

VS-840 Basic Recording

September 1, 1999 SN100 v1.0

The Roland VS-840 Digital Studio Workstation is a compact powerhouse of a hard disk recorder containing features that rival those found in systems costing many times more. The VS-840 allows you to:

- digitally record and play back as many as eight tracks of audio.
- record up to eight versions of each track. These alternate versions are called “Virtual Tracks,” and you can switch between them to create the perfect performance or alternate versions of songs.
- add effects to your instruments and vocals
- edit your music in ways that would have seemed utterly impossible only a few years ago.

This document provides ideas and tips on recording and editing music on the VS-840. For further information, see the Owner’s Manual and Quick Start Manual that came with your VS-840.

If you have a fax machine—or can receives faxes on your computer—you can call Roland’s FaxBack system at (323) 890-3780 and arrange for a faxed copy of the VS-840 TurboStart (Document #20069) to be faxed to you. The VS-840 TurboStart contains general VS-840 information. You can also use the FaxBack system to obtain a copy of the VS-840 Synchronization Guide (Document #21058), which provides tips on connecting the VS-840 to a sequencer or drum machine. If you have Web access, you can download these documents from the Roland US Website: www.rolandus.com.

To order a copy of the VS-840 TurboStart Video or VS-840 Video Owner’s Manual, call Roland’s Customer Service department at (323) 890-3700, ext. 2289.

The majority of the topics discussed in this document also apply to the Roland VS-840EX Digital Studio Workstation.

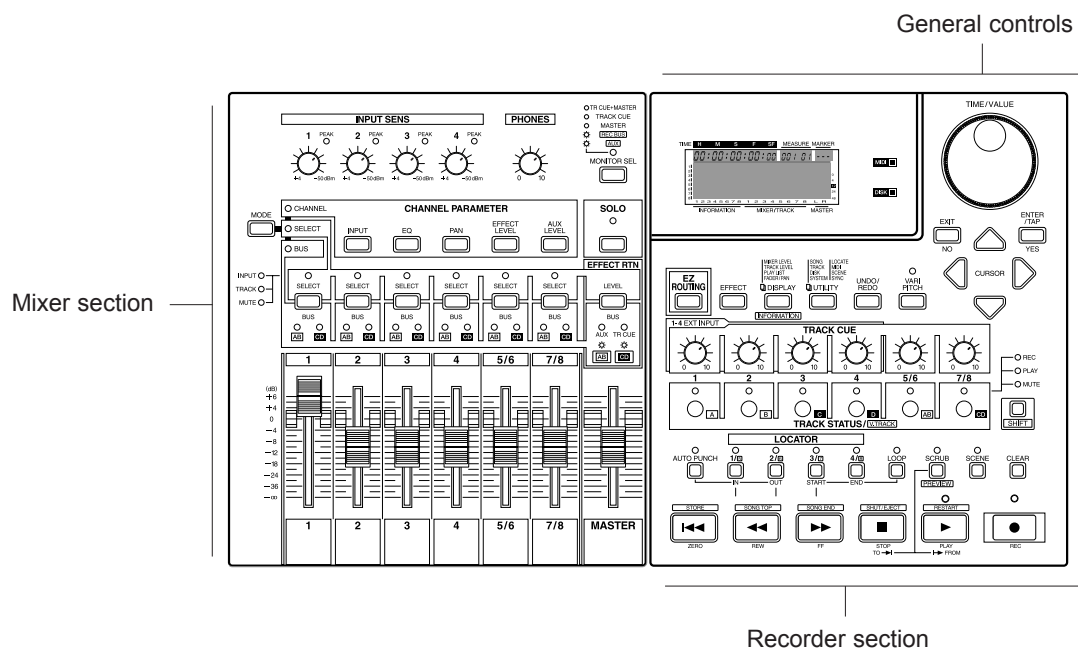
Topics

This document will help you become familiar with the way the VS-840 works. Here’s what we’ll discuss:

- I. The Layout of the VS-840 Front Panel
- II. The Layout of the VS-840 Rear Panel
- III. Important VS-840 Concepts
- IV. An Example of a Common VS-840 Setup
- V. Basic Recording
- VI. Adding Effects to a Track
- VII. Bouncing Tracks
- VIII. Editing Tracks
- IX. Using Disk Space Effectively
- X. Summary

I. Front Panel Layout

Fig. 1
VS-840 Front
Panel



The VS-840 is divided into three main sections, as shown above:

- The mixer section
- The recorder section
- The general controls section

The mixer section contains the controls for the VS-840's eight channels. A channel on the VS-840 can handle signals coming into the VS-840 during recording, or signals coming from the recorder tracks during mixdown. The channel knobs, buttons and faders control levels, route signals and adjust EQ, pan, effects, and Aux levels. The mixer section also includes a headphone level control and a MONITOR SEL switch that allows you to choose from among a variety of listening options.

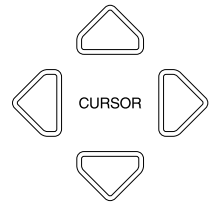
The recorder section of the VS-840 provides the transport controls—PLAY, STOP, etc—that allow you to record and play back your songs, and to move around within them. The section also contains Locators to mark specific places, or “locate points,” within each song, and a Track Cue area that lets you to listen to tracks while recording and during playback. Other buttons used when editing tracks and performing various other operations on the VS-840 can also be found in the recorder section.

The general controls section contains the VS-840 display and various buttons—and one important knob—that are used when performing many different operations on the VS-840.

- The VS-840's backlit display provides visual feedback while you're recording and playing back your songs. It also shows you settings, or “parameters,” whose values you can adjust during various VS-840 operations. The display presents screenfuls of information and parameters appropriate to whatever it is you're doing. You can press the DISPLAY button repeatedly to switch between the VS-840's main screens: the MIXER LEVEL, TRACK LEVEL, PLAY LIST and FADER/PAN screens.

Front Panel Layout (continued)

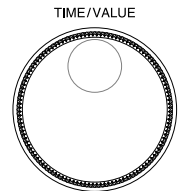
- The CURSOR buttons allow you to navigate from one place to another on the VS-840’s display. This is something you need to do when editing the VS-840’s settings, or “parameters.” Before you can change a parameter’s value, you must select it—when a parameter is selected, it’s highlighted on the display. When more than one parameter is displayed, you can move from parameter to parameter by pressing the CURSOR button that points in the desired parameter’s direction.



- The ENTER/YES and EXIT/NO buttons provide a way to answer questions posed on the VS-840 display. For example, when “Store Current?” is displayed, you would press ENTER/YES to store the current state of your song to disk before proceeding. If you pressed EXIT/NO, the VS-840 would proceed with the current operation without saving any changes you’d made to your song since it was last saved.



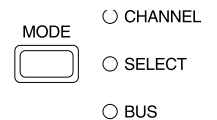
- The TIME/VALUE dial allows you to change the value of the currently selected parameter by turning the dial in the desired direction. For example, when “120.0” is highlighted under TEMPO on the Tempo Map screen, turn the TIME/VALUE dial to the left to reduce the tempo, or turn it to the right to increase the tempo. You can also use the TIME/VALUE dial to move, or “locate,” to a specific time within a song. To do this, press the appropriate CURSOR button to select how you’d like to move through the song—by hours, minutes, seconds, frames, subframes, measures, or beats—and turn the TIME/VALUE dial to travel through the song accordingly.



- The SHIFT button allows various buttons to perform more than a single task. Any such button will have two labels, a standard label and one enclosed in a white outline box. When you hold down SHIFT and press such a button, the button performs the task described by the outlined label—when you release SHIFT, the button reverts to its standard behavior. For example, if you’re playing a song and you press the button with the standard “STOP” label and the outlined “SHUT/EJECT” label, the VS-840 will stop playback. If you hold down SHIFT and press the button, the display will ask you if you want to shut down the VS-840 or eject the disk in its Zip™ drive.

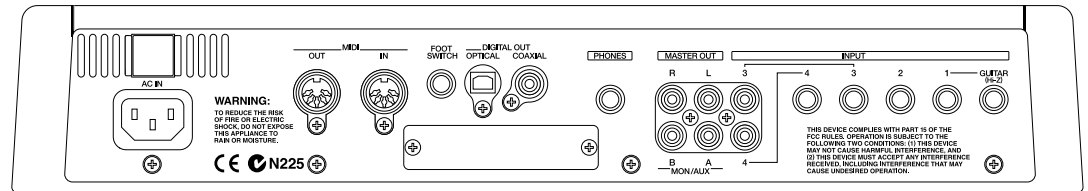


- The MODE button, though located in the mixer section, also qualifies as one of the VS-840’s general controls. It sets the function of the SELECT buttons located above the channel faders. Press the MODE button to move between the SELECT buttons’ three possible operating modes—the selected mode is shown by a lit LED next to its name. When the SELECT buttons are in CHANNEL mode, they allow you to access each channel’s parameter when the INPUT, EQ, PAN, EFFECT LEVEL, and AUX LEVEL screens are displayed. When they’re in SELECT mode, they determine each channel’s current behavior: INPUT, TRACK or MUTE. When the BUS mode LED is lit, the SELECT buttons direct each channel to the desired record bus: AB, CD, or both—this is how you send channel signals to tracks for recording.



II. Rear Panel Layout

Fig. 2
VS-840 Rear
Panel



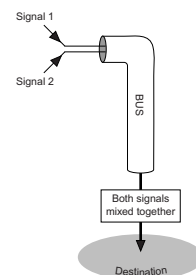
The VS-840 rear panel provides an assortment of connectors. Turn the VS-840 around so that you're looking straight at its back. From left to right, you'll find the:

- AC IN cable connector—Connect one end of the VS-840's supplied power cable to this socket, and the other end to an AC power outlet.
- power switch—When it's depressed, the VS-840's on. When it's not, the VS-840 is off.
- MIDI OUT/IN jacks—Use these jacks when synchronizing MIDI devices such as sequencers, drum machines, or other digital recorders to the VS-840.
- FOOT SWITCH jack—You can connect a foot switch to the VS-840, and use the foot switch for a variety of hands-free operations, as described in your Owners' Manual.
- OPTICAL and COAXIAL DIGITAL OUT jacks—These jacks allow you to transmit the VS-840's main mix as EIAJ CP-1201- or S/PDIF-format digital data to an external digital device.
- VS4S-1 socket—This socket can contain an optional VS4S-1 SCSI connector (purchased separately) that allows you to connect a secondary Zip drive to the VS-840 as a backup device for your song data.
- PHONES jack—You can listen to the VS-840's output through headphones connected to this jack. The PHONES knob in the VS-840's recording section controls the headphone listening volume.
- MASTER OUT jacks—These jacks send the VS-840's main mix to an external mixdown recorder when mixing. They can also be connected to a speaker amplifier when you're using your MON/AUX outputs as Aux outputs, and you need a way to listen to your main mix through speakers.
- MON/AUX A and B jacks—These jacks typically connect the VS-840 to your speaker amplifier so that you can listen to the VS-840. They can also send audio from the VS-840 to an external effects device; when you use them for this purpose, you'll need to connect the VS-840's MAIN OUTs to your speaker amplifier or listen through headphones to hear what you're doing.
- RCA-phono INPUTs 3 and 4—These jacks allow you to connect devices that use RCA-phono-type connectors to Inputs 3 and/or 4. These jacks can be used only when no 1/4" phone cables are connected to the standard INPUT 3 and 4 jacks.
- INPUT jacks 1, 2, 3 and 4—These are the 1/4-inch phone jacks through which you bring audio into the VS-840.
- GUITAR (HI-Z) jack—You can plug an electric guitar directly into Input 1 using this special high-impedance jack. This jack can be used only if no 1/4" phone cable is connected to the standard INPUT 1 jack.

III. Important Concepts

Busses

A bus is an pathway down which audio signals travel together to a common destination. Since a bus is the way that a signal gets from one place to another, busses are central to many of the things that happen in the VS-840.



In the VS-840, there are:

- record busses through which signals flow from channels to tracks during recording. The VS-840 has four record busses: Busses A, B, C and D. Each of the four busses is permanently attached to two of the VS-840's tracks so that you have a pathway to all eight tracks. Bus A provides a pathway to Tracks 1 and 5. Bus B provides a pathway to Tracks 2 and 6. Bus C provides a pathway to Tracks 3 and 7. Bus D provides a pathway to Tracks 5 and 8. In order to make it easy to work with stereo audio, the four record busses are arranged in pairs: AB and CD. A pan control determines how much of your signal will go to one bus or the other in the pair you select. When you pan a signal to the left, it goes to Bus A or Bus C—and thus an odd-numbered track. When you pan it to the right, it goes to Bus B or Bus D, and an even-numbered track.
- a track cue bus down which signals travel from the outputs of the VS-840's tracks to the MON/AUX output jacks and the headphones so that the tracks can be heard during recording or playback.
- an Effect buss through which you can send signals to the built-in effects.
- an Aux bus that provides a pathway to the VS-840's MON/AUX jacks, allowing you to send signals to an external effect processor or other external device.
- a Mix bus down which signals travel to the VS-840's MASTER OUT outputs, and then on to a mixdown recorder during mixing.

As you can see, busses are important, since they serve so many purposes. It's helpful to remember, however, that they're all fundamentally the same simple thing: a pathway down which audio signals can travel.

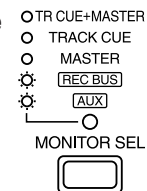
Monitoring

“Monitoring” is another word for “listening.” It's most likely that you'll want to monitor the VS-840 by connecting a speaker amplifier or powered speakers to the VS-840's MON/AUX output jacks, or by using stereo headphones connected to the PHONES jack.



You can also use the MON/AUX jacks for sending signals to external devices; however, this section discusses their use in monitoring. See Page 45 in the Owner's Manual.

The MONITOR SEL button allows you to choose exactly what will be sent out through the MON/AUX jacks—the LED above the button lights to show you the currently selected choice according to the color scheme listed just above it.



Important Concepts (continued)



As shipped from the factory, headphones connected to the MON//AUX jacks will hear whatever you select using the MONITOR SELECT button—you can override this setting if necessary, as described on Page 99 in your Owner's Manual.

You can choose from among the following monitoring options:

- TR CUE+Master (orange LED)— The signals from the Track Cue bus and the Master Out bus are mixed together, allowing you to simultaneously monitor your tracks and any signals currently routed through mixer channels.
- TRACK CUE (green LED)— You'll hear the recorder section's Track Cue bus: your tracks.
- MASTER (red LED)— You'll hear signals being controlled by the channels in the mixer section and sent to the main mix Master Out bus. During recording, these will typically be input signals. During mixdown, or when bouncing, these will be recorder tracks.
- REC BUS (blinking red LED)— You'll hear the recording busses, allowing you to hear what's being recorded, all by itself.
- AUX (blinking green LED)— You'll hear any signals routed to the AUX bus.

In most recording situations. You'll be using either the MASTER (red LED) or the TRACK CUE (green) setting.



It's important to be aware at all times of how the MONITOR SELECT button is set. The various monitoring choices let you to listen from different vantage points within the VS-840. It's important to listen to the right one for the task at hand; otherwise, you may find that things you do produce unexpected results.

IV. Sample Setup

Here's a sample setup for the VS-840 using a guitar, a microphone, and powered speakers for monitoring:

- 1) Connect the guitar to the GUITAR (HI-Z) input on the back panel of the VS-840.
- 2) Connect the Microphone to INPUT 2 on the back panel of the VS-840.
- 3) Connect the MON/AUX out of the VS-840 to your powered speakers.



V. Basic Recording

Creating a New Song

The VS-840 organizes your music into “songs.” A song can be a single piece of music, or it can contain multiple performances on different tracks, or at different time locations. The VS-840 can hold several songs, with the only limit being recording time (see “Section IX” for further information on conserving disk space).



The following sections require that you insert a properly formatted disk in your VS-840’s disk drive. For the purposes of this guide, you can use the DEMO SONG disk that came with your VS-840. To learn more about disks and preparing them for use in the VS-840, see Pages 11 and 14 in the Owner’s Manual.

Before recording, you’ll typically want to create a new song—this step is required for the tutorial that follows. Use the following procedure:

- 1) Press UTILITY.
- 2) Use the LEFT or RIGHT CURSOR buttons to select the SONG icon—as you move from icon to icon, you’ll see the name of the currently selected icon in the top left corner of the display—and press ENTER.
- 3) CURSOR to New and press ENTER.
- 4) CURSOR to Sample Rate and Record Mode and use the VALUE dial to select the desired sample rate and record mode.



The sample rate and record mode settings affect the audio quality and recording time of your song. You can only change these settings during the creation of a new song. For most recording applications, we recommend using a 44.1kHz sampling rate and the MT-2 record mode.

- 5) Press ENTER. The screen will display “STORE Current?” If you wish to save the currently selected song, press YES. If not, press NO.

Once the new song has been created, you’ll be automatically returned to Play mode.

Naming a Song

When you create a song, the VS-840 will automatically assign it a name such as “InitSong001.” It’s a good idea to change the name as soon as possible to something with a personal meaning to help you more easily identify the song at a later time. To re-name a song, use the following procedure:

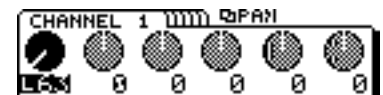
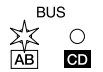
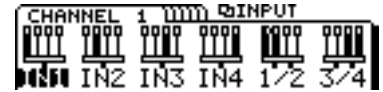
- 1) Press UTILITY.
- 2) CURSOR to the SONG icon and press ENTER.
- 3) CURSOR to the Name icon and press ENTER.
- 4) CURSOR to the character position that you wish to change and use the VALUE dial to select the desired character.
- 5) Repeat Step 4 for all of the intended name’s characters.
- 6) When you’re finished, press DISPLAY to return to the Play screen.

Basic Recording (continued)

Recording a Track

Use the following procedure to record a electric guitar part onto Track 1 of the VS-840:

- 1) Connect a guitar to the Guitar (Hi-Z) Input.
- 2) Press MONITOR SEL as many times as necessary until the green LED lights to show that TRACK CUE is selected. This allows you to monitor the track you're going to record on.
- 3) Press INPUT (under CHANNEL PARAMETER in the mixer section).
- 4) Use the LEFT CURSOR button to display "CHANNEL 1" and the TIME/VALUE dial to select "IN 1." This routes Input 1 to Channel 1 in the mixer section.
- 5) Press MODE to select "Bus." Now we can use the SELECT button to route the channel to a record bus.
- 6) Press the Channel 1 SELECT/BUS button a few times until only the AB LED above its fader is lit. This selects busses A and B, which will route Channel 1's signal to tracks 1 and 2.
- 7) Press the CHANNEL PARAMETER PAN button, and CURSOR left to highlight the CHANNEL 1 PAN knob icon on the screen.
- 8) Turn the TIME/VALUE counter-clockwise dial until "L63" is displayed under the CHANNEL 1 PAN icon. This will send the signal to Track 1 only.
- 9) Press the TRACK STATUS 1 button (in the TRACK CUE section) until it's flashing red —this state is called "record-ready mode."
- 10) Press DISPLAY.
- 11) Move the Channel 1 fader to 0dB, and use the Input 1 Sens knob to adjust the level of the guitar, as shown on the display. As you play some notes on the guitar, use the Track Cue 1 knob to control the monitoring level—the listening level—of the track.
- 12) Hold REC and press PLAY to begin recording.
- 13) When you're finished recording, press STOP.
- 14) Press the TRACK STATUS 1 button until its LED turns green to show that the track is in play mode.
- 15) Press ZERO, then PLAY to listen to the track. Use the TRACK CUE 1 knob to adjust the volume level of the track.



In this example we bussed Channel 1, the channel controlling the signal from the guitar, to Track 1 in Steps 5 through 8. We did this by assigning Channel 1 to the AB bus, and then panning Channel 1's signal all the way to the left, so that it would travel only down Bus A. We did this because Bus A is permanently connected to Track 1—if you look at the TRACK STATUS buttons, you'll see that Track 1's button even has an "A" next to it to signify its association with Bus A.

As we worked, we listened to Track 1. This let us hear the guitar performance. It also let us hear what signal Track 1 was recording so that we could be confident we were actually recording what we intended to record.

Basic Recording (continued)

Now let's record another guitar part on Track 2 while listening to Track 1. Even though we're going to be recording on Track 2, we can still use Channel 1 for controlling the guitar's signal and sending it to Track 2:

- 1) If TRACK STATUS 1 button's LED is not already green, press the button until it is to enable the track's playback.
- 2) Press the TRACK STATUS 2 button to record-enable the track (so that its LED is blinking red).
- 3) Make sure the Channel 1 fader is at 0dB and use the Input Sens knob to adjust the level of the guitar.
- 4) Press the CHANNEL PARAMETER PAN button, and CURSOR left to highlight the CHANNEL 1 PAN icon on the screen.
- 5) Turn the TIME/VALUE dial until "R63" is displayed under the CHANNEL 1 PAN icon. Press DISPLAY.
- 6) Press ZERO and PLAY and use the TRACK CUE 1 knob to adjust the level of the previously recorded track (Track 1).
- 7) As you play some notes on the guitar, use the TRACK CUE 2 knob to adjust the monitoring level of Track 2, the track you're about to record. When you're done, press ZERO to rewind the song.
- 8) Hold REC and press PLAY to begin recording.
- 9) When you're finished recording, press STOP. Then press the TRACK STATUS 2 button to enable playback (LED is green).
- 10) Press ZERO, then PLAY to listen to both tracks.

Storing the Song

Once you've recorded some song tracks, you must store them onto your disk if you wish them to remain available for use at a later time. Use the following procedure:

- 1) Hold SHIFT and press ZERO. "STORE OK?" is displayed.
- 2) Press YES.

VI. Adding Effects

The VS-840 contains a very powerful multi-effects processor, with effects such as reverb, delay, chorus, guitar multi-effects, and COSM-based guitar amp simulators. There are two main methods you can use to apply an effect to a signal: loop and insert. Let's look at using an effect loop first.

Adding Reverb to a Track (Post Fade)

Some effects—such as reverb, chorus, and delay—are usually applied to signals by using an effect loop. In an effect loop:

- 1) You send the dry signal to the bus you intend to use. This could be the main mix's MASTER OUT bus or a record bus routed to a track, for example.
- 2) At the same time, send the dry signal to the effects processor.
- 3) Send the output of the effect processor—containing the processed signal—to the mix or recording bus to which you sent the signal in Step 1. This completes the loop.

A loop effect allows you to blend the dry signal with its effected version. In Step 1 above, you can choose the point within the channel from which you send its signal to the effect processor. You can select:

- Pre-fade—This sends the dry signal before it's been subjected to the fader's level control. You would use the pre-fade option in a situation where you want the fader to control the dry signal only, leaving the effected signal at a constant volume. This can be used as a trick to make a reverbed signal sound as if it's getting further and further away from a listener as the dry signal is brought down in volume while its reverb stays at its full level.
- Post Fade—This sends the dry signal after it's passed through the fader. This is the far more commonly used setting. Since the amount of signal sent to the effect is controlled by the fader, when you adjust the level of the dry signal, you're also adjusting the level of the wet signal. This allows you to use the processor's output to establish the desired volume relationship between the dry and wet signals, and to use the fader make them louder or softer without losing this relationship.

Use the following procedure to apply reverb to a previously recorded guitar track in a post fade loop:

- 1) Press EFFECT above the TRACK CUE section.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight MODE.
- 3) CURSOR UP to highlight the SYSTEM EFFECT value, and turn the TIME/VALUE dial to select "on."
- 4) CURSOR DOWN to highlight the POSITION value and use the TIME/VALUE dial to select "LOOP DIR: Off."
- 5) CURSOR RIGHT to highlight TYPE and turn the TIME/VALUE dial to select "Reverb 2."
- 6) CURSOR RIGHT to highlight PATCH and use the TIME/VALUE dial to select "A-24 LARGE HALL." Press YES.
- 7) Press EFFECT LEVEL under CHANNEL PARAMETER in the mixer section.

Adding Effects (continued)

- 8) Use the CURSOR LEFT/RIGHT buttons to select the Channel 1 EFX SEND LV (for “Effects Send Level”) knob icon and turn the TIME/VALUE dial to select the amount of reverb to be applied to Track 1—a value of “100” is a good place to start.
- 9) Press MONITOR SEL until MASTER (red LED) is selected.
- 10) Press the TRACK STATUS 1 button until its LED is green (play mode).
- 11) Press MODE so that the SELECT indicator is lit.
- 12) Press LEVEL under EFFECT RTN.
- 13) Use the CURSOR LEFT/RIGHT buttons to select the left-hand EFX RETURN LEVEL knob icon, and turn the TIME/VALUE knob to set the overall level of the effect processor’s output—try a value of 65.
- 14) Press the Channel 1 SELECT button until its LED turns green. Move the Channel 1 fader and the MASTER fader to 0dB.
- 15) Press PAN and set Channel 1’s PAN to “0.”
- 16) Press ZERO to reset your song to the beginning and press PLAY to hear the results (you won’t hear your second track for now). Use the Channel 1 fader to raise or lower the volume of Track 1.

Adding Distortion to a Track (Insert)

Effects such as distortion, compression, and the COSM amp simulators are best utilized as insert effects. An insert effect is an effect created by interrupting a signal’s journey through a channel, diverting it into an effect, and then re-inserting the effected signal back into the channel, replacing the original, dry signal altogether. You can then send the signal to the main mix or to a track for recording.



While an effect applied in a loop configuration can be used on more than one signal at a time, an effect applied as an insert can be used only on a single channel or channel pair (5/6 or 7/8). This means that when the effects processor is inserted in a channel, it cannot process any other channels’ signals.

Use the following procedure to insert a distortion effect on Track 1:

- 1) Press EFFECT.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight MODE.
- 3) CURSOR UP to highlight the SYSTEM EFFECT value and use the TIME/VALUE dial to select “on.”
- 4) CURSOR DOWN to highlight the POSITION value and use the TIME/VALUE dial to select “CH1 INSERT.”
- 5) CURSOR RIGHT to highlight TYPE and use the TIME/VALUE dial to select “Guitar Multi 1.”
- 6) CURSOR RIGHT to highlight PATCH and use the TIME/VALUE dial to select “A-80 ROCK LEAD.” Press YES.
- 7) Press MONITOR SEL to select MASTER (LED is red). Press TRACK STATUS 1 to enable playback (LED is green.)
- 8) Press MODE so that the SELECT indicator is lit.
- 9) Press the Channel 1 SELECT button until it is green. Move the Channel 1 fader and the Master fader to 0dB.
- 10) Press ZERO to reset your song to the beginning and press PLAY to hear the results.

Adding Effects (continued)

Printing an Effect as You Record a Track

The VS-840 allows you to record the output of the effects processor onto a track at the same time you're recording a performance. Once the effect is recorded this way it becomes a permanent part of the track—this is called “printing an effect.” Recording the effect into a performance frees up the effect processor to be used for something else. Printing an effect is a good idea if you're sure about using an effect, and won't need to change your mind later.

Use the following procedure to insert an effect on Channel 1 and print it to Track 3 while recording a performance:

- 1) Connect the output of your guitar to the GUITAR (HI-Z) input.
- 2) Press MODE so that the SELECT indicator is lit.
- 3) Press the SELECT button for Channel 1 so that it lights in orange (INPUT).
- 4) Set the Channel 1 FADER to 0dB and the INPUT SENS knob for Input 1 to an appropriate recording level for your guitar.
- 5) Press MODE so the BUS indicator is lit. Press the SELECT button for Channel 1 so the CD indicator is lit.
- 6) Press the CHANNEL PARAMETER PAN button, and CURSOR left to highlight the CHANNEL 1 PAN icon on the screen.
- 7) Turn the TIME/VALUE dial until “L63” is displayed under the CHANNEL 1 PAN icon.
- 8) Press EFFECT.
- 9) Use the CURSOR LEFT/RIGHT buttons to highlight MODE.
- 10) CURSOR UP to highlight the SYSTEM EFFECT value and use the TIME/VALUE dial to select “on.”
- 11) CURSOR DOWN to highlight the POSITION value and use the TIME/VALUE dial to select “CH1 INSERT.”
- 12) CURSOR RIGHT to highlight TYPE and use the TIME/VALUE dial to select “ALL TYPE.”
- 13) CURSOR RIGHT to highlight PATCH and use the TIME/VALUE dial to select “A-85: STUDIO LEAD.” Press YES.
- 14) Press the TRACK STATUS 3 button to record-enable it (blinking red). Press MONITOR SEL to select TRACK CUE (LED is green).
- 15) Press ZERO and PLAY, and use the TRACK CUE 1 and 2 knobs to adjust the level of the previously recorded tracks.
- 16) As you play some notes on the guitar, use the TRACK CUE 3 knob to adjust the monitoring level of Track 3, the track you're about to record. When you're done, press ZERO to rewind the song.
- 17) Press REC followed by PLAY to begin recording. The effect will be recorded as part of the track, allowing you to use the effect processor for some other purpose when you're finished.
- 18) Press EFFECT.
- 19) Use the CURSOR LEFT/RIGHT buttons to highlight MODE.
- 20) CURSOR UP to highlight the SYSTEM EFFECT value and use the TIME/VALUE dial to select “off.”
- 21) Press ZERO and PLAY—even though we've just turned the effect off, you can still hear it on Track 3, since we printed in onto the track along with the performance.

VII. Bouncing Tracks

What is “Bouncing?”

Track bouncing, sometimes referred to as “ping-ponging,” is the process of sub-mixing multiple tracks down to a single track or stereo pair of tracks in order to free up additional tracks for recording. With tape-based recorders, track bouncing is usually kept to a minimum because of the noise it generates, and because the sound quality of the tracks degrades with each bounce. Furthermore, in order to take advantage of the freed-up space, you have to eventually record over the original tracks. Because the VS-840 is a digital recorder, however, you can bounce tracks without worrying about generating additional noise or diminishing sound quality. Also, because the VS-840 contains 64 Virtual Tracks, you can record new material without erasing the original tracks.

Use the following procedure to bounce the guitar parts we recorded on Tracks 1-3 to stereo Track 5/6:

- 1) Hold SHIFT and press the TRACK STATUS/V.TRACK button for Track 5/6.
- 2) Turn the TIME/VALUE dial clockwise to select Virtual Track 2.
- 3) Press MODE so that the SELECT indicator is lit.
- 4) Press the SELECT buttons for Channels 1-3 so that their LEDs light in green (TRACK).
- 5) Press MODE so that the BUS indicator is lit.
- 6) Press the SELECT buttons for Channels 1-3 so that their AB indicators are lit.
- 7) Press MONITOR SEL to select MASTER (LED is red).
- 8) Press the TRACK STATUS buttons for Tracks 1-3 so their LEDs light in green (PLAY).
- 9) Press PLAY and use the FADERS to adjust the levels for Tracks 1-3 as desired.
- 10) Press PAN and use the CURSOR LEFT/RIGHT buttons and the TIME/VALUE dial to adjust the panning for Tracks 1-3 as desired.
- 11) Press STOP and reset your song to the beginning.
- 12) Press the TRACK STATUS button for Track 5/6 so its LED is flashing red (RECORD).
- 13) Press MONITOR SEL to select TRACK CUE (green) so you can hear the new track as you record it.
- 14) In the TRACK CUE section, turn down Tracks 1-3 all the way and listen only to Track 5/6—otherwise, you’ll be hearing your three tracks and the bounce at the same time.
- 15) Press REC followed by PLAY to start bouncing Tracks 1-3.
- 16) When your song is finished playing, press STOP.
- 17) Press the TRACK STATUS button for Track 5/6 so its LED is green. Press ZERO and PLAY to hear Track 5/6, containing the bounce of Tracks 1-3.

Bouncing Tracks (continued)

Bouncing with Effects

If you want to free up the effects processor but still want to be able to change the effects settings for a track, you can re-record the track along with the effects to another track. This will create a new track with printed effects, freeing up the effects processor. Since you'll still have the original dry track, you'll be able to change the effects settings for that track again later, if desired.

Use the following procedure to add effects to a previously recorded track (we'll use the dry guitar track on Track 2) by bouncing the track and its effect to tracks 7/8:

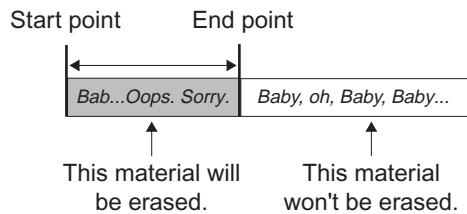
- 1) Press EFFECT.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight MODE.
- 3) CURSOR UP to highlight the SYSTEM EFFECT value and use the TIME/VALUE dial to select "on."
- 4) CURSOR DOWN to highlight the POSITION value and use the TIME/VALUE dial to select "LOOP DIR: Off."
- 5) CURSOR RIGHT to highlight TYPE and use the TIME/VALUE dial to select "ALL TYPE."
- 6) CURSOR RIGHT to highlight Patch and use the TIME/VALUE dial to select an effects patch. For this example, try "A-00: MEDIUM ROOM."
- 7) Press YES.
- 8) Press MONITOR SEL to select MASTER (LED is red).
- 9) Press EFFECT LEVEL under CHANNEL PARAMETER.
- 10) Use the CURSOR LEFT/RIGHT buttons to select Channel 2 and the TIME/VALUE dial to select the amount of reverb (send level) to be applied to it—try a value of 100. Set the send level for all other tracks to "0."
- 11) Press MODE so the SELECT indicator is lit.
- 12) Press the SELECT button for Channel 2 so it lights green. Play the song and Channel 2's FADER to adjust its level as desired.
- 13) Press LEVEL under EFFECT RTN and use the TIME/VALUE dial to adjust the overall effect level—the processor's return level—as desired. Set this to 100.
- 14) Press the SELECT button for Channel 7/8 so it's not lit (MUTE).
- 15) Press MODE so the BUS indicator is lit.
- 16) Press the SELECT button for Channels 1, 3 and 4 so that their AB and CD indicators turn off, and Track 2 so that its CD indicator is lit.
- 17) Hold SHIFT and press LEVEL under EFFECT RETURN until the EFFECT RETURN CD indicator is flashing.
- 18) Press MONITOR SEL to select TRACK CUE (LED is green).
- 19) Make sure that TRACK STATUS 2 is in play (its LED is green) and that TRACK STATUS 7/8 is in record-ready mode (its LED is red). Turn up the TRACK STATUS levels for Tracks 1, 3 and 7/8, and turn down the level of Track 5/6 (we don't need to hear our old bounce now).
- 20) Reset the song to the beginning and press REC followed by PLAY to bounce Track 2 with effects to Track 7/8.
- 21) When your song is finished playing, press STOP. Reset the song to the beginning, press the TRACK STATUS 7/8 button so that its LED is green, and listen just to Track 7/8 to hear the results.

VIII. Editing Tracks

The VS-840 contains some very powerful editing tools that allow you to edit your recordings in ways not possible on tape-based systems. And, because of the Undo and Redo functions, you can be creative without worrying about ruining something you want to keep. Before you begin editing, it's important to understand the four edit points that define an area to be edited: Start, From, End, and To.

Start and End Points

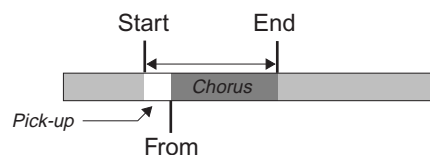
Almost every edit you do will need to have a Start point and an End point. The Start and End points mark the beginning and end of the section to be edited. For example, if you want to erase part of a track, the Start point would mark where you want to begin erasing, and the End point would mark where you want to stop erasing. In the example below, a vocalist started singing too soon, so the Start point is placed just before the unwanted singing and the End point is placed just after it. When you perform the edit, the area marked by the Start and End point is erased. The edit will replace the singing with silence—instead of just chopping out a piece of the track—so the timing of the rest of the track will remain unchanged.



From and To Points

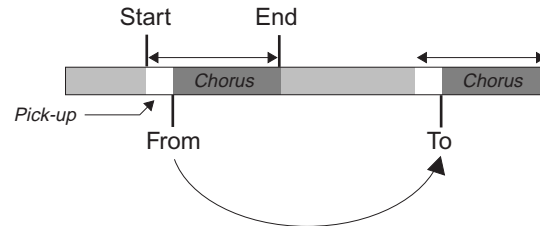
When moving or copying a part of a track, the Start and End points determine what part of the track will be moved or copied. The From and To points help you position the data at its new location. You can designate a moment within the data you're moving or copying—perhaps a snare hit or tom fill, for example—as your From point, and choose a time location in the destination track with which you'd like it to line up: the To point.

In most cases, the From point will be the same as the Start point, and To will simply designate the new location of audio you're moving or copying. The From point comes in handy when you want to use a reference point (e.g., the downbeat of a measure, a sound effect, etc.) somewhere other than the beginning of the section you want to move or copy. You can use the From and To points to align that reference point with its corresponding time in the new location. For example, let's say you want to copy a lead vocal from the first chorus to the second chorus, but the vocalist sings a pick-up before the first downbeat of the chorus. You can set your Start and End points so that they capture the entire vocal phrase, and set From at the chorus's first downbeat.



Editing Tracks (continued)

You could then select the first downbeat of Chorus 2 as your To point. When the data is copied, the From point will line up with the To point, and the entire chorus—including the pick-up—will be placed at exactly the right spot.



Track Cut and Track Erase

Track Cut and Track Erase are two edit functions that you'll probably find yourself using quite often. They're similar actions in that they both remove unwanted audio, but they differ in one significant way:

- Track Erase removes audio without moving the remainder of the track.
- Track Cut removes audio and closes up the space it occupied by moving the rest of the track forward in time.

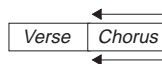
For example, let's say you have song in which there's a four-bar verse, four-bar bridge and four-bar chorus, one after the other.



If you Track-Erase the four-bar bridge between the verse and chorus, there will be four bars of silence between the verse and the chorus.



If you use Track Cut instead of Track Erase, your song will go immediately from the verse to the chorus, with no space in between.



Use the following procedure to erase a section of your song.



The following examples assume that you do not have any existing locate points set. To clear an existing locate point, hold CLEAR and press the LOCATOR button for the locate point you wish to clear. Locate Points 5-8 can be accessed by holding the SHIFT button.

- 1) Find the beginning of the section you want to erase and press LOCATOR 1 so its LED lights.
- 2) Advance your song to the end of the section you want to erase and press LOCATOR 2 so its LED is lit.
- 3) Press UTILITY.
- 4) Use the CURSOR LEFT/RIGHT buttons to highlight the TRACK icon and press YES.
- 5) Use the CURSOR LEFT/RIGHT buttons to highlight the ERASE icon and press YES.
- 6) Use the TIME/VALUE dial to select "1:TR *-*." The asterisks indicate

Editing Tracks (continued)

that the edit will be performed on all of the song's Virtual Tracks at the same time.

- 7) CURSOR RIGHT to highlight the TIME icon and press YES.
- 8) Press LOCATOR 1 to enter the START time for the edit.
- 9) Press the CURSOR DOWN button to the END time and press LOCATOR 2 to enter the END time.
- 10) Use the CURSOR buttons to highlight the GO icon and press YES to execute the erase function. "Complete" will be displayed when the edit is finished.
- 11) Press DISPLAY to return to the main play screen. Reset your song to a point before the edit and press PLAY to hear the results. Before proceeding, press UNDO and YES to use the Undo function—we'll discuss Undo in detail later—this will restore your song back to the way it was prior to the edit.

Use the following procedure to cut that same section:

- 1) Press UTILITY.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight the TRACK icon and press YES.
- 3) Use the CURSOR LEFT/RIGHT buttons to highlight the CUT icon and press YES.
- 4) Use the TIME/VALUE dial to select "1:TR *.*."
- 5) CURSOR RIGHT to highlight the TIME icon and press YES.
- 6) Press LOCATOR 1 to enter the START time for the edit.
- 7) Press the DOWN CURSOR button followed by LOCATOR 2 to enter the END time for the edit.
- 8) Use the CURSOR buttons to highlight the GO icon and press YES to execute the cut function. "Complete" will be displayed when the edit is finished.
- 9) Press DISPLAY to return to the main play screen. Reset your song to a point before the edit and press PLAY to hear the results. Press Undo and YES to return the song to the state it was in prior to the edit.



Track Copy

Track Copy allows you to copy audio to another location in your song, to another track, or both. It's important to note that the copied data does not use up additional space on your Zip disk. This is great when, for example, you're copying background vocals from the first chorus of a song to all of its other chorus sections, or when you're extending short drum loops for the duration of your song—you can use the same data over and over without taking up additional disk space.

Use the following procedure to copy a section of your song to another point in your song:

- 1) Hold CLEAR and press LOCATOR 1 and 2 to erase the existing locate points.
- 2) Set the Start, From, End, and To points on LOCATORS 1-4 respectively.
- 3) Press UTILITY.
- 4) Use the CURSOR LEFT/RIGHT buttons to highlight the TRACK icon and press YES.

Editing Tracks (continued)

- 5) CURSOR LEFT to highlight the COPY icon and press YES.
- 6) Use the TIME/VALUE dial to select the track containing the section you want to copy.
- 7) CURSOR RIGHT and use the TIME/VALUE dial to select the desired Virtual Track.
- 8) CURSOR RIGHT past the arrow and use the TIME/VALUE dial to select the desired destination track—for this type of edit, it should be the same as the source track.
- 9) CURSOR RIGHT and use the TIME/VALUE dial to select the Virtual Track you would like to use (for this edit, it should be the same as the source Virtual Track).
- 10) CURSOR RIGHT to highlight the TIME icon and press YES.
- 11) Press LOCATOR 1 to enter the START time.
- 12) CURSOR DOWN and press LOCATOR 2 to enter the FROM time.
- 13) CURSOR DOWN and press LOCATOR 3 to enter the END time.
- 14) CURSOR DOWN and press LOCATOR 4 to enter the TO time.
- 15) CURSOR RIGHT to highlight the Copy Times value (X 1) and use the TIME/VALUE dial to select the number of times you would like to copy the selected region. For example, let's say you've selected an eight-bar chorus to be copied to a later point in your song. If you wanted the copied chorus to repeat, you would use a Copy Times value of "2." This will create two back-to-back copies of the original eight-bar phrase at the destination location, for a total of 16 bars.
- 16) CURSOR DOWN to highlight the GO icon and press YES to execute the copy function.
- 17) Press DISPLAY to return the main Play screen. Reset your song to the beginning and press PLAY to hear the results. Press UNDO and YES to restore your song back to its state prior to the edit.



Track Move and Track Exchange

With 64 Virtual Tracks available for recording and eight tracks available for playback, it will likely become necessary to reorganize your tracks from time to time. The Track Move and Track Exchange functions provide a quick and simple way to do this.

The difference between the two functions is that Track Move will take the data from one track and move it to another track, replacing any data on that destination track. Track Exchange, on the other hand, will take the data on two tracks and swap them.

Let's say you have a lead guitar on Track 1-1 and a vocal on Track 2-1.



If you use Track Move to move Track 1-1 to Track 2-1, it will replace the vocal with the lead guitar, and Track 1 will be left empty.



If you use Track Exchange, however, it will put the vocal on Track 1-1 and the lead guitar on Track 2-1.



Track Move also lets you select portions of a track to be moved—using the Start, End, From, and To points—whereas Track Exchange always swaps entire tracks.

Editing Tracks (continued)

Use the following procedure to move all of Track 1-1 to Track 2-1:

- 1) Press UTILITY.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight the TRACK icon and press YES.
- 3) Use the CURSOR LEFT/RIGHT buttons to highlight the MOVE icon and press YES.
- 4) Use the TIME/VALUE dial to select "1-1."
- 5) Press CURSOR RIGHT twice and use the TIME/VALUE dial to select "2-1."
- 6) CURSOR RIGHT to highlight the TIME icon and press YES.
- 7) Press ZERO to enter the START time.
- 8) CURSOR DOWN and press ZERO to enter the FROM time.
- 9) CURSOR DOWN, hold SHIFT, and press FF (SONG END) to enter the END time.
- 10) CURSOR DOWN and press ZERO to enter the TO time.
- 11) Use the CURSOR buttons to highlight the GO icon and press YES to move Track 1-1 to Track 2-1.
- 12) Press DISPLAY to return to the main Play screen. Rewind the song and press PLAY to hear how the track was moved. Press UNDO and YES—and press the TRACK STATUS 1 button until its LED is green to re-enable playback of the track—to return the song back to its state prior to the move.



Use the following procedure to exchange Track 1-1 with Track 2-1:

- 1) Press UTILITY.
- 2) Use the CURSOR LEFT/RIGHT buttons to highlight the TRACK icon and press YES.
- 3) Use the CURSOR LEFT/RIGHT buttons to highlight the EXCHANGE icon and press YES.
- 4) Use the TIME/VALUE dial to select "1-1."
- 5) Press CURSOR RIGHT twice and use the TIME/VALUE dial to select "2-1."
- 6) CURSOR RIGHT to highlight the GO icon and press YES twice to execute the exchange function.
- 7) Press DISPLAY to return to the main Play screen. Press ZERO to rewind the song, and PLAY to hear the results of the track swap. If you wish to, you can undo the edit by pressing UNDO and YES.



Undo

Audio recorded on the VS-840 is not really lost when you record over it or edit it—this is one of the things that makes a digital recorder like the VS-840 more powerful than a traditional analog recorder. You can use the VS-840's Undo feature to cancel out a recording or an edit, restoring things to the way they were before the operation. If you accidentally record over a track, or erase too much of a track, you can press UNDO and recover the original recording, as we've been seeing. This great feature gives you the freedom to try different edits or takes without worrying about losing your original material.

The following procedure shows how to use the Undo feature:

- 1) Record something over the beginning of any of the guitar tracks we recorded earlier. (Don't worry, we'll bring back your track safely.)
- 2) Reset your song to the beginning. Press PLAY and listen to the newly "broken" version of your guitar track.

Editing Tracks (continued)

- 3) Press UNDO/REDO so that “UNDO Level =” is displayed. Use the TIME/VALUE dial to select “1” if necessary.
- 4) Press YES to execute the Undo function.
- 5) Reset your song to the beginning. Press PLAY and listen to the guitar track—it’s returned to the way it was before we “broke” it.

There are 999 levels of Undo that allow you to reverse your last 999 actions. This lets you fix a mistake even if don’t discover it until after you’ve made additional edits or recorded new material. The levels are numbered from the most recent operation—Level 1—to the oldest.



It’s a good idea to take careful notes during the editing and recording process, especially if you anticipate using the Undo function. With so many levels of Undo available, it’s possible to choose a level beyond the one you actually wish to Undo, therefore “undoing” some operation you wanted to keep—Undo undoes everything that occurred after the level you select.

Let’s say you began a session by recording a lead vocal on Track 1. Next, you performed a Track Erase to get rid of an unwanted vocal riff on Track 1. Finally, you recorded a guitar on Track 2. You’d have three actions—levels—you might want to undo in this song:

- 1) Level 1—the most recent operation: the guitar on Track 2
- 2) Level 2—the Track Erase of the vocal riff on Track 1
- 3) Level 3—the original recording of the lead vocal on Track 1

After listening back, you realize that you miss the vocal riff you erased at Level 2, and want it back. You can press the UNDO button, turn the TIME/VALUE dial to select Level 2, and hit YES to undo your erasure of the riff.

Remember that undoing an action also undoes everything you’ve done since. In our example, you’d also be undoing the guitar track you recorded at Level 1.

Fortunately, if you Undo too much, the VS-840 offers a Redo function that can reverse the most recently performed Undo command. To use the Redo function, hold down SHIFT and press UNDO. “REDO last UNDO?” will appear on your screen. Press ENTER to cancel the last Undo.

IX. Using Disk Space Effectively

Song Optimize

When recording, you may notice that your remaining recording time—shown at the bottom left of display screen—is smaller than you expected. Because the VS-840 retains all of your recorded data, including tracks you've recorded over or erased, you can quickly use up your available disk space during the recording process. The Song Optimize feature discards all the data you've recorded over, cut or erased. This frees up the disk space occupied by the data to buy back additional recording time.



Because the Song Optimize operation recovers time from tracks that were recorded-over or edited out of the song, it also clears all levels of Undo. After using Song Optimize, you won't have anything to undo until you've recorded something new, or performed a new edit.

Use the following procedure to perform a Song Optimize:

- 1) Press UTILITY.
- 2) CURSOR over to highlight the SONG icon and press ENTER.
- 3) CURSOR over to highlight the OPTIMIZE icon and press ENTER and "SONG Optimize?" will be displayed.
- 4) Press ENTER—"Optimize Further" will be displayed.
- 5) Cursor to "YES" and press ENTER—"Optimize Sure?" will be displayed.
- 6) Press YES to execute the Song Optimize.

Punching In and Out

Another way of conserving recording time is to "punch in" and "punch out" of record mode while recording the track. Instead of pressing PLAY and RECORD every time you want to record a track, you can just press PLAY, and press RECORD right before and after the section of audio you want to record.

For example, if you're recording a vocal, you could let the VS-840 record the vocal from the beginning of the song until the very last note, but that wouldn't be the most efficient use of disk space because the VS-840 would be recording the silent spaces in the track where the vocalist wasn't singing. To conserve disk space, you could use the following procedure instead:

- 1) Set up your microphone and set the appropriate track to record-ready mode.
- 2) Press PLAY to begin playback of the song.
- 3) Press REC—punch in—shortly before the first vocal section starts.
- 4) Press REC—punch out—shortly after the first vocal section ends.
- 5) Repeat Steps 3 & 4 as many times as necessary to complete the vocal track.

Using this procedure, you won't record the pauses between the vocal sections, so the track will take up less disk space.



Another way of getting back recording time is to perform a Track Erase for all of the sections of a track that don't actually contain audio—in the previous example, the blank spaces between the vocal sections—and then perform a Song Optimize.

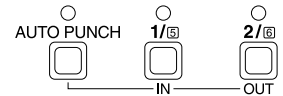
Using Disk Space Effectively (continued)

Auto Punch

You can use the Auto Punch feature to have the VS-840 automatically put a track (or group of tracks) into record mode and then out again. This function uses the first two locators as the punch in and punch out points, respectively. You'll have to clear them before proceeding. To do this, hold CLEAR and press the LOCATOR 1 and 2 buttons.

Here's how to set up Track 3 to automatically punch in at 30 seconds and out at 45 seconds:

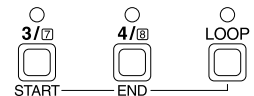
- 1) Press PLAY and advance the song to 30 seconds.
- 2) Press LOCATOR 1.
- 3) Press PLAY and advance the song to 45 seconds.
- 4) Press LOCATOR 2.
- 5) Press ZERO to rewind the song.
- 6) Press TRACK/STATUS 3 to record-enable the track, and then press AUTOPUNCH so that the AUTOPUNCH LED is lit.
- 7) Press ZERO, REC and PLAY. The song will begin playing and the track will stay in record-ready mode until the first locator point is reached. At that time, the VS-840 will punch into record mode—the red TRACK/STATUS and Record-button LEDs will stop flashing and light solidly. When the second locator point is reached, the VS-840 will punch out, back to record-ready mode, with both LEDs once again flashing.



Loop Recording

Loop Recording allows you to practice a section of a song until you're ready to record. It's often used in conjunction with Auto Punch. Loop Recording uses Locator Points 3 and 4. Use the following procedure to set the VS-840 to loop from 25 seconds to 50 seconds:

- 1) Press PLAY and advance the song to 25 seconds.
- 2) Press LOCATOR 3.
- 3) Press PLAY and advance the song to 50 seconds.
- 4) Press LOCATOR 4.
- 5) Press LOOP so its LED is lit.
- 6) Press PLAY and the VS-840 will begin playback at 25 seconds, reach 50 seconds and return to 25 seconds again. This will continue until you stop playback.



You can enable Auto Punch with Loop Recording as long as the Auto Punch punch-in and -out points are within the looped section of the song.

Recording Modes

You can adjust the recording time available on a disk, according to the sound quality you require. There are four possible recording modes—MT-1, MT-2, LIV 1, and LIV 2—and each mode offers a different balance between sound quality and recording time, although all of the modes sound excellent. You can also choose from two sampling rates—32kHz or 44.1kHz. The selected sampling rate will also affect the recording time and sound quality. The recording mode and sampling rate are selected during the creation of a song (Page 7) and cannot be changed for an already existing song.

Using Disk Space Effectively (continued)

The record mode and sampling rate you choose should be based on the type of recording you're creating. For example, if you're recording a solo piano piece for CD production, you would probably select a 44.1kHz sampling rate and the MT-1 or MT-2 record mode. If you're recording a band rehearsal, you might choose a sampling rate of 32kHz and the LIV 2 record mode for the longest recording time available. For most recording applications, we recommend using a 44.1kHz sampling rate and the MT-2 recording mode.

Tip

The best way to familiarize yourself with the various record modes is to create a series of short test songs, each using a different record mode. Next, take a CD you're familiar with and record a small portion of the CD on a pair of tracks in each song. It's important that you record the same portion of the CD in each of the test songs to provide yourself a fair basis for comparison. When you're finished, listen to each song. The differences will be fairly subtle, but will give you a better idea as to which record mode is best suited for your recording. You can use this procedure to check out the two sampling rates.

X. Summary

As you can see, the VS-840 is an amazingly powerful digital workstation that lets you create your own CD-quality recordings. We hope that this supplemental note has given you some exciting new ideas for recording, editing and mixing music on your VS-840.



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



24 hours a day, 7 days a week, you can receive a library of support materials and product information on your fax machine - and it's all FREE! Just call (323) 890-3780.



If it's a real-live person you want, we've got a team of Product Specialists that can't be beat. They're on call from 8:30am to 5:00pm PST Monday through Friday at (323) 890-3740.