MONITOR OUTs on the processor or the RCA/phono L and R MONITOR OUTs on the rear panel of the console. If you wish, you can also listen to the system using stereo headphones connected to the console's PHONES jacks.

Listening to the VM-7000 (Continued)

We highly recommend using Roland DS-90A or DS-50A digital powered monitors with the VM-7000, for three reasons. First, these are incredibly accurate monitors—what you hear is really what you get. Second, they can be connected to the VM-7000's digital MONITOR OUTs, providing, for the first time anywhere, the amazing quality of a truly digital monitoring system. And finally, the VM-7000's exclusive COSM™ speaker modeling algorithms allow the DS-90As and DS-50As to emulate a wide range of popular speakers so that you can try out your mixes on a variety of virtual systems to make sure that they'll sound great wherever they're heard.



Adjust your monitoring level using the knobs in the MONITOR/PHONES (CONTROL ROOM) area of the console. The DIGITAL (MASTER) knob is the master level control for the entire monitoring system. If you're using DS-90As or DS-50As, the DIGITAL (MASTER) knob controls the listening level. If you're using the analog MONITOR OUTs, the DIGITAL (MASTER) knob acts as the overall system master—set it to 0 and adjust your listening level using the LINE OUT LEVEL knob.

If you're using the VM-7000's MONITOR OUTs, you can set up different preset monitoring configurations that let you change your monitoring setup with the touch of a button. These presets allow you to turn the analog and digital monitoring feeds on and off, and to store monitor and headphone levels. See Page 97 in the *VM-C7200/C7100 Owner's Manual* for more information.

You can also set up independent monitor mixes for your performers using the FLEX BUS OUTs.

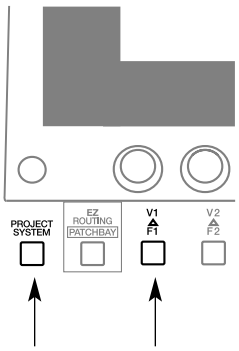
IV. Powering Up

It's important to turn on the VM-7000 and the devices you've connected to it in the proper order to make sure that everything works correctly, and to safeguard against damaging any of the equipment.

Turn on your equipment in this order. If you're not using a piece of equipment listed in any of the following steps, just skip the step:

1. Turn on your digital multitrack recorder and any R-BUS devices.
2. Turn on your mixing processor. As the processor powers up, the CTRL indicator on its front panel blinks. When the process is complete, the indicator lights solidly green.
3. Turn on the console. After the console has performed its system diagnosis, a confirmation message appears in the display. Press F2 [START] to execute the console's startup routine. This takes a few moments to complete.
4. Turn on the rest of the digital equipment you'll be using, including any DAT or MiniDisk recorders, hard disk recorders, effect boxes or musical instruments with digital inputs and outputs.
5. Turn on any analog equipment you intend to use, including musical instruments, sound modules and effect boxes with standard analog outputs, microphones, CD players, turntables, MiniDisk players and analog tape recorders.
6. Turn on your speaker amplifiers and your speakers.

V. Initializing the System



You can return the mixer to the state it was in when it left the factory by "initializing" it. When you initialize the mixer, all of its settings are reset to their original values. There are a few situations that call for initialization:

- When you wish to undo all of the changes to the mixer's settings in order to "start fresh."
- When the mixer is behaving in an unexpected manner contrary to the behavior described in its owner's manual.
- When troubleshooting.

Before proceeding with this application guide, initialize the VM-7000:

1. Turn the console off by pressing its POWER switch.
2. While holding down the PROJECT/SYSTEM and F1 buttons, turn the console back on.
3. When FACTORY RESET appears, release the buttons and press F1 [OK].
4. Proceed with the normal startup procedure for your system.

VI. The Level Meter Button as Home Page

You may find it handy to think of the LEVEL METER screen as a sort of home page that you can return to when you finish performing an operation. It can also serve as a sort of "neutral zone" in which you can re-orient yourself if you get confused while moving from screen to screen during complex procedures.

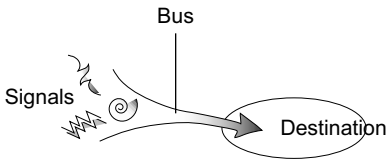
To return to the LEVEL METER screen, press LEVEL METER.

VII. Exiting Screens

You can leave most of the VM-7000's screens by pressing either LEVEL METER or any button that takes you to the next place you want to go. If you do this and the display doesn't change, look along the bottom edge of the display for the word "EXIT" shown above one of the F buttons. A few of the VM-7000's screens require that you press EXIT to conclude the operation you've just performed. When this is the case, press the F button beneath "EXIT" on the display.

VIII. A New Kind of Bussing

What Is a Bus?



If you're new to mixing, you may be wondering what a bus is. In every mixer, busses provide a way to get signals from one place to another.

A bus is simply a pathway down which one or more signals travel to a destination. This destination can be somewhere inside the console or outside of it.

In the old days, a bus might actually be a literal wire in the mixer—when you sent a signal down a bus, you'd feed it into the wire. When you wanted to send two signals down the bus, you'd feed them both into the wire, and they'd both travel together to, for example, an external effect processor.

The great thing about busses is that they let you send a group of signals together to some single place that they all need to go.

Traditional Busses

In a traditional mixer, there are different types of busses...sort of...even though they're all basically the same. Busses that carry signals to the tracks of a multitrack recorder are called "recording busses." Busses that carry signals into the main mix are "mix busses."

Typically, you'd send a signal to one of these busses by pressing a simple on/off button that would route the signal to the bus. You might also have a panning control that would allow you to send the desired amount of signal to an odd-even pair of busses simultaneously, or to the left and right sides of the stereo main mix.

The busses that carry signals to effect processors are called "effect busses," or "Aux busses." "Aux" is short for "Auxiliary," since these busses can be used for a variety of purposes, even if they *are* most frequently used as effect busses. Aux busses tend to have expanded capabilities, since they can be used for different purposes. They have more than simple on/off switches: they have level controls that let you control how much of each signal is to go down the bus. As a result, Aux busses are actually more powerful than recording busses, since they provide a greater degree of control.

Introducing the Flex Bus

The VM-7000 introduces a powerful new type of general-purpose bus called the "Flex Bus." There are 12 Flex Busses in your VM system, and they provide all the bussing power you could need.

Flex Bus
Recording
Mixing
Effects
Monitoring
Surround

Since you can control the amount of signal sent to each Flex Bus, and since Flex Busses can be linked in stereo, you can use Flex Busses for sending signals to:

- tracks on a multitrack recorder.
- internal effects.
- output jacks connected to external effects.
- monitor feeds for studio or stage performers.
- a surround amplification system.
- anywhere else you want your signal to go. You can even send a Flex Bus's signals into another Flex Bus to send the signals to multiple destinations simultaneously.

We'll be discussing how to use Flex Busses later on.

IX. What Do the Console's Channel Strips Do?

The VM-C7200 has 24 channel strips, and the VM-C7100 has 12. Just as they would on a traditional mixer, the strips provide access to most of the settings you'll work with during mixing. Of course, given the incredible power and flexibility of the VM system, the mixing console would be impossibly huge if each setting had its own physical knob or button. As a result, the VM-7000 provides five different operating modes, each of which handles a particular mixing task—in each mode, the strips control and provide access to the settings you need for the job at hand. You can jump instantly between modes as you set up inputs, outputs, Flex Busses and so on.

To select the desired mode, simply press the corresponding SECTION button—its indicator will light, showing you at a glance what the channel strips are doing.

For now, we're not concerned with the top SECTION button—2nd UNIT, which involves controlling a second mixing processor cascaded from the main processor.

We'll describe the buttons reading from the bottom up, since this best reflects the flow of signals through the VM-7000 system.

When you press:	*The channel strips control:*
INPUT CH1-24	the input signals received by your analog XLR and 1/4" inputs as well as the DIGITAL INPUT A and B inputs.
MULTI IN CH1-24	input signals received digitally via R-BUS connections.
FADER GROUP MASTER 1-24	the assignment of channels to any of the 24 Fader Groups, and provide control of the Fader Groups' levels.
FLEX BUS MASTER 1-12	the levels, panning and routings of the 12 Flex Busses and the outputs of internal send-and-return effects (we'll discuss these later).
MULTI OUT	the levels of signals as they're output from the analog ASSIGNABLE and DIGITAL A and B outputs as well as the R-BUS digital outputs.

VM-C7100 only: Since the VM-C7100 has 12 channel strips, it has an extra SECTION button: CH 13-24, which provides access to Channels 13-24 when working with input, multi in, fader group and multi out channels. Otherwise, references in this guide to the VM-C7200's SECTION buttons also apply to the same buttons on the VM-C7100.

For the rest of this application guide, we'll refer to channel strips as input channels, multi in channels, fader group channels, Flex Bus channels and multi out channels—this will serve as a shorthand that tells us which SECTION button is currently lit.

You can always look at the SECTION buttons if you lose track of the system's current operating mode—the lit SECTION button shows you what the channel strips are controlling.

X. What Do the Console's Faders Do?

On a traditional mixer, channel faders allow you to control the levels of signals. While that's also true on the VM-7000, the VM-7000 faders can do more: you can actually use them to adjust many channel-related settings in the VM-7000.

Each setting in the VM-7000 is referred to as a "parameter."

The PARAM VIEW on Fader buttons allow you to select the parameter to be controlled by the faders. When you press the desired button, the VM-7000's motorized faders move to the position corresponding to the selected parameter's current setting. The display shows the parameter's setting for all of your channels at once—you can change its setting in a channel by moving the corresponding fader.

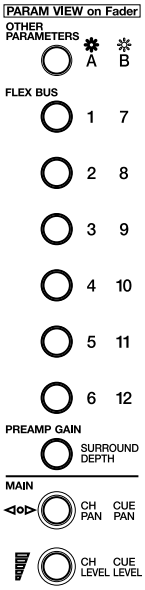
This feature lets you quickly adjust a parameter's setting for multiple channels from a single screen. When you're doing things like adjusting preamp gain settings at the start of a session, this can be very handy.

As you work on a mix, you can change what the faders control as you go along, and the faders will change *only* the setting of the parameter currently selected with the PARAM VIEW on Fader buttons.

XI. The PARAM VIEW on Fader Buttons

The PARAM VIEW on Fader buttons work together with the SECTION buttons, allowing you to assign fader control to the parameters that are available in the currently selected operating mode.

Let's see how this works when INPUT CH1-24 is lit, and the channel strips are controlling the analog inputs and DIGITAL INPUTs A and B. We'll start from the bottom button again.



If you press:	*The display shows and the faders control:*
CH LEVEL	the level of signals as they leave the input channels
CH PAN	the panning of signals leaving the input channels
PREAMP GAIN	the levels of signals coming into the input channels
6	the amount of signal sent from each input channel to Flex Bus 6
5	the amount of signal sent from each input channel to Flex Bus 5
4	the amount of signal sent from each input channel to Flex Bus 4
3	the amount of signal sent from each input channel to Flex Bus 3
2	the amount of signal sent from each input channel to Flex Bus 2
1	the amount of signal sent from each input channel to Flex Bus 1
OTHER PARAMETERS	one of the remaining input-channel parameters. Select the parameter you wish to control by turning V1 [SELECT PARAM], and then press F1 [SET].

The PARAM VIEW on Fader Buttons (Continued)

In addition, while holding down SHIFT, you can press:

- CH LEVEL—CUE LEVEL in green—to control the amount of signal sent from each input channel to the cue monitoring system.
- CH PAN—or CUE PAN in green—to control the stereo positioning of each signal sent from an input channel to the cue monitoring system.
- PREAMP GAIN—SURROUND DEPTH—to control the position of the input channels' signals in the three-dimensional surround field.
- 1-6 to control the amount of input signal sent to Flex Busses 7-12, respectively.

We'll discuss the SHIFT button in greater detail later on.

In other operating modes, the PARAM VIEW on Fader buttons assign fader control to parameters for the job at hand.

If you press a PARAM VIEW on Fader button and nothing changes on the display, you may have pressed a button that has no associated parameter in the current operating mode.

When this button is lit:	*You can choose parameters:*
MULTI IN CH 1-24	that control incoming R-BUS digital signals. The parameters are similar to those available for INPUT CH 1-24. PREAMP GAIN is not offered since R-BUS digital signals don't pass through a preamp.
FADER GROUP MASTER 1-24	that control the fader groups. There's only one, CH LEVEL, which controls their levels.
FLEX BUS MASTER 1-12	that control the Flex Busses and the outputs of internal send-and-return effects. CH LEVEL sets their output level. CH PAN sets their stereo position in the main mix. Send the channels' signal to another Flex Bus by pressing the 1-12 button for the Flex Bus to which you want to send it. OTHER PARAMETERS provides access to the SURROUND LR-C parameter that lets you set how the signal will be sent to a front-center speaker in a surround system. SHIFT + CH LEVEL, CH PAN or PREAMP GAIN let you to set its level and pan in the cue system or set its surround position, respectively.
MULTI OUT 1-24	that control the R-BUS, DIGITAL A and B and ASSIGNABLE outputs. Only CH LEVEL is necessary.

The lit SECTION and PARAM VIEW on Fader buttons tell you at a glance what the faders are currently controlling.

XII. Navigating the Display

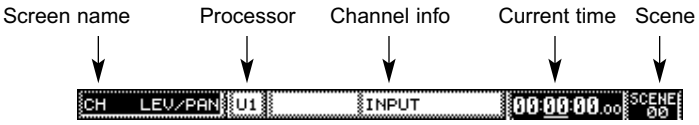
The console display is central to everything you do in the VM-7000 system. It's important to understand what the display is showing you, and to be able to get around on the display.

To learn how to adjust the display's contrast, see p. 25 in the *VM-C7200/C7100 Owner's Manual*.

What You See and What You Get

At the top of the display, you'll find the following helpful information:

- The name of the currently displayed screen
- The mixing processor you're currently working with
- The selected channel, or type of channel if a PARAM VIEW on Fader button is active
- The current time of the project you're working on. This is important when you're using the VM-7000's automation features or controlling an external recorder's transport from the VM-7000.
- The number of the currently selected scene. We'll discuss scenes later in this application guide.



If you're viewing an effects screen, you'll see the number of the current effect library to the right of the mixing processor's name.

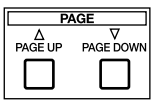
The display always shows you parameters associated with the current activity.

Pages

Some operations have only a single screen's-worth of parameters. Others involve more parameters than could possibly fit in one screen. When this is the case, parameters are presented on multiple screens, each of which is called a "page." If something you're doing has more than a single screenful of parameters, you'll see a page list in the upper-righthand corner of the display.

You can move from page to page by pressing PAGE UP or PAGE DOWN. With each press, a different page of parameters appears—the name of the current page is highlighted in the page list.

If you see an arrow at the bottom or top of a page list—as shown in the page list above—press PAGE DOWN or PAGE UP, respectively, to select and view additional pages.

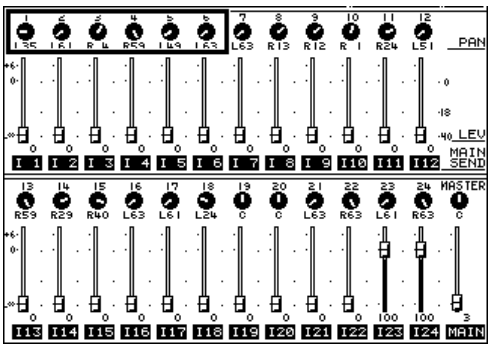


Navigating the Display (Continued)

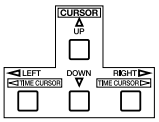
Selecting Parameters

Before you can adjust a parameter's setting, or "value," you must first select the area on the display that contains the desired parameter. A thick black outline—the selection box—appears around the currently selected group of parameters.

The first six input channel PAN parameters are selected in this illustration.



The selection box designates the parameters to be controlled by the V knobs and F buttons. To select a group of parameters containing the one you want to adjust, press the CURSOR buttons to move the selection box to the desired group. The CURSOR buttons light to show the direction or directions in which the selection box can be moved at any given time.

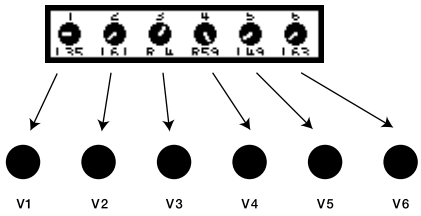


XIII. Adjusting Parameter Values

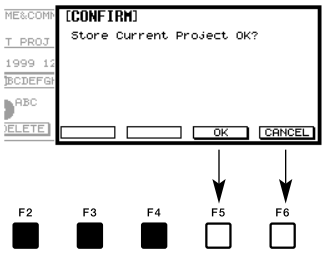
When a parameter is selected on the display, you can use the corresponding V 1-6 knob or F 1-6 buttons to change its value.

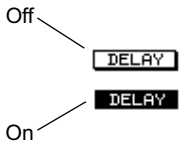
Some parameter values are adjusted using the V knobs and some with the F buttons. Here's how to tell which is which:

- Parameter values that can be set using a V knob appear on the display as small black knobs or faders. The left-most knob/fader corresponds to the first V knob, the next one to the second V knob, and so on.

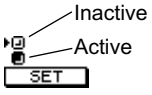


- Parameter values that can be set with an F button appear on the display as rectangles. The F button that edits the value lights. The left-most rectangle can be edited using the first lit F button, and so on. Some of these parameters are on/off switches—when they're on, their values are shown in reverse, with white text on a black background.



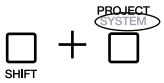


- Some multiple-choice parameters appear with active/inactive switches next to their possible values. When a switch is active, it's darkened. To change a switch's active/inactive state, select it with a V knob and click the SET button beneath it.



XIV. SHIFT and the Green Button Labels

Many of the console buttons have two labels: a white label and a green label. The white label refers to the button's normal functionality. The green label describes the button's function when you press it while holding down SHIFT. For example:



- If you press PROJECT without holding down SHIFT, the PROJECT screen appears containing parameters that relate to project management. This corresponds to the button's white label, "PROJECT."
- If you hold down SHIFT and press the same button, the SYSTEM screen appears, offering system-related parameters—this is why the button's green label says "SYSTEM."

We've already used the SHIFT button when discussing how the PARAM VIEW on Fader buttons work while the INPUT CH 1-24 SECTION button is lit, back on Page 9 of this application guide.

XV. The CH EDIT Buttons

Earlier, we discussed how the PARAM VIEW on Fader feature lets you quickly adjust a single parameter's value in all of your channels at once. Most of the time, however, you'll be concentrating on the settings for one channel at a time. The Channel Edit—or CH EDIT—buttons provide access all of the parameters associated with an individual channel. You can then edit the currently selected parameters using the V knobs and F buttons.

As you might expect, the parameters you'll see on the display when you press a CH EDIT button depend on what the channel is currently doing, as shown by the currently lit SECTION button.

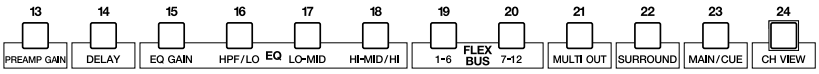
The Simplest Way to Use the CH EDIT Buttons

To view and adjust a channel's settings, press its CH EDIT button. In operating modes that offer more than a single page of parameters per channel—such as when INPUT CH 1-24 is lit—you'll see the now-familiar page list in the upper-righthand corner. Press PAGE UP or PAGE DOWN to navigate to the desired screenful of parameters.

When working with input, multi in and Flex Bus channels, the CH VIEW screen presents all of a channel's parameters in condensed form on a single screen. Use this screen when you want to set a wide range of channel parameters quickly. To make adjustments with a greater degree of visual feedback, use the parameters' individual CH EDIT screens.

The Fastest Way to Use the CH EDIT Buttons

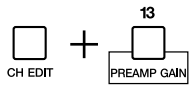
When working with input, multi in or Flex Bus channels, you can quickly jump to any parameter screen using the QUICK CH EDIT feature. Each parameter screen is represented by a STATUS button—the labels underneath the button shows its parameter screen.



The CH EDIT Buttons (Continued)

Here's how to use QUICK CH EDIT:

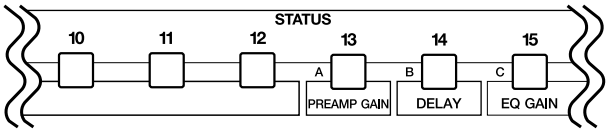
- Hold down a channel's CH EDIT button for a moment, and, without letting go, press the desired QUICK CH EDIT button. Release both buttons when the desired parameter screen appears.

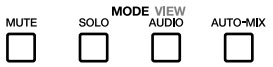


For example, to jump to an input channel's preamp parameters, hold down its CH EDIT button and press the PREAMP GAIN STATUS button.

When working with Flex Bus channels, only STATUS buttons 19-24 invoke QUICK CH EDIT parameter screens.

XVI. The STATUS and MODE Buttons





At the top of each channel strip you'll find a STATUS button with the channel's number printed above it. The STATUS buttons work together with the MODE buttons located to their right. These buttons let you:

- mute a channel by silencing its signal.
- solo a channel by silencing all other channels.
- send a channel's audio signal into the main stereo mix.
- place an external recorder track in record-ready mode so that you can record the channel's audio on the track.
- place an external recorder track in playback mode so that you can play back the channel's audio that's been recorded on the track.
- use the VM-7000's Automix automation feature to record and play back changes you make to channel parameter values.

What the channel STATUS buttons do depends on which MODE and SECTION button is lit. In each case, the color of the STATUS button—or the fact that it's not lit at all—tells you the channel's current status.

- When MUTE is lit, you can press a channel's STATUS button to silence the channel (red), or turn it back on (unlit). This doesn't apply to multi out channels, which can't be muted.
- When SOLO is lit, you can press a channel's STATUS button to solo the channel (amber), or un-solo it (unlit). This doesn't apply to multi out channels, which can't be soloed.
- When AUDIO is lit, what the STATUS buttons do depends on the type of channel you're working with:
  - When you're working with input, multi in or Flex Bus channels, you can press STATUS to send a channel's signal into the main stereo mix (green) or not (unlit).
  - When you're working with fader group channels, pressing STATUS has no effect.
  - When you're working with multi out channels, you can press STATUS to record-enable the corresponding track on an external recorder (red), or set it to playback (green).
- When AUTOMIX is lit, you can press STATUS to begin recording changes you make to parameter values (red), play them back (green), or turn off Automix for the channel (unlit).

When we refer to a STATUS button from here on, we'll show the lit MODE button in parentheses—as in (AUDIO) STATUS—where relevant.

XVII. The Patchbay

In a traditional recording studio, the inputs and outputs for each piece of equipment are connected to jacks in a single device called a “patchbay.” The patchbay’s jacks are arranged in a grid that make it easy for an engineer to interconnect the studio’s equipment using short cables called “patch cords.” The VM-7000 provides an onscreen patchbay—complete with virtual patch cords—that allows you to:

- route each input on the processor to the desired input/multi in channel.
- route each input signal, Flex Bus, and the main mix, cue mix and monitor output signals to the desired outputs on the processor

Why You Might Change Input Connections

As shipped from the factory, the analog input jacks on the processor are routed to their like-numbered input channels—INPUT Jack 1 goes to Input Channel 1, Jack 2 to goes to Channel 2, and so on. DIGITAL IN A —or B—is connected to the Input Channels 21 and 22.

Here are a couple of common situations in which you may want to change these default connections, or “routings.”

- Perhaps you’ve connected your mics to inputs in an order that’s physically convenient in terms of dragging cables in the studio or on the stage, but would like to work with them in a different order when you mix.
- Perhaps you’d like to always have your vocalist, for example, in the same input channel, even when he/she moves from one already-connected mic to another.
- Perhaps you’d like to send the same input signal to two different channels in order to create two different-sounding versions.

Why You Might Change Output Connections

As shipped from the factory:

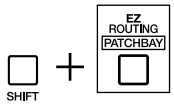
- Input Channels 1-16 are routed to Multi Outs 1-16 to make it easy to send them to the first 16 tracks of an R-BUS-connected recorder.
- Flex Busses 1-4 are routed to the analog ASSIGNABLE OUTs 1-4.
- The main mix output signal is routed to the DIGITAL OUT for easy connection to a DAT recorder.
- The cue and monitor output signals are not routed to any output jacks so that you can choose the desired jacks as needed.

Since the VM-7000 can be used in so many situations, there are many reasons you may want to send different signals to different processor output jacks or R-BUS output channels. Here are a few:

- You might want to route an input signal to a different track on an R-BUS-connected recorder.
- You might want to route a Flex Bus to a DIGITAL OUT to send it digitally to an external effect processor or recorder.
- You might want to route a Flex Bus to a particular ASSIGNABLE OUT jack.

How to Get to the Patchbay

To get to the PATCH BAY screen, hold down SHIFT and press EZ ROUTING.

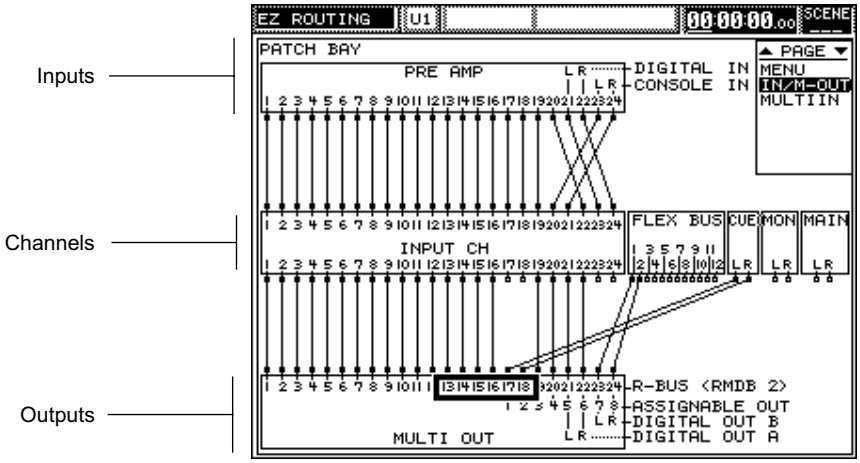


The Patchbay (Continued)

The Components of the Patchbay

In the VM-7000's patchbay, signal flows from the top of the screen to the bottom. The screen has three basic sections. At the top of each section, you'll find small boxes, or "nodes," representing the section's inputs. At the bottom, you'll see the section's output nodes:

- PRE AMP—This box contains the 24 preamps connected to the 20 analog inputs on the processor, the DIGITAL A and B IN, shown as 21 and 22, and the two inputs on the console (23 and 24). Though it's labeled as "PRE AMP," you can think of this box as representing your non-R-BUS inputs.
- INPUT, FLEX BUS, MAIN, CUE and MON—The middle row of boxes presents the system's input channels, Flex Busses, and main mix, cue and monitor busses.
- MULTI OUT—This box contains the system's 24 R-BUS multi outs, labeled as "R-BUS 1-24," as well as its ASSIGNABLE OUT Jacks 1-8, DIGITAL A and B outputs.



As its page list shows, the patchbay has a second page, MULTI IN, that lets you assign each R-BUS multi in signal to the desired multi in channel. Press PAGE DOWN to get to this screen if you wish.

In the patchbay, Multi Outs 17-24 use the same nodes as ASSIGNABLE OUTs 1-8. As a result, any signal you send to one of these multi out nodes also goes to the corresponding ASSIGNABLE OUT.

Routing a signal to:	*also sends it to ASSIGNABLE OUT:*
17	1
18	2
19	3
20	4
21	5
22	6
23	7
24	8

As you can see in the patchbay, signals sent to Multi-Outs 21-24 also go to the left and right sides of DIGITAL OUTs A and B, respectively.

The VM-7200 processor provides dedicated 1/4" jacks for Flex Bus OUTs 5-12 and XLR jacks for Flex Bus OUTs 7-12.

The Patchbay (Continued)

How to Make a Connection in the Patchbay

In the patchbay, you route a signal to a destination with two easy steps:

- Press the CURSOR buttons to select the destination.
- Turn the destination's V knob to select the desired source signal.

As an example, let's route a cue mix to a pair of ASSIGNABLE OUT jacks—we'll use ASSIGNABLE OUTs 7 and 8. You might want to do this when setting up a stereo headphone mix for performers in a studio, or when creating a stereo monitor mix for performers onstage.

To create a cue mix, press the SECTION button corresponding to the type of signal you want to use. Next, hold SHIFT and press CH LEVEL, and use the faders to create the mix. Press SHIFT and CH PAN and use the faders to control the stereo positioning of the cue signals.

To patch a cue mix into ASSIGNABLE OUTs 7 and 8:

1. On the PATCH BAY screen, use the CURSOR buttons to select R-BUS Multi Outs 19-24. As we noted on the previous page, signals sent to Multi Outs 23 and 24 are also sent to ASSIGNABLE OUT jacks 7 and 8.
2. Turn V5—the knob corresponding to Multi Out 23—clockwise until you see a patch cord connecting CUE L in the middle row of boxes to R-BUS Multi Out 23 in the bottom row.
3. Turn V6 to connect CUE R to Multi Out 24.

Once you've routed the cue mix to the ASSIGNABLE OUT jacks, you can connect the jacks to your headphone or monitor amplifier.

XVIII. Getting the First Signal

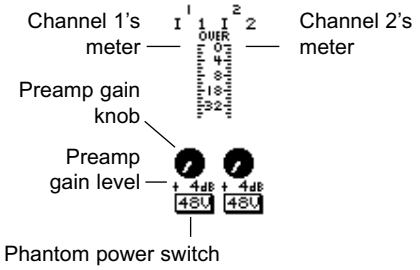
Now that we've got a good general sense of how things work, let's go through the required steps for routing an actual signal into the main mix.

As we move forward, you'll need to listen to your VM system, either on speakers or through headphones, as described on Page 3.

Though we'll be working with a single microphone's signal, the procedure is the same when working with a group of signals—just repeat the steps for each one.

1. Start, as you would in a normal session, by connecting a microphone to an input on the processor. For simplicity's sake, connect a mic to Input 1 on the processor. You can use either the 1/4" or XLR Input 1 jack (you wouldn't normally want to use both at the same time).
2. Hold down SHIFT and press EZ ROUTING to go to the patchbay.
3. Look at the display to make sure that there's a patch cord connecting INPUT jack 1 to Input Channel 1.
4. Press the INPUT CH 1-24 SECTION button—so that it lights—since we'll be working with a standard input channel.
5. Press the PREAMP GAIN PARAM VIEW on Fader button so that the faders assume control of all of the channel preamp gain settings. The faders are at their +4 position, all the way back towards you.

Getting the First Signal (Continued)

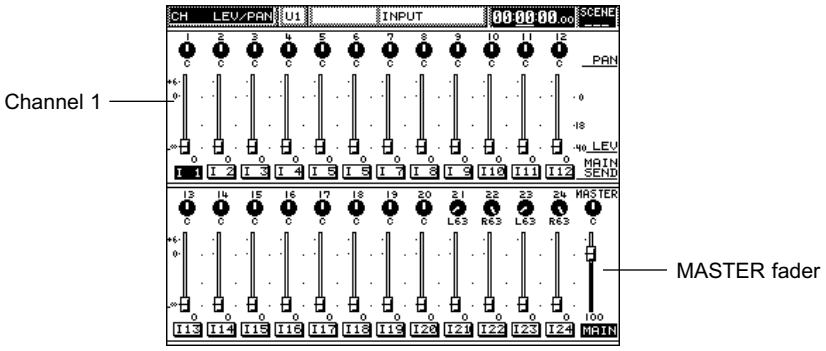


The display shows you the preamp gain and phantom power settings for all of your input channels, and provides a preamp level meter for each pair of channels.

6. Input some signal to the mic—speak into the mic or make some other sort of noise.
7. The first fader controls the preamp gain setting for Input Channel 1, so move the fader forward/upward until its meter shows a level that's as close to 0 as possible without triggering the OVER indicator. The OVER indicator is a dark oval that appears next to the word "OVER," just above the channel's meter. It signifies that the channel's signal has reached a level where it will clip. With the factory settings, the indicator remains lit for about three seconds each time it lights.

If you've purchased and installed an MB-24 Level Meter Bridge, you can also see your input level on the meter bridge.

8. Press the AUDIO MODE button if it's not already lit. After initialization, all of the mixer's channels are set to send their signal into the main mix so, as you see, all of their (AUDIO) STATUS buttons are lit green.
9. Press the (AUDIO) STATUS buttons for Channels 2 and up to turn them off. We only want the signal from Input Channel 1—the one we're working with—to be fed into the main mix.
10. Press the CH LEVEL PARAM VIEW on Fader button. The channel faders now control the levels of signal fed into the main mix from any channel whose STATUS button is currently lit green. In our case, that's Channel 1 only. Fader 1 moves all the way back down, and the INPUT CH LEV/PAN screen appears.



The selection box is not shown in the illustration above since it has no significance when adjusting levels using the PARAM VIEW on Fader feature.

The input CH LEVEL/PAN screen provides a pan control knob, fader and meter for each channel. It also offers a MAIN pan knob, fader and meter for the main stereo mix—on the meter bridge, this meter is labeled "MASTER." When you move the console's real faders in the following steps, the displayed fader and knob positions will reflect the changes you make.

11. Use the MASTER fader to set the MAIN level to 100.

In a real-world situation—after hitting the CH LEVEL PARAM VIEW on Fader button—you can move the MASTER fader to adjust the overall level of the main mix when it's too quiet or loud.

Getting the First Signal (Continued)

12. Bring up Input Channel 1's fader until it's set to 100. You should now be hearing the signal and seeing it in the stereo MAIN meter on the display and the MASTER meter on the meter bridge.

The CH LEVEL/PAN screen and optional meter bridge are currently showing the pre-EQ input level in Channel 1's meter. If you're ever having trouble getting an input signal into the main mix, this can help you troubleshoot your routing by showing whether or not the signal is successfully reaching its channel strip in the first place. You can change what the channel meters show by changing the POSITION setting on the LEVEL METER screen, as described on p. 36 of the *VM-C7200/C7100 Owner's Manual.*

Now let's set the stereo placement of the signal in the main mix.

13. Press the CH PAN PARAM VIEW on Fader button. The faders move to reflect the channels' current pan settings and the INPUT CH LEVEL/PAN display is presented. Most of the channels are set to their center stereo positions, as reflected by the values shown under the pan knobs on the display.
14. Move Channel 1's fader to pan the signal in the main mix's stereo field. As you move the fader up and down, you should hear it moving from speaker to speaker. When you're done, place the signal in the center—there'll be a "C" under the displayed pan knob.

Before proceeding to the next section, press Input Channel 1's green (AUDIO) STATUS button to turn it off and remove Input Channel 1's signal from the main mix for now.

XIX. Understanding Multi Outs

The 24 multi outs carry signals to the system's R-BUS digital outputs, SP/DIF and AES-EBU digital outputs, and ASSIGNABLE OUTs. Think of the multi outs as wires connected directly to the system's output jacks and R-BUS output channels. When you want to route something to an output—an individual signal, a Flex Bus, the main, cue or monitor mix—you assign it to the multi out that's connected to the desired output. Only one thing can be assigned to each multi out at any given time.

Here's how the 24 multi outs are connected to the system's outputs:

- *R-BUS*—There are 24 R-BUS channels. Therefore, Multi Outs 1-24 carry signals to R-BUS Channels 1-24, respectively.
- *Analog*—In addition to the VM-7200's dedicated Flex Bus output jacks (more on these later), both the VM-7200 and VM-7100 provide eight analog ASSIGNABLE OUT jacks, labeled "1-8." Multi Outs 17-24 are connected to ASSIGNABLE OUTs 1-8, respectively.
- *SP/DIF*—Multi Outs 21 and 22 carry signals to the SP/DIF DIGITAL OUT A connectors.
- *AES-EBU*—Multi Outs 23 and 24 carry signals to the AES-EBU DIGITAL OUT B connectors.

You can see all of this in the patchbay's MULTI OUT box.

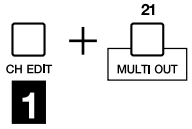
Now you can see why they're called "multi outs." When you send a signal to Multi Out 21, for example, it goes to *three* outputs: R-BUS output 21, ASSIGNABLE OUT 5, and the left side of DIGITAL OUT A.

XX. Routing a Signal to a Multi Out

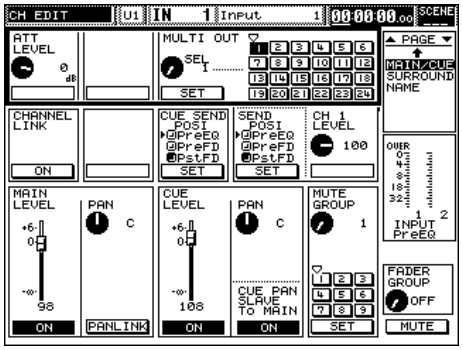
Let's send our signal to one of the multi outs. This is something you'll do when sending a single signal to a track on a multitrack recorder—as a "direct out"—or to an external effect processor, for example.

When you send a signal to an external effect processor, you'll need to bring the effected signal back into the system by connecting the effect processor's output(s) to one (or two) VM-7000 inputs.

We'll send our signal to Multi Out 6, an R-BUS-only multi out.



1. While holding down Channel 1's CH EDIT button, press the QUICK CH EDIT MULTI OUT button.
2. When the following display appears, release both buttons.



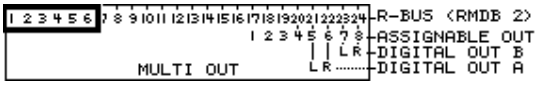
Since we're no longer using the PARAM VIEW on Fader feature, it's handy that the QUICK CH EDIT feature has already selected the MULTI OUT parameter on the display.
We can see that this input channel is currently routed to Multi Out 1.

3. Press F3 [SET] to break this connection—Multi Out 1 turns white.
4. Turn V3 to select Multi Out 6.
5. Press F3 [SET] to set the new connection—Multi Out 6's box turns dark to show the connection is activated. Input Channel 1's signal is now routed to R-BUS Multi Out 6.

A signal can be assigned to as many multi outs as you wish.

If you prefer a more global perspective as you do your routing, you can use the patchbay instead. We'll adjust our routing this time from the multi out's point of view:

1. Hold down SHIFT and press EZ Routing—the patchbay appears.
2. Press CURSOR LEFT three times to select MULTI OUTs 1-6.



3. Turn V6 to see how you can select a different INPUT CH's signal for MULTI OUT 6.
4. When you're done experimenting, turn V6 all the way counterclockwise—no signal is now routed to MULTI OUT 6.
   As you can see, nothing's being sent to MULTI OUT 1, either. Let's route INPUT CH 1's signal back to MULTI OUT 1.
5. Turn V1 to route INPUT CH 1's signal to MULTI OUT 1.
6. Let's return things to the way they were when we first started this section by turning V6 to route INPUT CH 6 to MULTI OUT 6.

Before moving on, press LEVEL METER to return to our "home page."

XXI. Using Flex Busses

As we mentioned back on Page 6, you can send signals from one place to another in a VM-7000 system using any of its 12 Flex Busses. Flex Busses can carry signals to locations within the VM-7000, or carry signals to its output connectors to be sent to external devices.

When a Flex Bus acts as a pathway inside the VM-7000, it's operating in its INT—for "Internal"—mode. When it's carrying signals to an output, it's functioning in its EXT—for "External"—mode. Flex Busses 1-8 each have a BUS MODE switch that allows you to select the desired operating mode. Flex Busses 9-12 are intended for external use only.

The VM-7200 provides dedicated output jacks for Flex Busses 5-12. On the VM-7100, route external Flex Busses to ASSIGNABLE OUT jacks.

We'll explore these two Flex Bus modes in the next two sections.

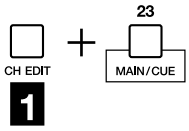
XXII. Routing Signals to an Internal Flex Bus

After initializing the system, Flex Busses 1 and 2 are set to INT. Let's verify this:

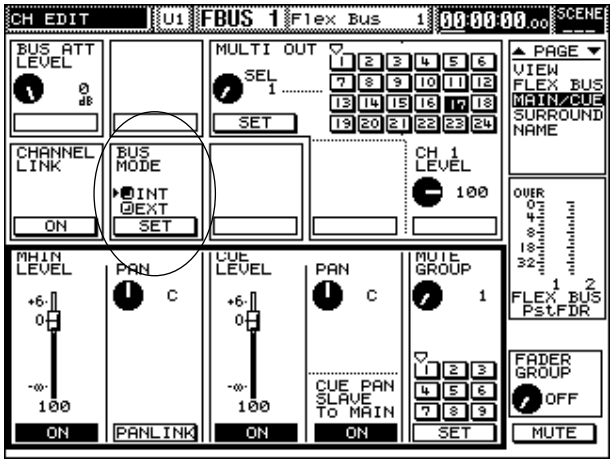
1. Press the FLEX BUS MASTER 1-12 SECTION button. Channel Strips 1-12 are now controlling the system's Flex Busses.
2. To demonstrate this, press CH LEVEL—the faders move to show the current levels for the 12 Flex Busses. The (AUDIO) STATUS indicators for Flex Busses 1-8 are on, and those for 9-12 are off.

Since the (AUDIO) STATUS indicators for Flex Busses 1-8 are lit green, these Flex Busses are currently being sent into the main mix.

We'll use Flex Busses 1 and 2 in our example.



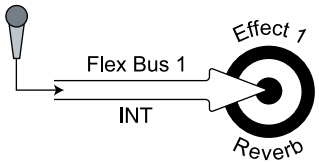
3. Hold down Flex Bus Channel 1's CH EDIT button and press MAIN/CUE. In the middle area of the display, you can see that BUS MODE is set to INT, as shown by the setting of its switch.



Since this is the way we want Flex Bus 1 to be set now, there's nothing we need to do to. Let's check Flex Bus 2's mode setting.

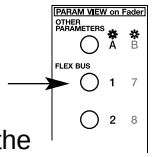
4. Press Flex Bus Channel 2's CH EDIT button—the display changes to show Flex Bus 2's settings. Its BUS MODE is set to INT. Again, this is what we want.

Routing Signals to an Internal Flex Bus (Continued)



When a Flex Bus is set to INT, it acts as a pathway down which you can send signals to one of the VM-7000's internal effects. Flex Bus 1 always sends signal to internal Effect 1 (or "FX 1"), Flex Bus 2 to Effect 2, and so on. Let's use Flex Bus 1 to send our input signal to Effect 1:

1. Press INPUT CH1-24 so that the channel strips once again control input signals. The faders move back to their input-level positions. As the system is currently configured, Effect 1 is using a reverb—we'll discuss effects in more detail a bit later on. What this means for our purposes is that any signals we assign to Flex Bus 1 will travel down Flex Bus 1 to a reverb effect.
2. Press the round FLEX BUS 1 button in the PARAM VIEW on Fader area. The display shows the amount of signal being sent from the input channels to Flex Bus 1. The MASTER fader controls the overall level of Flex Bus 1. The other faders control the amount of signal sent from each input channel to Flex Bus 1.



3. While sending some sound into your mic, raise Input Channel 1's fader to change the amount of its signal being sent to Flex Bus 1. As you bring up the send level, you hear more and more of Effect 1's reverb since more and more of Input 1's signal is being sent into Flex Bus 1, and therefore into Effect 1.

You're hearing the reverb because Effect 1's output,or "return," is currently routed into the main mix. We'll discuss this further later on.

4. To hear Input Channel 1's uneffected—or "dry"—signal along with the reverb, press its (AUDIO) STATUS button so that it lights green.
5. Bring Input Channel 1's fader all the way back/down to turn off its send to Effect 1's reverb.

Though we're only sending a single signal to Flex Bus 1 in this example, you can send as many signals as you want to a Flex Bus and its effect.

Let's try the same thing with Flex Bus 2's delay-chorus effect:

1. Press the round FLEX BUS 2 button—here's the display showing the send levels to Flex Bus 2.
2. Raise Input Channel 1's fader to increase its send level to Flex Bus 2—as you raise the fader, you can hear more and more of Effect 2's delay-chorus.
3. Bring Input Channel 1's fader all the way back to turn off its send to Effect 2.

Before proceeding, turn off Input Channel 1's (AUDIO) STATUS button to remove it from the main mix. Press LEVEL METER to return to our home page.

XXIII. Routing Signals to an External Flex Bus

As we mentioned earlier, Flex Busses can carry signals out of the VM-7000, both through R-BUS output connections and the system's analog and digital output jacks.

When you wish to send a single signal to an output, you can do so directly, using the method we discussed on Page 19. However, when you want to send more than one signal to an output, a Flex Bus is what you'll need. Use an external Flex Bus to send multiple signals to:

- a single track on a multitrack recorder. You may want to do this when combining mics used on a drum kit, for example.
- a monitoring system for your performers.
- an external effect processor. Remember that when you send signals to an external effect processor, you'll need to bring the effected signals back into the system by connecting the effect processor's output(s) to one (or more) VM-7000 inputs.

You can also use a Flex Bus when you want to send a signal that's been processed by one of the VM-7000's internal effects to an external device such as a track on a multitrack recorder.

The procedure for sending signals via Flex Bus to an output has two basic steps: route the Flex Bus to the desired output, and send the signals to the Flex Bus. Let's demonstrate this by sending some signals on Flex Bus 1 to ASSIGNABLE OUT 4. We can imagine that the ASSIGNABLE 4 jack is connected to a track input on a multitrack recorder.

Before we start, we'll have to set up a second signal:

1. Connect a second mic or other type of input signal to Input 2 on the processor.
2. Press PREAMP GAIN and use Input Channel 2's fader to set its preamp gain.
3. Press CH LEVEL and set Input Channel 2's level to 100. Don't worry that you're not hearing Input Channel 2's signal—this is because we're not currently sending it into the main mix.

Now we're ready to proceed:

1. Press FLEX BUS MASTER 1-12.
2. Hold down Flex Bus Channel 1's CH EDIT button and press MAIN/CUE.
3. Press CURSOR UP to select the center row of parameters.
4. Turn V2 [BUS MODE] to set BUS MODE to EXT.
5. Press F2 [SET] to activate the re-configuration of Flex Bus 1.
6. Press CURSOR UP to select the top row of parameters. You can see that Flex Bus 1 is currently routed to Multi Out 17, which also feeds ASSIGNABLE OUT 1, as we said on Page 18.
7. Turn V3 to select Multi Out 17, and press F3 [SET] to de-activate this connection.
8. Turn V3 to select Multi Out 20—the multi out that feeds ASSIGNABLE OUT 4—and press F3 [SET] to activate this connection. Flex Bus 1 is now routed to ASSIGNABLE OUT 4.
9. Press INPUT CH 1-24.
10. Press the round FLEX BUS 1 button.

Routing Signals to an External Flex Bus (Continued)

In a real session, you could listen to what's on Flex Bus 1 by listening to the track on the multitrack recorder through one of the VM-7000's input or multi in channels. For now, let's listen to Flex Bus 1 on the VM-7000 itself to hear what's going to the ASSIGNABLE OUT 4 jack. You can also use this technique to create a basic mix when sending signals to a monitor—your performers can then help you refine the mix by telling you what they need to hear.

11. Press SOURCE SELECT. This screen lets you choose what will be heard in the VM-7000's own monitor feed.
12. Turn V1 [SELECT] to choose FBUS 1—you're now listening to Flex Bus 1 itself, though there's nothing to be heard there yet.
13. Press F6 [EXIT] to return to the FBus Send 1 screen.
14. Use the first two faders to set the amount of signal sent from Input Channels 1 and 2 to Flex Bus 1, and therefore to ASSIGNABLE OUT 4.

Before proceeding to the next section, bring the first two faders all the way down.

XXIV. Routing Signals to a Pair of Flex Busses

You can also send a stereo submix of signals to external devices by sending them out on a linked pair of Flex Busses. You would do this, for example, when:

- you want to combine a group of drum mics into a single stereo image to be recorded on two tracks of a multitrack recorder. This would be the case if you wanted to mix your cymbal and tom mics into a pair of drum kit overhead tracks. You can also use this technique when recording groups of singers, horn or string players, percussionists and so on.
- you want to create a stereo monitor mix for your performers.
- you wanted to send multiple signals to an external effect processor with true stereo inputs.

Here's how to do this using Flex Busses 1 and 2:

1. Press FADER UTILITY.
2. Press F1 [CHANNEL LINK].
3. Press PAGE DOWN twice to display the FLEX BUS channel-linking page.
4. Press F1 [LINK]—Flex Busses 1 and 2 are now linked as a single stereo entity. You can link any odd/even pair of Flex Busses.

Note that the round FLEX BUS 1 and 2 buttons are *both* now lit.

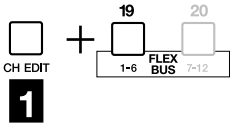
Let's route the two Flex Busses to ASSIGNABLE OUTs 4 and 5.

5. Press FLEX BUS MASTER 1-12.
6. Hold down Flex Bus Channel 1's CH EDIT button and press MULTI OUT.

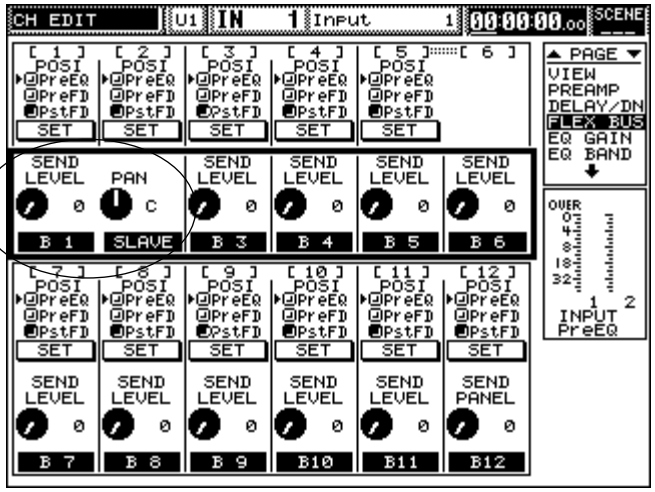
Routing Signals to a Pair of Flex Busses (Continued)

We can see on this screen that Flex Bus 1 is already set to EXT and Multi Out 20 from our last example. All we need to do to view the same screen for Flex Bus 2 is to press its CH EDIT button.

7. Press Flex Bus Channel 2's CH EDIT button. We can see that Flex Bus 2 is also set to EXT—when we linked the two Flex Busses, Flex Bus 2's BUS MODE was reset to EXT to match Flex Bus 1's setting. However, Flex Bus 2 is still routed to Multi Out 18, and we want to send it to Multi Out 21 so that it goes to ASSIGNABLE OUT 5.
8. Turn V3 to select Multi Out 18, and press F3 [SET] to de-activate the connection.
9. Turn V3 to select Multi Out 21 and press F3 [SET] to activate this connection. Flex Bus 2 is now routed to ASSIGNABLE OUT 5. Let's see how we're going to listen to the two Flex Busses.
10. Press SOURCE SELECT. When we last visited this page, we selected FBUS 1. Since Flex Bus 1 is now linked to Flex Bus 2, the VM-7000 offers us FBUS 1/2 as an option. Since it's already selected, there's nothing we need to do here. We're already listening to Flex Bus 1 and 2.
11. Press F6 [EXIT].
12. Press INPUT CH 1-24.
    The display now shows us our sends to Flex Bus 1. Since Flex Busses 1 and 2 are linked, any signal we send to Flex Bus 1 will be sent equally to Flex Bus 2. As we've done before, we could raise one of our two faders to send its signal to the two Flex Busses. However, we also want to be able to pan each signal between the two Flex Busses. There's an easier place to do both things.



13. Hold down Input Channel 1's CH EDIT button and press FLEX BUS 1-6. When the following display appears, let go of both buttons.



14. This screen lets us use the V knobs to set both the level and panning of the signals we're sending to Flex Busses 1 and 2.
15. Turn V1 [SEND LEVEL] to send the desired amount of Input Channel 1's signal into the Flex Bus 1/2 pair—set it to 100 for now. Beneath the PAN parameter next to SEND LEVEL, you can see that Channel 1's SLAVE parameter is activated. When slaving is turned on, a channel's panning to linked Flex Busses automatically mimics its panning in the main mix. Since we want to control Channel 1's panning to Flex Bus 1 and 2 independent of its position in the main mix, we'll de-activate SLAVE.

Routing Signals to a Pair of Flex Busses (Continued)

16. Press F2 [SLAVE] to turn slaving off.
17. Turn V2 [PAN] counter-clockwise to pan Input Channel 1's signal all the way to the left.
18. Press Input Channel 2's CH EDIT button—the screen changes to show you the same parameters as they apply to Input Channel 2.
19. Press F2 [SLAVE] to de-activate slaving. Turn V1 [SEND LEVEL] to set Input Channel 2's level to 100 and turn V2 [PAN] to pan it all the way to the right.
20. Make some noise and listen to your completed stereo Flex Bus mix.

Before proceeding:

1. Press FLEX BUS 1 and bring down the faders for Input Channels 1 and 2 to turn off their sends to Flex Busses 1 and 2.
2. Press FLEX BUS MASTER 1-12. While holding down Flex Bus Channel 1's CH EDIT button, press MULTI OUT. Cursor down and use V2 [BUS MODE] and F2 [SET] to set BUS MODE to INT—since Flex Busses 1 and 2 are linked, this will set them both to INT.
3. Press FADER UTILITY and F1 [CHANNEL LINK]. Press PAGE DOWN twice and press F1 [LINK] to unlink Flex Busses 1 and 2.
4. Press SOURCE SELECT, choose MAIN and press F6 [EXIT].

XXV. Understanding the Internal Effects

The VM-7000 provides a powerful suite of effect-processing tools. In order to fully harness their power, you'll need to understand what they are and how they work. The following section presents an overview of the VM-7000 effects. It's followed by hands-on examples.

When shipped from the factory, the VM-7000 contains the equivalent of three stereo effect processors. The first two—Effect 1 (or FX1) and Effect 2 (FX2)—supply a variety of general-purpose effects. The third—the Master Effect or "Master FX"—provides effects designed specifically for use with the system's main and monitor outputs.

You can install up to three VS8F-2 Effect Expansion Boards in a VM processor to add six additional general-purpose stereo effect processors, Effects 3-8 (FX 3-8).

Each processor creates its effect by utilizing an "algorithm," a software formula that results in an effect you hear, such as a reverb or delay, and so on. The VM-7000 contains 39 general-purpose algorithms, and three master algorithms. Each algorithm offers a collection of parameters that let you customize the effect that it produces—you can then save the resulting effect in the VM-7000's memory as an effect preset called a "library." The VM-7000 ships with nearly 200 pre-programmed effect libraries.

You can use the VM-7000's effects on a variety of signals: input signals, Flex Bus signals, main and monitor out signals, for example. You can also use each effect processor as a stereo effect or two mono effects.

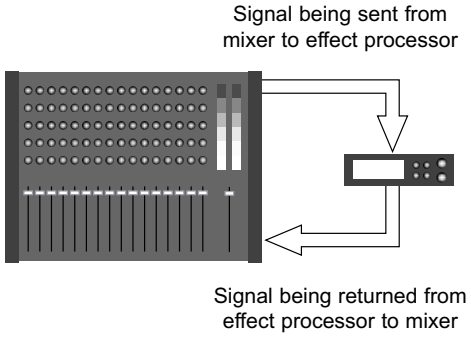
There are two basic ways in which you can get a signal into and out of an effect, and each has its use. All effects use one or the other method—some even use *both*, as we'll see—and are often described using the method's name. That's what we'll do in the following sections.

Understanding the Internal Effects (Continued)

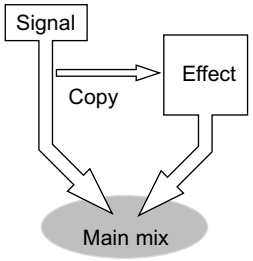
Send-and-Return Effects

When you want to add an effect to a signal and hear both the original signal and the effect-processed version mixed together, you'll use a "send-and-return" effect. This would be the case, for example, when adding reverb or delay. Neither effect would make much sense without the original signal being audible as well.

A send-and-return effect derives its name from the way a signal would travel from a traditional mixer to an external effect and back. You would *send* the signal out of the mixer to an external effect processor, and then *return* the processor's output—containing the processed signal—back into the mixer. From there, you could combine the processed version with the original signal in the main mix, cue mix, or on a bus you were sending to a track on a multitrack recorder. Even in the VM-7000, with its internal effects, a signal takes essentially the same trip into and out of a send-and-return effect.



Signals travel into internal send-and-return Effects 1-8 on its Flex Busses. When a Flex Bus's BUS MODE is set to INT, the Flex Bus is automatically connected to the input of the internal effect processor to which it numerically corresponds. Flex Bus 1 is connected to FX 1's input, Flex Bus 2 is connected to FX 2's input, and so on. If you've installed three VS8F-2's, Flex Busses 3-8 carry signals to Effects 3-8, respectively.

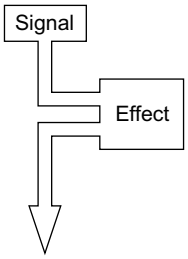


When you apply a send-and-return effect to a signal, a copy of the signal is sent on a Flex Bus into the corresponding effect, and the effect's output is then combined with the signal in the main mix—as shown to the left—in a cue mix, or on one or more external Flex Busses routed to system outputs.

We've actually already used a send-and-return effect back on Page 20, when we learned how to route signals to a Flex Bus. In a few pages we'll review what we did now that we have a deeper understanding of what's actually going on.

Understanding the Internal Effects (Continued)

Insert Effects



When you want an effect-processed version of a signal to completely replace the original signal, you'll use an "insert" effect routing. You'll want to do this when using effects such as dynamic processors, EQs, mic and amp modelers, rotary speakers, hum cancelers and so on—in each case you want to wind up with *only* the processed signal.

An insert effect gets its name from the fact that it's *inserted* into the signal's path, causing the signal to take a detour through the effect before continuing on its way. In the VM-7000, you can re-direct a signal into and out of an insert effect in various places.

You can re-direct:

- an input channel's signal into and back out of an insert effect just before it reaches the channel EQ.
- an input channel's signal into and back out of an insert effect just before it reaches the channel fader.
- a multi in channel's signal into and back out of an insert effect just before it reaches the channel EQ.
- a multi in channel's signal into and back out of an insert effect just before it reaches the channel fader.
- an internal Flex Bus's signal into and back out of an insert effect.
- an external Flex Bus's signal into and back out of an insert effect.
- the system's main output into and back out of an insert effect.
- the system's monitor output into and back out of an insert effect.

We'll describe how to set up an insert effect in a few moments.

How Effects 1 and 2 Can Be Inserted

Effects 1 and 2—the effects that ship with every VM-7000—are the system's most flexible effects. You can:

- insert them on any input and multi in signal at any time.
- insert them on external Flex Busses if you want to send a group of signals through internal effects.
- insert them on the system's main and monitor outputs.

How Effects 3-8 Can Be Inserted

Effects 3-8—the effects produced by up to three optional VS8F-2 boards—provide insert processing for specific input or multi in channels.

This VS8F-2...	*...provides:*	*...for inserting on Input or Multi In:*
A	Effects 3 and 4	Channels 1-4, 13-16
B	Effects 5 and 6	Channels 5-8, 17-20
C	Effects 7 and 8	Channels 9-12, 21-24

When you wish to insert the two effects supplied by an optional VS8F-2, you begin by assigning the VS8F-2 to the desired input or multi input channels using the following procedure:

1. Press EFFECTS 1-8.
2. Press CURSOR DOWN to select the bottom row of parameters.
3. Press F6 [JUMP].
4. Use the CURSOR buttons to select the desired VS8F-2.
5. Turn V1 [SELECT] to choose INPUT or MULTI IN. For our example, choose INPUT for all of your VS8F-2s.
6. Press F1 [SET] and F5 [OK] to execute each change.

Understanding the Internal Effects (Continued)

To help ensure that you get the most from the VM-7000's internal effects, it's a good idea to plan out your effect strategy before setting up individual effects. As you plan, take into account the capabilities of each built-in and optional effect—considering, for example, the inputs or multi ins with which each effect processor is intended to work—to fully harness the system's effect-processing power. You may even want to connect your input and multi in signals in an order that makes it easy to get their signals to the effects you intend to use.

The Basic Procedure for Setting Up an Effect

Each time you use an effect, you'll:

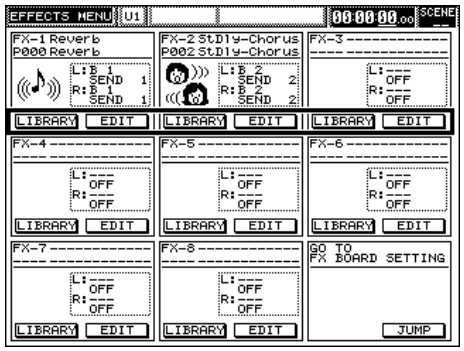
- set up the effect's send-and return or insert routing.
- select and load a new effect library if necessary.
- send the desired signals to the effect on the corresponding Flex Bus if you're setting up a send-and-return effect.
- edit the effect to taste if necessary.
- make final adjustments to your effect-related levels.

XXVI. Setting Up a Send-and-Return Effect

After resetting the VM-7000—as we did way back on Page 5—Effects 1 and 2 are set up as send-and-return effects. Even so, let's go through the three basic actions we listed above for setting up this kind of effect.

Set Up the Effect's Routing

1. Press EFFECTS 1-8.
2. Press CURSOR UP twice to select the LIBRARY and EDIT parameters for the top row of effects.



(If you've installed any VS8F-2 boards, you'll see their effects as well)

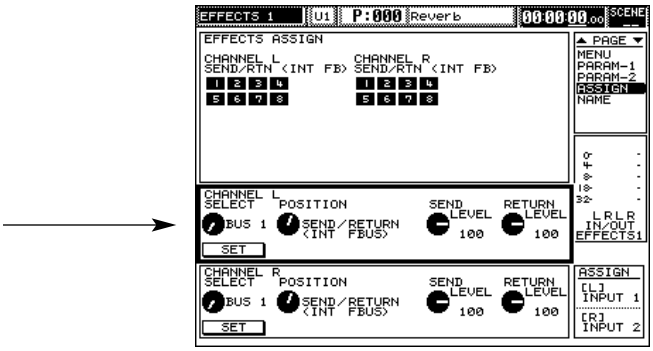
We'll work once again with Effect 1.

3. Press F2 [EDIT] to display Effect 1's first editing screen.
4. Press PAGE DOWN twice to view Effect 1's ASSIGN screen.

There's a shortcut for getting to an effect's ASSIGN screen. Once you've selected the desired row of effect parameters in Step 2 above, hold down SHIFT and press F2 [EDIT] to jump to Effect 1's ASSIGN page, SHIFT + F4 [EDIT] for Effect 2's, or SHIFT + F4 [EDIT] for Effect 3's (presuming you've installed at least one VS8F-2). For Effects 4-6, cursor to the middle row and use the same shortcuts. For Effects 7 and 8, cursor to the bottom row.

Setting Up a Send-and-Return Effect (Continued)

5. Use the CURSOR buttons to select CHANNEL L's parameters if they're not already selected. These parameters control the left side of Effect 1.

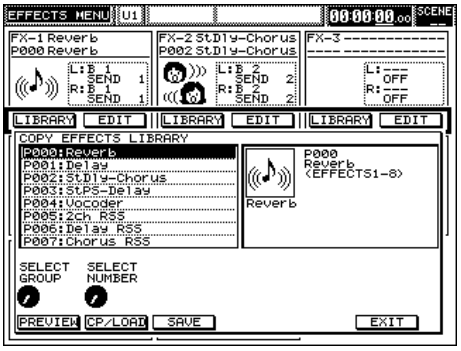


6. To select a send-and-return configuration, turn V2 [POSITION] to select SEND/RETURN (INT F BUS). In our case, this value is already selected, so there's nothing you need to do.
7. CHANNEL SELECT should be set to BUS 1, the Flex Bus that carries signal to Effect 1. This should always be set to the Flex Bus associated with the send-and-return effect you're setting up.
8. Press F1 [SET] to register the settings for Effect 1's left channel. Since send-and-return effects are always stereo, the VM-7000 automatically sets the right side's routing to match the left side's.

Some of the VM-7000's effects produce a stereo output from a mono input, while others have both a stereo input and a stereo output. See the algorithm list starting on p. 119 in the *VM-C7200/C7100 Owner's Manual* to learn more about the VM-7000's individual effect algorithms.

Select an Effect Library

1. Press EFFECTS 1-8 to return to the EFFECTS MENU screen.
2. Press F1 [LIBRARY].



The display shows you a list of the effect libraries currently in the VM-7000's memory.

There are actually two sets of libraries: factory libraries—these begin with a "P" for "preset"—and user libraries, which begin with "U" for "user." The P libraries are always available, and cannot be changed. You can save your own effect edits as new libraries in the U memory locations—we'll describe how to do this later.

Setting Up a Send-and-Return Effect (Continued)

You can turn V1 [SELECT GROUP] to jump between the same-numbered libraries in the P and U sets.

The first 39 factory libraries—P000-P038—present the VM-7000's algorithms in their default state. When you wish to create a new effect from scratch, you can begin by selecting one of these libraries.

Let's select a reverb designed for a single voice since we've got a mic plugged in.

3. Turn V2 [SELECT NUMBER] to select P052:RV:Vocal Plt, for "Reverb: Vocal Plate." This library recreates the sound of a reverb produced by causing a large metal plate to vibrate.
4. Press F2 [CP/LOAD] ("Copy/Load") to load the Vocal Plt library. We'll describe how to try out different effects a little later on—you can't really do this yet since you can't hear what the different libraries sound like until you send some signals into the effect.

Send Signals to the Effect

Now that we've selected an effect library, let's send some of our mic signal to it:

1. Press INPUT CH 1-24 and the round FLEX BUS 1 button.
2. Raise the first fader—Input Channel 1's send to Effect 1— to a setting of 100 while making some noise into the mic. You can hear the output of Effect 1 containing the reverbed mic signal.
3. Since send-and-return effects are typically mixed together with the dry signal, press CH LEVEL and then press Input Channel 1's (AUDIO) STATUS button so that it lights in green. The dry mic signal is now being sent into the main mix along with Effect 1's output.
4. Press FLEX BUS 1 once more and try out different fader positions to hear how a higher fader setting results in more reverb, while a lower one results in less while the level of the dry signal remains the same. What you're doing is adjusting Input Channel 1's send level to Flex Bus 1, and therefore, its send to Effect 1.

This is an important concept. Since you're getting more or less reverb as you raise or lower the fader, you may think you're turning the volume of the reverb itself up and down, but you're not. What you're really doing is determining how much of the mic's signal is being fed into Effect 1 for processing. Effect 1's output level is not changing—what's changing is how much of the mic's signal it's working with. You'll soon learn more about this distinction.

5. When you're done experimenting, set the fader to 75.
   Let's use Input Channel 2's fader to send its signal to Effect 1 as well.
6. Press CH LEVEL and then Input Channel 2's (AUDIO) STATUS button so that its dry version can also be heard.
7. Press FLEX BUS 1 and set Input Channel 2's fader to 120. This results in more reverb for Input Channel 2 than Input Channel 1. You can adjust the two signals' combined volume—the master level for the Flex Bus—by moving the MASTER fader.
8. Change the position of the MASTER fader to hear how the reverb level goes up and down for both signals at once. When you're done experimenting, return the MASTER fader to 100.

Setting Up a Send-and-Return Effect (Continued)

Edit the Effect

Let's demonstrate how to edit an effect by adjusting one of Vocal Plt's parameters:

1. Press EFFECTS 1-8.
2. Press F2 [EDIT].
   As you can see at the top of the screen, Vocal Plate is made up of an EQ and a Reverb (REV) component. Though this screen is showing us Vocal Plt's EQ parameters, we actually want to change one of its reverb settings.
3. Press PAGE DOWN once to display Vocal Plt's reverb settings.
4. Use the CURSOR buttons, if necessary, to select the Reverb Room-Size, Time, Pre-Delay and Difusion and Density parameters.
   Let's change how long our reverb lasts.
5. Turn V2 [Time] up to 15.0 and make some noise into your mic—the reverb now lasts for 15 seconds. We've drastically changed the sound of the reverb we started with.
6. Turn V2 [Time] down to set the Time parameter to 1.0 second—notice how short the reverb has become. Even small changes to a reverb's time can make a big change in its sound.
7. Start by resetting Time to 2.2 seconds, the setting we started with. Make some noise in the mic to get a good sense of what this reverb sounds like. In its current state, it would make a nice general-purpose reverb for most any type of song.
8. Set Time to 3.7 and listen to the reverb. Even though we've only increased its Time value by one-and-a-half seconds, the reverb is now much too long to be of much use on an up-tempo song. But it might sound really good on a ballad.

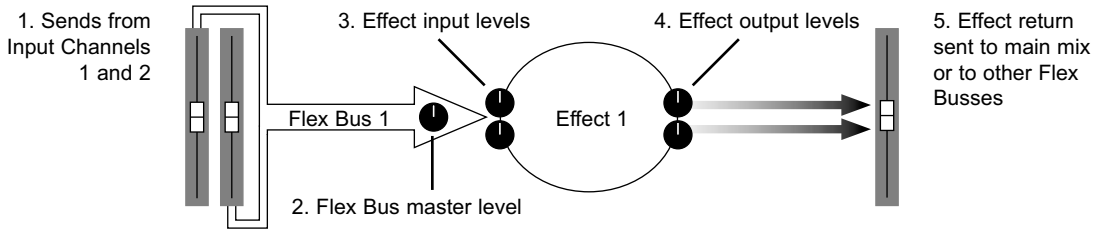
To learn about other effect parameters, see the algorithm list starting on p. 119 in the *VM-C7200/C7100 Owner's Manual.*

Adjust Your Effect-Related Levels

Once you've set up your send-and-return effect, sent signal(s) to it and customized it, you'll most likely want to tweak its various level settings to perfection. There are five such settings that adjust:

1. The sends from your individual input or multi in channels.
2. The overall master level of the Flex Bus.
3. The effect processor's overall input level.
4. The effect processor's overall output level.
5. The amount of effect that's sent into the main mix, cue mix or to other Flex Busses. This is also called the "effect return" level.

Here's where the level controls are in our send-and-return effect.



Though a send-and-return effect has separate left- and right-side inputs and output level controls, we're counting each pair of input or output controls as one item for now.

Setting Up a Send-and-Return Effect (Continued)

1. The sends from the individual input or multi in channels

When you want to adjust the amount of effect applied to input or multi in channels relative to each other, you can adjust their individual sends to the effects. You can also think of these sends as the place where you set the basic amount of effect to be applied. For now, we don't need to change the send levels to the effect.

2. The Flex Bus master level

If you've got the desired amount of effect on your signals relative to each other, but the overall level of a Flex Bus is too high or low, you can adjust its master level. You needn't do this for our example, though.

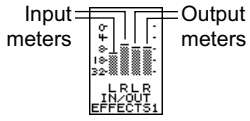
3. The effect input level

The effect processor's overall input level setting allows you to fix problems you may be having with the effect. For example:

- After sending the desired amount of signal from your input or multi in channels, you find that the effect sounds unexpectedly distorted or bad in some other way. It could be that all of your channels' signals together make up a combined signal that's too loud for the effect processor to handle. You can adjust the effect's input level to lower this combined signal's level. The input or multi in signals retain their relative differences in the amount of effect they're getting, but their overall level is brought into an acceptable range for processing.
- You're using an effect—such as a compressor or vocoder—that's supposed to respond to changes in signal level, and the effect is not behaving as expected. You can raise or lower its input level so that it does.

Each effect processor's input level adjustment can be found on its ASSIGN editing screen. Let's adjust Effect 1's:

1. Press PAGE DOWN once.
   The effect's input level control is labeled "SEND LEVEL."
   Remember that Input Channel 2 has more reverb on it than Input Channel 1 as a result of the way we set their send levels to the effect. As you perform the following steps, make some noise in both channels and listen to how the effect changes.
2. Turn V4 [SEND LEVEL] up and down, and notice how the amount of reverb changes overall while the difference in the amount of reverb applied to both input signals remains the same.
   You can see the effect's input level in its input meter on the display. The changes you're making to its left input are reflected in the left-most meter.



3. When you're done experimenting, set SEND LEVEL to 75.

In actual practice, the effect input level should be changed only to solve a problem of some sort. Otherwise, you should leave it set to its default value of 100. We're only changing it here for instructional purposes.

You can see that the left input meter's level is lower than the right input's as a result of the change we just made.

Setting Up a Send-and-Return Effect (Continued)

Even though we now have a lop-sided input balance, the output meters show an equal level for both the left and right outputs. This is because Vocal Plate combines both the left and right sides into a single mono input signal, so it doesn't really matter whether the signal is coming more from its right input than its left. A balanced stereo reverb is produced regardless of which input side is louder.

4. Therefore, even though it won't change the sound of our reverb, press CURSOR DOWN once and turn V4 [SEND LEVEL] to set the right side's SEND LEVEL to 75 so that Flex Bus 1 feeds both sides of the effect equally. It's a good idea to remember that there are two sides—left and right—to any send-and return effect.

4. The effect output level

The effect processor's output level—the RETURN LEVEL parameter—lets you correct problems with the overall volume of the effect. You'll only change this setting when the effect's output meters are showing too soft or loud a signal, as in the following circumstances:

- If you've had to bring an effect's input level down—as we did above—and the effect has become too quiet, you can boost its output level to compensate.
- If the effect's output is too soft or loud due to changes you've made to its parameter settings, you can adjust its output level.

Let's raise Effect 1's output level to compensate for lowering its input levels on the previous page:

1. Press CURSOR UP to move back to the left-side parameters.
2. Turn V5 [RETURN LEVEL] to a value of 111.

When we lowered SEND LEVEL to 75, we actually reduced it by about 3dB (decibels). Mixers typically provide an increasingly finer degree of control as you reduce levels below 0 dB (represented here by a value of 100) than when you raise them above it. In fact, you can see this by looking at the dB values printed alongside the console's MASTER fader. Therefore, we only need to raise RETURN LEVEL to 111—not to 125 as you might expect—to get back to roughly where we started.

   Since Vocal Plt has a stereo output, we've just unbalanced its stereo imaging by turning up only its left side.
3. Press CURSOR DOWN and turn V5 [RETURN LEVEL] to set the right output to 111 as well.

5. The effect return's send to the main mix or Flex Busses

Once an effect processor has produced an effect, you can:

- send its return into the main mix.
- send its return to other Flex Busses. If those Flex Busses are:
  - external, they can carry the effect's output—perhaps along with a dry signal—to an external device, such as tracks on a multitrack recorder.
  - internal, they can carry the effect's output into another internal effect, allowing you to create complex chains of effects.

Throughout this application guide, we've been hearing Effect 1 since it's already being sent into the main mix, as we noted earlier—this is how Effect 1 is set up after a factory reset. Let's adjust this send, and learn how to send a send-and-return effect's output where we want it to go.

Setting Up a Send-and-Return Effect (Continued)

1. Press FLEX BUS MASTER 1-12.

When you press this button, the console's channel strips control the 12 Flex Busses. However, when you're using a send-and-return effect, something special occurs: the channel strip that numerically corresponds to each send-and-return effect also controls how its return is sent into the main mix, cue mix and to other Flex Busses.

We'll begin by exploring the controls that determine how the effect is heard in the main mix.

2. Press CH LEVEL. As with your input channel earlier in this application guide, this will let you adjust the effect's level.
3. The lit green (AUDIO) STATUS button above the first channel strip indicates that Effect 1's return is currently being sent into the main mix. Make some noise into your mic and press the (AUDIO) STATUS button to turn off the return's send into the mix—Effect 1 goes away. Press the button again to re-activate it.
4. Move the first fader up and down as you make some noise into your mic to hear the way the effect's volume changes when you adjust how much of its return is sent into the main mix. When you're done, set the fader to 100, as shown on the display.
5. Press CH PAN.
6. Raise and lower the first fader to hear how Effect 1 shifts from side to side in the main mix. This pan control preserves the "stereoness" of the effect while shifting its entire stereo image to the left or right. Return Effect 1 to the center—"C" on the display—when you're done experimenting.
7. Press Channel 1's (AUDIO) STATUS button to remove Effect 1's return from the main mix before proceeding.

Though you don't need to try this now, you can send Effect 1's return into the cue mix and set its cue panning by pressing SHIFT + CH LEVEL or SHIFT + CH PAN, respectively, and moving the first fader.

Suppose you wanted to send Effect 1 to a pair of tracks on a multitrack recorder. You could do this by assigning it to a pair of Flex Busses. Let's send Effect 1's return to Flex Busses 9 and 10, which are external-only Flex Busses. We'll do this using essentially the same method we used when we sent our input signals to Flex Busses 1 and 2 on Page 23, although the screens we'll encounter look slightly different.

The first steps—as before—involve linking a pair of Flex Busses and setting up their output routings.

8. To link Flex Busses 9 and 10, press FADER UTILITY and then F1 [CHANNEL LINK]. Press PAGE DOWN twice and press F5 [LINK].
9. If your processor is a VM-7200, Flex Busses 9 and 10 have their own dedicated output jacks, so skip to Step 10.
   If you're using a VM-7100:
   - Hold down Flex Bus Channel 9's CH EDIT button and press the QUICK CH EDIT MULTI OUT button.
   - Turn V3 [MULTI OUT SEL] to select the desired multi out. For this example, select Multi Out 17 (AKA ASSIGNABLE OUT 1) and press F3 [SET] to activate the connection.
   - Press Flex Bus Channel 10's CH EDIT button and use the same method to select and activate Multi Out 18 (ASSIGNABLE OUT 2).

Setting Up a Send-and-Return Effect (Continued)

As before, let's listen to our stereo Flex Bus output.

10. Press SOURCE SELECT, turn V1 [SELECT], choose FBUS 9/10, and press F6 [EXIT] to leave the SOURCE SELECT screen.
    Now we're ready to actually send Effect 1 to Flex Busses 9 and 10.
11. Hold down Flex Bus Channel 1's CH EDIT button—remember, this channel is controlling Effect 1's return right now—and press the QUICK CH EDIT FLEX BUS 7-12 button.
12. As you perform the next few steps, make noise into your mic to hear the changes you're making.
13. Turn V3 [SEND LEVEL] to a value of 100 to send Effect 1 to Flex Busses 9 and 10.
14. Press F4 [SLAVE] to de-activate pan slaving.
15. Turn V4 [PAN] up and down to hear how it sets Effect 1's placement in the stereo field created by Flex Busses 9 and 10. Just as when we sent Effect 1 to the main mix, the effect remains in stereo and is shifted to the right or left. Set PAN to C when you're done experimenting.

In a real-life situation, you might want to send both the dry and effected signal to your external Flex Busses. For example, if you wanted to record a stereo piano onto a pair of tracks on a multitrack recorder along with some reverb from one of the VM-7000's internal effects, you'd send both the dry signal and the effect to the tracks. You'd actually achieve this, most likely, by sending the dry signal there first—you could use the procedure described in "Routing Signals to a Pair of Flex Busses" starting on Page 23—and then adding in the desired amount of reverb using the procedure we've just completed. You'd want to use the same external Flex Busses for the dry and effect signals, of course.

Before proceeding to the next section:

1. Press SOURCE SELECT, turn V1 [SELECT] to choose MAIN, and then press F6 [EXIT] so that we're once again monitoring the main mix.
2. Press FADER UTILITY and F1 [CHANNEL LINK]. Press PAGE DOWN twice and F5 [LINK] to de-activate the linking of Flex Busses 9 and 10.
3. Press LEVEL METER to return to our "home page."

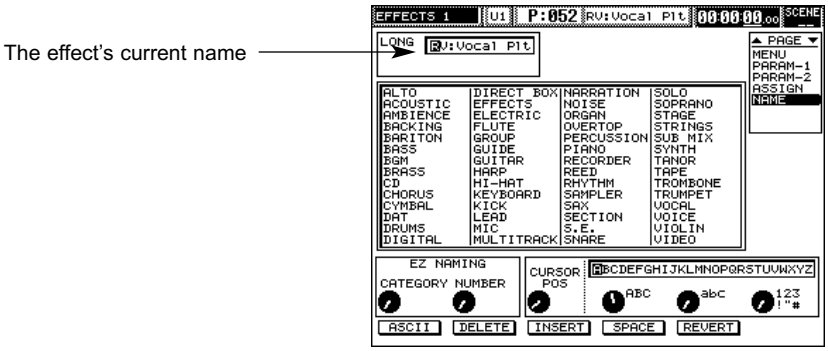
Naming an Edited Effect

We'll use our edited version of Vocal Plt to learn how to save an edited effect as your own new effect library stored in the VM-7000's user memory. First, however, let's give it a new name.

1. Press EFFECTS 1-8.
2. Press F2 [EDIT].
3. Press PAGE DOWN three times to display the screen on which we can name the new effect library.
   The VM-7000 offers a variety of ways to name an effect library. Let's try each of these methods out.

You can use the same basic naming methods we're about to explore for naming many different things in the VM-7000, including input and multi in channels, Flex Busses and more. See the *VM-C7200/C7100 Owner's Manual* for more info.

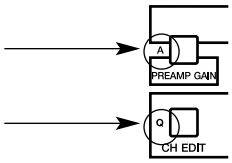
Setting Up a Send-and-Return Effect (Continued)



The EZ NAMING feature provides a couple of handy shortcuts for naming a library. The first allows you to copy one of the category titles listed in the center of the display for use as part or all of an effect's name.

4. Turn V1 [CATEGORY] to select VOCAL. Note that "VOCAL" now appears as the effect's current name.
   You can return to the effect's original name at any time.
5. Press F5 [REVERT] to restore "RV: Vocal Plt" as the effect name.
   When you want to have numbered versions of an effect, EZ NAMING provides a simple way to add a number to a name.
6. Turn V2 [NUMBER]—watch the effect's name as you turn the knob—to select 2. The effect is now called "RV: Vocal P 2" (the VM-7000 shortened "Plt" to make room for the "2").
7. Press F5 [REVERT] again.
   When you're naming an effect, you can combine techniques as you need to.
8. For example, turn V1 [CATEGORY] to select VOICE, and then turn V2 [NUMBER] to select 3—the effect is now named "VOICE 3."
   You can also name an effect from scratch. While this takes a bit longer, it allows you to use any name you wish, which can help make it easier to identify the library later on.
   When you name an effect from scratch, you do so by positioning the cursor—the small black box currently positioned at the "V" of "VOICE 3"—and then turning V4 [ABC] to select the desired upper-case letter, V5 [abc] to select a lower-case letter, or V6 [123!"#] (no, we're not swearing) to select a number or other non-letter character. By moving the cursor from position to position, and selecting the desired character for each position, you can create a name. Let's do this to name the effect "NOISE 3." It's not a very sensible name, but it will quickly demonstrate how to name a library using the knobs.
9. Since the cursor's already positioned at the "V," turn V4 [ABC] to select N.
10. Turn V3 [CURSOR POS] to select the C.
11. Turn V4 [ABC] to select S.
    There's actually a much easier, quicker way to do this. It may take a little practice, but you'll eventually be able to create names in no time using the following method.
12. Press F1 [ASCII] to type the desired name using the console's buttons.

Setting Up a Send-and-Return Effect (Continued)



You can type by pressing the console buttons that have a letter or character printed to their left:

- On the VM-C7200, you'll find them to the left of the STATUS and CH EDIT buttons for Channels 13-24.
- On the VM-C7100, you'll find them to the left of the STATUS and CH EDIT buttons on Channels 1-12.
- On both consoles, the four MODE/VIEW buttons—MUTE, SOLO, AUDIO and AUTO-MIX—provide "M"-"P," and the CH EDIT button above the MASTER fader types a space.
- When you press a button, you get a lower case letter or the character printed on the console in gray (next to the STATUS and MODE buttons) or black (next to the CH EDIT buttons).
- When you hold down SHIFT and press one of these buttons, you get an upper-case letter or the character printed in green. When you hold SHIFT and press the MASTER fader's CH EDIT button, you get a backspace/delete.

13. Turn V3 [CURSOR POS] to go back to "N" and use these buttons to type the name "My First FX." You'll notice that after you type a letter, the cursor automatically advances to the next position.
14. If you need to back up, turn V3 [CURSOR POS] to select the desired character position.
15. If you accidentally leave out a character, you can position the cursor where the missing character should be, press F3 [INSERT], and type it.
16. If you enter an extra character, select it with the cursor and press F2 [DELETE]
17. When you've finished, press F1 [ASCII] to de-activate the typing feature.

Whenever the ASCII feature on a naming page is turned on, the buttons used for typing do not perform their usual functions. To restore them to normal functionality, you must turn off the ASCII typing feature.

Now we're ready to save our effect.

Saving an Edited Effect

1. Press EFFECTS 1-8.
2. Press F1 [LIBRARY].
   We're going to save our effect in the first user memory location.
3. Turn V1 [SELECT GROUP] to view the user effect library memory locations—these libraries all start with the letter "U," as we said earlier.

When the VM-7000 is shipped from the factory—and after a factory reset—the user effect library memory locations contain copies of the factory preset libraries. Don't worry about replacing these copies with your own effects—the originals are still available as factory preset libraries P000 through P199. You can always perform a factory reset if you ever want to return the user library locations to their original state.

4. Turn V2 [SELECT NUMBER] to choose U000: Reverb. When the new library is saved, it will replace what's currently in the selected location.

Setting Up a Send-and-Return Effect (Continued)

5. Press F3 [SAVE]. The VM-7000 prepares to save the current effect in the selected location and asks "Are You Sure?"
6. We are, so press F5 [ENTER] to finish saving My First FX.
7. Press F6 [EXIT] to leave Effect 1's library screen.

You can store your user libraries on a memory card, re-loading them whenever you need them, or even into another VM-7000 system. We'll discuss this later on.

Before proceeding, we need to make sure Effect 1's return is being sent into the main mix so that we can hear Effect 1 in the next section:

1. Press Flex Bus Channel 1's (AUDIO) STATUS button so that it lights in green. You should now be hearing your mic through My First FX.

Previewing Other Effect Libraries

There's one last thing we should check out before moving on to insert effects. Once you've set up a send-and-return effect and have sent some signals through it—and can therefore hear what it sounds like—you may want to try out different effect libraries to hear how they sound. Here's how to do this with Effect 1:

1. Press F1 [LIBRARY].
   Let's try out some of the factory preset effect libraries.
2. Turn V1 [SELECT GROUP] to select P000: Reverb.
3. Turn V2 [SELECT NUMBER] to select P011: Vocal Multi.
   The VM-7000 allows you to temporarily load an effect library to try it out. The effect remains audible for only as long as the PREVIEW switch is turned on. You can turn it off manually to stop auditioning a library, or simply select a different library—as soon as you do, the PREVIEW switch is automatically disengaged.
4. Press F1 [PREVIEW] and make some noise into the mic to hear what Vocal Multi sounds like.

5. Turn V2 [SELECT NUMBER] to select P062:RV:ReverseGt. Note that the PREVIEW switch has been turned off. Press F1 [PREVIEW] to try out this "reverse gated reverb."
6. When you're done listening to ReverseGt, press F1 [PREVIEW] to turn PREVIEW off manually.
7. Try out any of the other libraries that interest you. You can try out as many libraries as you like.

Not all libraries are meant for use as send-and-return effects. Some of them are provided as insert-type effects. As a result, some libraries may not sound like much as you try them out right now.

Remember that using the PREVIEW switch only *temporarily* installs the selected library. If you want to actually load the library, you must press F2 [CP/LOAD], though you needn't do that now.

Before proceeding, press F6 [EXIT] and LEVEL METER to leave the library screen and go back "home."

XXVII. Setting Up an Insert Effect

Now let's see how to set up an insert effect. This will take much less time since many of the things we've already discussed apply to both send-and-return and insert effects, and we needn't go over them twice.

The basic effect setup procedure still applies when you set up an insert effect, of course. You'll still:

- set up the effect's insert routing.
- select and load a new effect library if necessary.
- edit the effect to taste if necessary.
- make final adjustments to your effect-related levels.

Once again we'll use Effect 1, but this time we'll only use its left side, inserting it in Input Channel 1, just before the channel's signal reaches its fader. We'll send the mic signal through a deep phaser, adding a swirling motion to its sound.

Set Up the Effect's Routing

1. Press EFFECTS 1-8.
2. Hold down SHIFT and press F2 [EDIT].
3. Turn V2 [POSITION] to select INS ON INPUT PRE FDR—short for "Insert on input channel, pre-fader."
4. Turn V1 [CHANNEL SELECT] if necessary to make sure that our effect will be inserted on Input Channel 1.
5. Press F1 [SET].

When you pressed F1 [SET] to activate the new routing, the VM-7000 automatically turned off Effect 1's right side, since it's no longer usable as a send-and-return effect, which was how it had been set up. Each processor can be configured as an insert *or* send-and-return effect, but not both at the same time. The right side of Effect 2—which will use the same effect library as its other side—*is* available for use as an additional insert effect.

Select an Effect Library

1. Press EFFECTS 1-8 again.
2. Press F1 [LIBRARY].
3. Turn V1 [SELECT GROUP] to select the preset libraries.
4. Turn V2 [SELECT NUMBER] to choose P118:PH: DeepPhase.
5. Press F2 [CP/LOAD] and make some noise in the mic to hear the newly inserted effect.

Edit the Effect

Let's make the swirling go faster:

1. Press F2 [EDIT].
   You're now viewing the phaser's first parameter page, as reflected in its page list.

At the top of the screen you can see two black boxes labeled "Phase" and "EQ." These are the individual components of the effect algorithm that's responsible for DeepPhase. Though you don't need to do this now, you can turn individual components on and off by cursoring to the top of the display and pressing the appropriate F button. As you can see, DeepPhase doesn't use its EQ component, since it's already turned off (it's white).

Setting Up an Insert Effect (Continued)

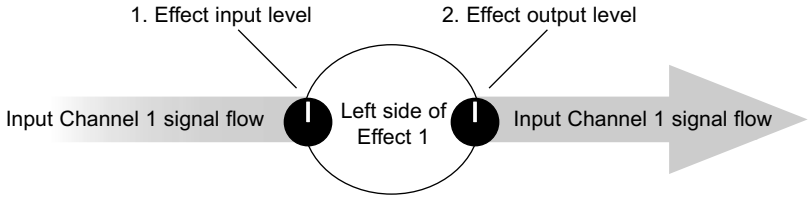
3. Use the CURSOR buttons, if necessary, to select the row of parameters containing Phaser Rate.
4. Turn V1 [Phaser Rate] clockwise to make the swirling go faster—set it to 2.0 Hz.

Adjust Your Effect-Related Levels

The effect-related levels for an insert effect are different than those for a send-and-return effect: there are only two of them. As a result, they perform somewhat different jobs:

- The effect input level sets the volume of the channel's signal as it's diverted into the insert effect.
- The effect output level sets the volume of the signal as it's returned back into the channel.

Here's where the level controls are in our insert effect.



Let's adjust these levels.

1. Press PAGE DOWN twice.
2. Make sure that the left channel of Effect 1 is selected, and turn V4 [SEND LEVEL] to set the effect's input level to 100. This will make the phasing even more pronounced, since you're sending more signal into the effect.
3. Turn V5 [RETURN LEVEL] to set Effect 1's output to 100. This will restore the loudness of the signal to its original level.

XXVIII. Stereo-In, Stereo-Out Effects

When we discussed send-and-return effects, the effect algorithms we used had mono inputs and stereo outputs—signals being sent into the left and right inputs were combined as they went into the effect.

Some of the VM-7000's effect algorithms have stereo inputs as well as stereo outputs. With these algorithms, the left and right effect input signals are processed separately by the effect. StDly-Chorus (Stereo Delay Chorus), StPS Delay (Stereo Pitch Shifter Delay), Stereo Phaser and Stereo Multi are all examples of stereo-in, stereo-out effects.

You can apply a stereo-in, stereo-out effect to a group of signals by inserting the effect on two Flex Busses, combining elements of both insert *and* send-and-return effects in a single setup: You insert the effect on the pair of Flex Busses to which you've sent your input or multi in signals, and you mix it in with the original dry signals as you would with a send-and-return effect. (You also have the option of using the effected Flex Bus signals alone, without mixing them in with the dry signals.)

We'll send our signal from Input Channel 1 to the left side of an effect, and the signal from Input Channel 2 to its right side.

Stereo-In, Stereo-Out Effects (Continued)

Set Up the Effect's Routing

1. Turn V2 [POSITION] to select INS ON FBUS INTERNAL.
2. Turn V1 [CHANNEL SELECT], if necessary, to select BUS 1. We can use Flex Bus 1 since we know it's currently set to INT.
3. Press F1 [SET] to activate the new setting.
4. Press CURSOR DOWN once to select the right side of Effect 1.
5. Turn V2 [POSITION] to select INS ON FBUS INTERNAL.
6. Turn V1 [CHANNEL SELECT], if necessary, to select BUS 2. We also know that Flex Bus 2 is currently set to INT.
7. Press F1 [SET].
   The left and right sides of Effect 1 are now inserted on Flex Busses 1 and 2, respectively.

Select an Effect Library

1. Press EFFECTS 1-8.
2. Press F1 [LIBRARY].
3. Turn V2 [SELECT NUMBER] counter-clockwise to select P003:StPS-Delay.
4. Press F2 [CP/LOAD].

Send Signals to the Effect

We need to send each of our signals to the desired Flex Bus:

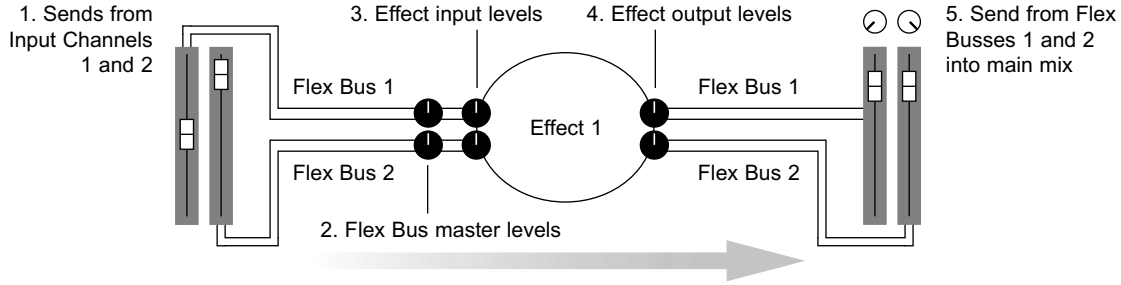
1. Press INPUT CH 1-24.
2. Press the round FLEX BUS 1 button so that we can send Input Channel 1 signal to the left side of the effect
3. Set Input Channel 1's send to 100, and bring Input Channel 2's send all the way down.
4. Press the round FLEX BUS 2 button so we can send Input Channel 2's signal to the effect's right side.
5. Bring up Input Channel 2's send to 100.

Edit the Effect

1. Press EFFECTS 1-8 and F2 [EDIT].
2. Cursor down to Direct Level and turn V2 [Direct Level] to set Direct Level to 0 so that none of the original signal is heard in the effect.

Adjust Your Effect-Related Levels

In our example, we have the following level controls:



We're going to leave our send levels from the input channels to Flex Busses 1 and 2, our Flex Bus master levels and our effect input and output levels as they are. However, we do need to make some changes to the way our Flex Busses are being sent into the main mix.

Stereo-In, Stereo-Out Effects (Continued)

1. Press FLEX BUS MASTER 1-12.
   By looking at the (AUDIO) STATUS buttons, we can see that Flex Busses 1 and 2 are already being sent into the main mix.
2. Press CH LEVEL.
   As we can see on the display, the levels for Flex Busses 1 and 2 are both set to 100—they're properly balanced.
   However, both Flex Busses are panned to the center. To hear the left and right sides of the stereo effect inserted on the Flex Busses, we'll have to pan the Flex Busses to the extreme left and right.
3. Press CH PAN.
4. Use the first two faders to pan Flex Bus 1 all the way to the left in the main mix, and Flex Bus 2 all the way to the right.
   Let's make one more change to make the "stereoness" of the effect more obvious.
5. Press INPUT CH 1-24 and press the (AUDIO) STATUS buttons of Input Channels 1 and 2 to turn them off, removing their dry signals from the main mix altogether.

In a real-world situation, you may or may not want to silence the original dry signals, depending on your needs.

6. Sing or speak into the mic connected to Input Channel 1—you can hear your signal on the left only, pitch-shifted down by five semitones (this is how the effect is currently set).
7. Send some sound into Input Channel 2—you can hear this signal on the right, pitch-shifted upwards by seven semitones.

The VM-7000's master effects are stereo-in, stereo-out effects inserted on the two sides of the stereo main mix or monitor busses.

Before proceeding:

1. Press the (AUDIO) STATUS buttons for Input Channels 1 and 2 to return them to the main mix.
2. Press FLEX BUS MASTER 1-12, and press the (AUDIO) STATUS buttons for Flex Busses 1 and 2 to remove them from the main mix.
3. Press LEVEL METER.

XXIX. Dual-Mono Effects

Some of the VM-7000's stereo-in, stereo-out effects are intended for use as two separate mono effects. The left and right sides process their respective signals independently, with no interaction between them.

The MicSimulator algorithm is a good example of this. Each side of the effect is meant to apply a COSM microphone model to one mic's signal. (You could run the stereo outputs of a binaural mic through this effect, but, even so, the two sides of the effect will process your two mic signals independently).

You can use dual-mono effects by inserting them on Flex Busses—as we just did—or by inserting their left and right sides them directly into input or multi in channels.

XXX. Channel Dynamics Processing

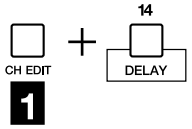
In addition to the tools provided by its effect processors, the VM-7000—with software Version 1.5 and higher—offers a dynamics processor for each input and multi in channel. A channel can use any one of the following dynamics processing algorithms:

- compressor
- expander
- gate (expander)
- limiter (compressor)

The dynamics processor is inserted in the channel's signal flow just before its high-pass filter and EQ.

We'll use Input Channel 1 to demonstrate how to set up a channel's dynamics processor:

1. Press INPUT CH 1-24.
2. Hold down Input Channel 1's CH EDIT button and press the QUICK CH EDIT DELAY button—the DELAY/DYN page appears.



3. Press CURSOR UP to select the row of parameters containing LOW and HI DAMP GAIN/FREQ and ALGORITHM.
4. Press F5 [DLY/DYN].

Each channel's dynamics processor uses the same resources as its built-in feedback delay. As a result, you must choose between using the feedback delay or the dynamics processor. To learn more about channel delays, see p. 81 in the *VM-C7200/C7100 Owner's Manual*.

5. Turn V1 [SELECT ALGORITHM] to choose the desired dynamics processing algorithm. For our example, select LIMITER (COMPRESSOR).
6. Press F1 [SET] to confirm your choice and load the algorithm. A screen appears with parameters at the bottom of the screen that allow you to customize the limiter's behavior.

To learn more about what these parameters do, see *Newly Added Functions*, included with your VM-7000. If you need to obtain a copy of this publication—as would be the case if your VM-7000 shipped with a software version earlier than 1.50—call one of our Product Specialists at (323) 890-3740, or visit Roland's Web site, *http://www.rolandus.com*.

XXXI. Delay, Dynamics, EQ and Channel Libraries

We've already learned how to load and save effect libraries. The VM-7000 also lets you save and load libraries containing other channel settings.

This kind of library:	*contains:*
Delay	channel phase delay and feedback delay settings.
Dynamics	channel dynamics processor settings.
EQ	channel EQ settings
Channel	the major parameter settings for the selected channel. See p. 44 of the *VM-C7200/C7100 Owner's Manual* for more details on the included parameters.

Delay, Dynamics, EQ and Channel Libraries (Continued)

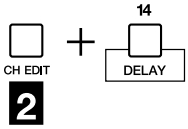
These libraries allow you to:

- copy delay, dynamics, EQ and channel settings from one input or multi in channel to another.
- load convenient factory-programmed delay, dynamics and EQ libraries.
- save and load your own copy delay, dynamics, EQ and channel libraries.

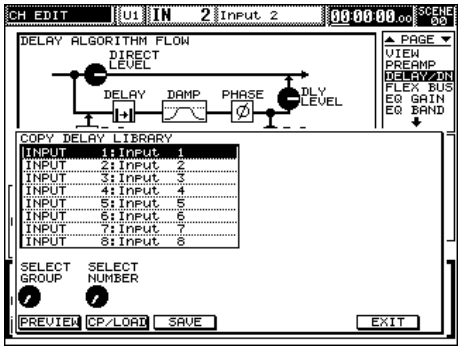
Delay, dynamics, EQ and channel libraries all work the same way:

- Display the settings that the desired type of library contains. In the case of channel libraries, display the channel's VIEW screen—you can select this screen from the channel's page list.
- Press COPY/LIBRARY.
- Perform the desired library operation.

Let's explore these features using Input Channel 2's delay settings:



1. Hold down Input Channel 2's CH EDIT button and press the QUICK CH EDIT DELAY button.
   The screen shows Input Channel 2's delay settings.
2. Press COPY/LIBRARY—it's located to the right of the SECTION buttons—to display the delay library screen.



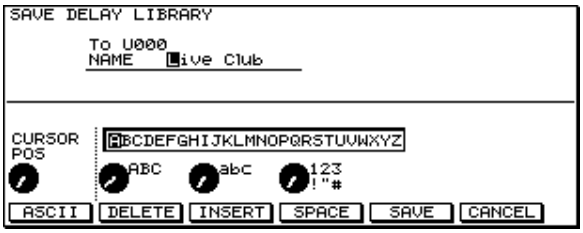
   As you can see, it looks much like an effect library screen.
3. Turn V1 [SELECT GROUP]. As with effect libraries, turning this knob selects the different available groups of libraries. Unlike effect libraries, however, you can select from four different library sets. You can select a library from any of these groups and copy or load its settings into the current channel:
   - The INPUT delay libraries allow you to copy the delay settings from any input channel.
   - The MULTI IN delay libraries allow you to copy the delay settings from any multi in channel.
   - The libraries that start with a "P" are pre-programmed factory preset delay libraries that you can load and use.
   - The libraries that start with a "U" are user libraries that can contain your own reusable delay setups.

   Before moving on, select the preset (P) libraries. You can preview delay libraries just as you previewed effect libraries.
4. Turn V2 [SELECT NUMBER] to choose P012: Sci Fi.
5. Press F1 [PREVIEW] and send some signal into Input Channel 2 to hear what Sci Fi sounds like.
6. Now let's actually load this library into Input Channel 2 by pressing F2 [CP/LOAD].

Delay, Dynamics, EQ and Channel Libraries (Continued)

You can save your own delay setups into the user library memory locations by pressing F3 [SAVE]. Let's see how this works by saving Input Channel 2's just-loaded Sci Fi settings.

7. Press COPY/LIBRARY, turn V1 [SELECT GROUP] to choose the user (U) libraries, and turn V2 [SELECT NUMBER] to choose a user memory location—select U000 for our example. After a factory reset, the user libraries are merely copies of the preset libraries, so don't worry about deleting anything you need to keep.
8. Press F3 [SAVE]. A box appears in which you can name the new library you're saving.



As you can see, this screen offers many of the same naming tools we saw back on the effect-naming screen.

9. Name the new library "My Delay #1."
10. When you're ready, press F5 [SAVE] to finish saving the library. The VM-7000 asks you "Are you sure?"
11. Press F5 [ENTER] for our example. If you'd wanted to cancel the saving operation, you'd have pressed F6 [EXIT].

Whether you wish to work with a delay, dynamics, EQ or channel library, the procedure we just performed will be the one you'll use.

You can store your user libraries on a memory card, re-loading them whenever you need them, or even into another VM-7000 system. We'll discuss this later on in this application guide.

XXXII. Using a Memory Card

A SmartMedia™ memory card installed in the VM-7000's MEMORY CARD slot allows you to take advantage of the VM-7000's advanced storage capabilities and other important features. The VM-7000 ships with a 2 MB SmartMedia card.

Inserting a SmartMedia Card

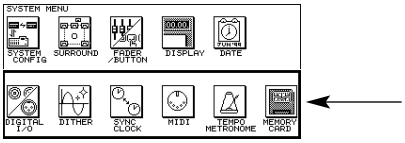
Insert your card into the MEMORY CARD slot on the rear of the console, holding the card by its label edge with its gold sticker face-up. Press it gently into place.

Initializing a Card

When using a memory card in the VM-7000 for the first time, you must first erase all of the data on the card and format it for use in the VM-7000—this is referred to as "initializing" the card.

Before you initialize a card, make sure it doesn't contain anything you want to keep—initializing completely erases all of the data the card holds.

Using a Memory Card (Continued)



To initialize a memory card:

1. While holding SHIFT, press PROJECT.
2. Make sure that the group of icons containing MEMORY CARD is selected.
3. Press F6 [MEMORY CARD].
4. Press F2 [FORMAT].
5. Press F5 [OK]. The VM-7000 will ask one more time if you're really sure that you want to proceed with the initialization.
6. If you're sure you want to proceed, press F5 [OK] one more time.
7. When formatting is complete, press F6 [EXIT].

Once initializing is complete, you can store data from the VM-7000 on the card.

With a SmartMedia adapter, sold separately, you can make a backup copy of a memory card using your computer.

XXXIII. Setting the VM-7000's Clock

In the following sections, the VM-7000 will date- and time-stamp the files we'll be saving on the memory card. Before proceeding, let's set the VM-7000's internal clock.

1. Hold down SHIFT and press PROJECT.
2. Cursor up to select the row of icons that includes DATE.
3. Press F5 [DATE].
4. Select the ADJUST DATE and ADJUST TIME boxes at the bottom of the display.
5. Turn V1 [YEAR], V2 [MONTH] and V3 [DATE] to select today's date.
6. When you're finished, press F1 [SET].
7. Turn V4 [HOUR], V5 [MINUTE] and V6 [SECOND] to set the VM-7000's time.

The VM-7000 keeps track of AM and PM using 24-hour numbering, beginning with midnight: 12 AM is Hour 0, while 11 PM is Hour 23.

8. When you're finished, press F1 [SET].

XXXIV. Projects

Although the VM-7000 retains most of your settings when you turn off its power, there's a better—and more permanent—way to store them: by saving them in a project on a memory card. A project is a file on the memory card that contains all of your current settings. Projects allow you to:

- save all of your settings for a particular song or piece.
- save your basic setup for a particular artist or album.
- save your setup for a particular recording or performance location.

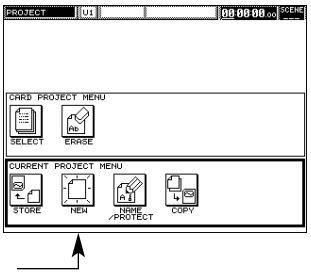
You can reload a project at any time, instantly re-configuring the VM-7000's settings for the task at hand.

Effect libraries and delay, dynamics, EQ and channel libraries can be stored on a memory card separately—they're not stored in project files.

In addition, certain important features—such as scenes (which we'll discuss later) and Automix—are only available once you've created a new project or if you've loaded an already-saved project. The VM-7000 stores the scene and Automix data in the project, not in its own memory.

In a two-processor VM-7000 system, you must first create a project before you can access the second processor's controls from your master console.

Creating a New Project



To create a new project:

1. Make sure there's an initialized memory card installed in the console's MEMORY CARD slot.
2. Press PROJECT.
3. Make sure the row of icons that includes NEW is selected.
4. Press F2 [NEW].
5. Press F2 [CREATE].
6. Press F5 [OK].
7. The VM-7000 asks if you want to keep your current mixer settings or reset them to their factory values. For now, press F4 [YES].
8. Press F6 [EXIT] when the project-creation process is complete.

If you attempt to create a new project on a card that doesn't have enough available space, the VM-7000 will display "ATTENTION: No Card Space." Since each project uses roughly 2 MB of space, the card that ships with the VM-7000 can accommodate one project. You can purchase and use larger memory cards that hold up to eight projects.

Re-Naming a Project

When you create a new project, the VM-7000 always assigns it the name "DEFAULT PROJ." You can change this to a more personally meaningful name. You can also add a 32-character comment—this note can be any type of project-related information you find useful.

To re-name a project:

1. Press PROJECT.
2. Make sure the row of icons including NAME/PROTECT is selected.
3. Press F3 [NAME/PROTECT]. A box appears in which you can re-name the project and add a comment.
4. Name this project "My Project," and enter "Tutorial" as its comment.

Projects (Continued)

When you re-name a project, you change its name in the VM-7000's memory, not in the project file on the card. To make this change permanent, you'll need to update the project file. We'll describe how to do this in the next section of this application guide.

On this screen—though you don't want to do this now—you can also protect the project from unintentional changes by engaging its memory-protect function. If you wish to activate memory protection, press F6 [PROTECT]. To de-activate it, press F6 [PROTECT] again. Remember, however, that when memory protection is active, you can't update the project with your latest settings until protection has been de-activated.

Updating/Storing a Project

When you make changes to a project—by changing your settings in the VM-7000, or by re-naming the project, for example—you'll want to store these changes in the project file on your memory card by updating, or "storing," the project. When you perform this procedure, the latest version of the project—including your new changes—replaces the version currently on the card.

To store a project:

1. Press PROJECT.
2. Make sure the row of icons that includes STORE is selected.
3. Press F1 [STORE].
4. A box appears in which you can see the project's name—"My Project"—and its comment, "Tutorial."
5. Press F2 [STORE].
   The VM-7000 asks you to confirm your desire to update the project.
6. Press F5 [OK] to proceed.
7. Press F6 [EXIT] after the project's been saved.

Loading a Project

To load a project stored on a memory card:

1. Press PROJECT.
2. Make sure the row of icons that includes SELECT is chosen.
3. Press F1 [SELECT].
   A screen appears in which the projects stored on the memory card are displayed.
4. Turn V1 [SELECT NUMBER] to choose the project you wish to load—if there's only one project, as in our example, turning this knob will have no effect.
5. Press F2 [SELECT].
   The VM-7000 will ask you to confirm your intentions, reminding you that the settings in the project you're about to load will replace the system's current settings. If you'd like to preserve your current settings, press F6 [CANCEL] and save your current settings as a new project before loading the project selected in Step 4.
6. Press F5 [OK] to load the project.
7. Press F6 [EXIT] once the project's finished loading.

When you power up the VM-7000, it automatically reloads the last-loaded project if the memory card that holds it is installed in the MEMORY CARD slot.

XXXV. Scenes

One of the best things about a digital mixer like the VM-7000 is that it can remember and instantly recall your setups. Much of the time spent mixing is spent setting things up, so this is a great time-saver. In the VM-7000, each setup that you save is called a “scene.”

With a one-processor system, the VM-7000 allows you to store 100 scenes in each project, numbered from 00-99. With two processors, you can store 50. In either case, scenes require an installed memory card on which you’ve already created a project.

What’s Stored in a Scene?

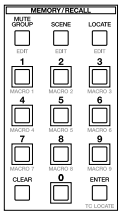
A scene captures all of your input and multi in channel settings—including their input and output connections, preamp, delay, dynamics, and EQ settings—as well as your main mix, cue mix, Flex Bus, multi out, effect and fader group settings (see p. 104 in the *VM-C7200/C7100 Owner’s Manual* to learn about fader groups).

When you recall a scene, you can select the settings to be loaded, as we’ll see in a moment.

Scene Buttons and Banks

Each scene is selected using a two-digit number that identifies the scene memory location in which it’s stored. Scenes that share a common first digit are said to belong to the same scene “bank.” For example, scenes 00-09 all belong to Scene Bank 0.

The number of the currently active scene is always shown in the upper-righthand corner of the display, as we mentioned back on Page 10.



You can select a scene memory location—when you want to save, re-name, recall or clear a scene—by typing its number on the VM-7000’s numeric keypad. You’ll type one or both of its digits, depending on the scene location you want to choose.

When a scene memory location contains a scene, the corresponding number button on the numeric keypad lights.

Selecting a Scene Location

To select a scene location in a bank other than the currently selected scene bank:

- Press SCENE—all of the scene buttons begin to flash.
- Type the desired location’s first digit. The button you press will flash, and then all of the number buttons will light. Finally, the lights will turn off for all locations that don’t currently contain scenes.
- Type the desired location’s second digit.

To select a scene location in the currently selected bank:

- You need only type the scene’s second digit.

Storing a Scene

When you’d like to save your current settings as a scene, simply select an unused memory location using the appropriate method.

Let’s demonstrate this by saving a couple of scenes in Bank 6:

1. Press SCENE.
2. Press 6 on the numeric keypad.

Scenes (Continued)

3. When all of the number buttons are no longer lit, press 4 on the numeric keypad—it flashes and then lights to show that a scene is now stored there. You've saved your current settings as Scene 64.
4. Let's change a setting before saving another scene so we can see how this all works.
5. Press CH LEVEL and lower the first two faders all the way.
6. We'll save our next scene in the same bank as our first one, so we only need to type one digit to select its location.
   Since only the 4 button is lit, we can see that no other scene memory locations are already in use in Scene Bank 6.
7. Press 0—it lights to show that our new scene is stored in location 60.

If you wish to replace an already-stored scene with a new one, you must first clear the older scene. We'll describe how to do this a bit later.

Recalling a Scene

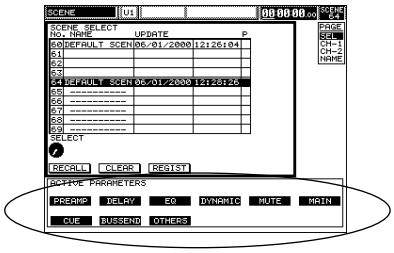
When you recall a scene, you can recall all of the settings it contains, or you can select only those settings you want. Let's check out both methods.

To recall all of the settings contained in a scene, you need only select its number. We'll recall Scene 64, our first-saved scene. Since we're already in Bank 6:

1. Press 4 on the numeric keypad—Scene 64 is recalled, as evidenced by the fact that Faders 1 and 2 have returned to their original positions.

If you want to recall a scene from a different bank, you'd use the first scene location-selection method in "Selecting a Scene Location" on Page 49.

To recall only some of the settings stored in a scene, you must select the desired settings before actually recalling the scene.



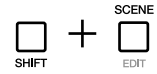
To select the settings to be recalled in a scene:

1. Hold down SHIFT and press SCENE.
   The top of the display shows a list of your scenes. The bottom of the display shows the types of settings that are stored in scenes. Each type of setting is represented by a switch that can be turned on or off—if a switch is off, the corresponding type of setting will not be recalled.
2. Press CURSOR DOWN to select the row of parameters with the DYNAMIC settings switch, which is currently turned on.
3. Press F4 [DYNAMIC] to de-activate the recalling of channel dynamics settings. (Press the button again to turn DYNAMIC back on before proceeding.)
   You can also enable or disable the recalling of settings for a particular input, multi in, Flex Bus master, multi out or fader group channel.
4. Press PAGE DOWN—the on/off switches for your input, multi in, Flex Bus master channels are displayed.
5. Press F1 [I1] to de-activate the recalling of settings for Input Channel 1. (Press F1 [I1] again to re-activate the channel before proceeding.)

Scenes (Continued)

Naming a Scene

You can name a scene to help you remember the settings it represents. To do this:



1. Hold SHIFT and press SCENE.
2. Press CURSOR UP to select the scene list.
   The last-selected scene is highlighted to show that it's currently selected for naming. You can re-name any scene in the list. Let's re-name Scene 60.
3. Turn V1 [SELECT] to choose Scene 60.
4. Press F1 [RECALL] to confirm the selection and recall Scene 60.
5. Press PAGE DOWN three times to show the scene NAME screen.
6. Name Scene 60 "2 Faders Off."
7. Press LEVEL METER to exit the scene-editing screen.

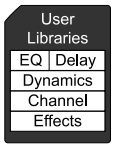
Clearing a Scene

Let's learn how to clear a scene in the current scene bank by deleting our scenes. We'll pretend we're not already in Scene Bank 6 to demonstrate first how to clear a scene from another bank, and then how to clear a scene from your current bank:

1. Press SCENE.
2. Type 6 to select the desired scene bank, in our case, Bank 6.
3. When only the 0 and 4 buttons are lit (for our scenes, 60 and 64), hold down CLEAR and press 4 to clear Scene 64. Its light goes out, showing that the location no longer contains a scene.
   Now let's clear Scene 60. Since we're already in Bank 6, the procedure is even simpler.
4. Hold down CLEAR and press the 0 button on the numeric keypad.

XXXVI. Storing Libraries on a Memory Card

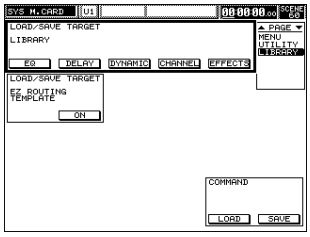
As we mentioned earlier, you can save your user effect, delay, dynamics, EQ and channel libraries to a memory card, and reload them as you need them. This is a great way to archive your favorite settings. It can also be handy if you want to use your own libraries in a different VM-7000 system.



The VM-7000 lets you store all user libraries of a particular type with a single operation. When you store your first set of user libraries, an area on the card is allocated for the storage of all five library types, much like a partition on a computer's hard drive. This area is about 2 MB in size, and there can be only one such area on a card.

We've already set up the memory card that shipped with your VM-7000 for the storage of projects, and we filled it up. In order to demonstrate how to save and load libraries, we'll need to reinitialize the card. Before proceeding, follow the steps in "Initializing a Card" beginning on Page 45 to re-initialize your memory card.

Storing Libraries on a Memory Card (Continued)



Storing User Libraries on a Memory Card

1. Hold down SHIFT and press PROJECT.
2. Select the bottom row of icons including the MEMORY CARD icon.
3. Press F6 [MEMORY CARD].
4. Press PAGE DOWN once to display the memory card LIBRARY screen.
5. Select the top row of parameters containing EQ, DELAY, DYNAMIC, CHANNEL and EFFECTS. As you might imagine, each button corresponds to a type of user library.
   Let's save all of our user effect libraries onto the memory card.
6. Press F5 [EFFECTS].
7. Cursor down to select the COMMAND parameters, LOAD and SAVE.
8. Press V6 [SAVE].
   The VM-7000 will ask if you're sure you wish to proceed.
9. Press F5 [OK] to proceed.
10. Press F6 [EXIT] when "Completed" appears.
    The VM-7000 has created a library area on the card and saved your user effect libraries.

Loading User Libraries from a Memory Card

1. Hold down SHIFT and press PROJECT.
2. Make sure the bottom row of icons is selected.
3. Press F6 [MEMORY CARD].
4. Press PAGE DOWN once to select LIBRARY in the page list.
5. Select the top row of parameters.
   We'll load the effect libraries we just saved.
6. Press F5 [EFFECTS].
7. Cursor down to select LOAD and SAVE.
8. Press V5 [LOAD].
   The VM-7000 will ask if you're sure.

When you load a set of user libraries from a card, they replace all user libraries of the selected type currently in the VM-7000's memory.

9. Press F5 [OK] to proceed.
10. Press F6 [EXIT] when "Completed" appears.

XXXVII. Moving On...

Now that have a good working knowledge of the basic features of your VM-7000, you're ready to start enjoying its power—and marveling at its sound.

An application guide like this only has room to discuss *some* of what your VM-7000 can do. The system has lots of other terrific features you won't want to miss. The following chart lists some of these, as well as the pages in the *VM-C7200 /C7100 Owner's Manual* that describe them.

Feature:	*Description:*	*Page:*
Macros	Shortcuts to favorite screens	58
EZ Routings	Reusable routing templates	59
Linking	Channels can be linked for simultaneous control	102
Mute groups	Groups of channels that can be muted simultaneously	103
Naming features	Almost everything in the system can be named for your convenience	83, 89, 94, 105, 118
Automix	You can record and play back realtime changes you make on the VM-7000	197
Transport controls	You can control external recorders directly from the VM-7000 console	190
Locators	You can store playback time locations in the VM-7000's memory when using the transport controls	192
Speaker modeling	Lets you try out your mix on various virtual speaker systems	180

When you're done with this application guide, you may wish to reset your VM-7000 to its factory settings (see Page 5), and reinitialize your memory card (see Page 45).

For the latest info on new products, support documents, upcoming Roland events and more, visit our Web site, www.rolandus.com, or www.rolandgroove.com.

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