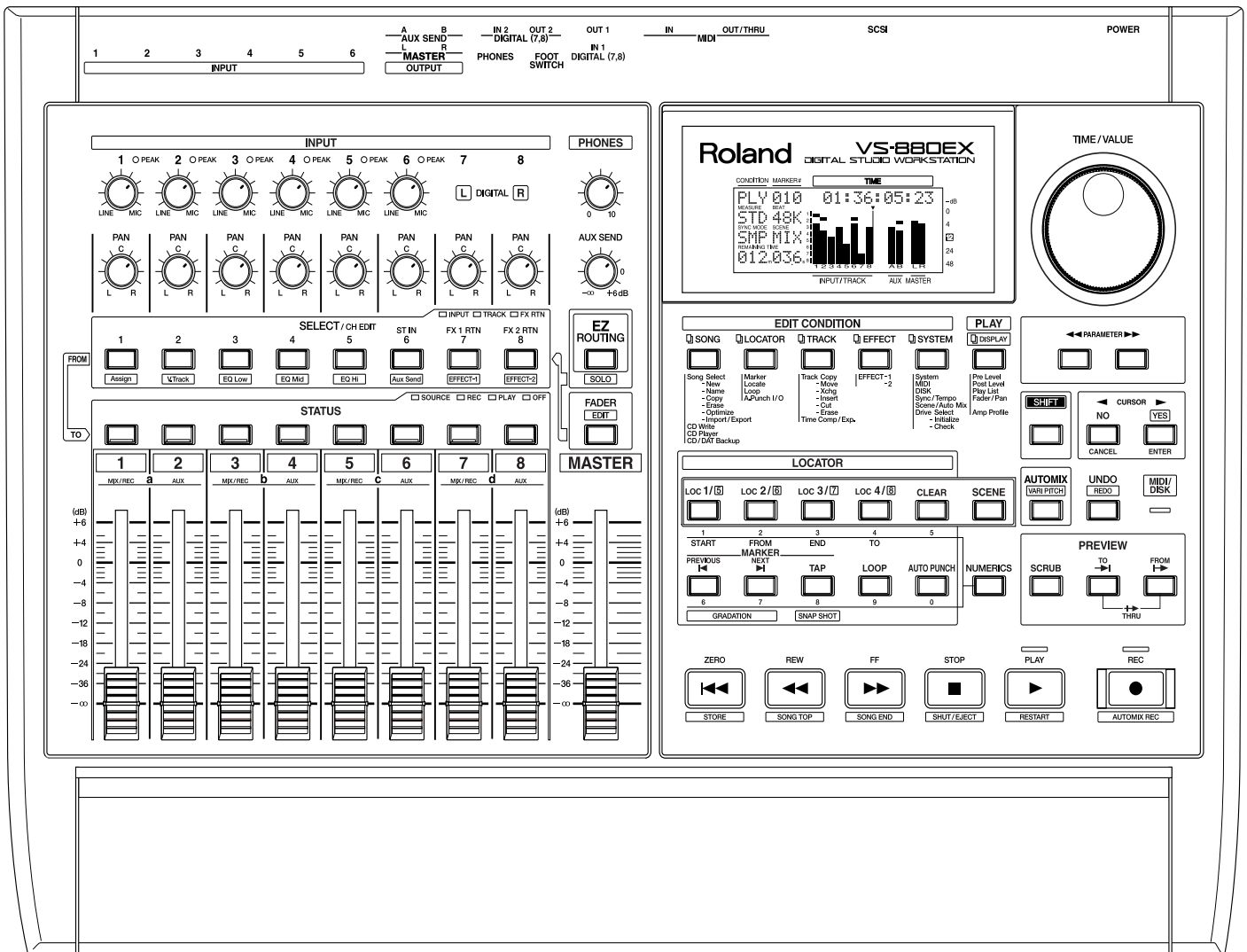# Roland®

DIGITAL STUDIO WORKSTATION
VS-880EX

APPLICATION GUIDE 1.0

This Application Guide provides step-by-step procedures and important information about day-to-day use of the VS-880EX in actual applications.

Table of Contents

Chapter 3: Recording Applications

Chapter 4: Overdub Applications

Chapter 5: Editing Applications

Chapter 6: Mixdown Applications

Chapter 7: Tips and Advanced Applications

Chapter 8: Appendix

Purpose of this Guide

This Application Guide details many of the common concepts and procedures associated with recording and editing with the VS-880EX. It has been written for users new to the general world of recording and specifically to digital hard disk recording.

After general information on recording, it concentrates on using the VS-880EX in real world recording situations. Each situation or application is broken down into three simple sections:

Why?   Why someone might want to do the task that is being described.

What?   A general description & overview of the task to be accomplished.

How?   The actual step by step button pushes required to complete the task.

How to use this Guide

All references to Owners Manual in this guide refer to the VS-880EX Owner's Manual.

Refer to your VS-880EX Owner's Manual & Quick Start

This guide does not replace your VS-880EX Owner's Manual or the VS-880EX Quick Start. Keep them close at hand for additional support.

Where applicable, this guide will direct you to specific pages in the owner's manual or the quick start for additional information or clarification. Page number references may differ slightly, depending on the date your document was printed. If you do not see what you are looking for, you may have to look a few pages before or after to find the correct page.

The LCD displays pictured in this manual may vary slightly from the actual display on your VS-880EX.

Icons & Symbols

Special icons are placed in the left margin throughout this guide to draw your attention to important information about your VS-880EX.

Warning !!!! *This WARNING icon points to critical information about issues that may affect the operation of your VS-880EX or your recorded song data.*

Note *A NOTE adds clarification to a specific point or attempts to explain a concept in a different manner.*

TECH INFO *This TECH INFO icon points to information that is specifically technical in nature.*

Conventions Used In This Manual

Buttons

- Actual front panel buttons are indicated in square brackets [ ].

- Some buttons have more than one button name. These indicate the function that the button performs when [SHIFT] is pressed or when in a different mode. When giving only the "secondary" function name would make it difficult to know which button is indicated, both button names will be given, with the current function given first.

   Example: [SOLO (EZ ROUTING)], [EFFECT 1 (CH EDIT button 7)]

- The VS-880EX has two buttons marked PLAY. In this manual, these are distinguished as follows.

   1. [PLAY (DISPLAY)]: the button at the lower right of the LCD screen

   2. [PLAY]: the button to operate the recorder 'transport,' located in the lower right corner.

Mixer Channel

- In the mixer section, a knob/button/indicator/fader of a specific channel is usually indicated by adding the channel number. Example: the PAN 1 knob, FADER 3.

Commands

- Capitalized text, surrounded by braces, { }, indicates a command that the VS-880EX can execute. Example: {MOVE}

Tracks

- The VS-880EX has two banks of 8 Virtual Tracks for each actual primary recording track. When displayed, the LCD indicates the primary recording track as the first number and the virtual track as the second number. This guide will use the same convention. For example, Tr. 2-5 will always indicate primary recording track # 2, virtual track # 5 (see Virtual Tracks - Application Guide page 27). For the purpose of this guide, we will assume that Virtual Track Bank "A" is selected (see Switching the Virtual Track Bank - Application Guide page 74).

Chapter 1: Laying a Foundation

Introduction to Multitrack Recording

In order to maximize the usefulness of your VS-880EX, a basic understanding of the typical recording process is very helpful. Since there are many books available covering the history of recording, we will not discuss it here. We will, however, review a few modern recording techniques that you might find helpful when planning your next recording session with the VS-880EX.

Multitrack Tape Recording (Linear)

Modern multitrack recording techniques allow the recording engineer an increased level of creative control beyond the direct to mono or stereo recording of the past. In the early days of recording, every musician and singer had to all assemble in a studio at the same time. Every part of the song was recorded simultaneously, directly to a mono or stereo recording. One major problem of this technique was that if any individual musician made a mistake, everyone had to do the recording over again from the beginning. The entire recording process changed dramatically with the introduction of multitrack recorders. These recorders provided 'multiple tracks' on a single piece of recording tape. For example, a 4 track recorder was just like having 4 mono recorders stacked on top of each other. Each track was distinct from the others. This allowed for recording different instruments on different tracks, even recorded at different times.

With this technique, a mistake in the piano part could be re-recorded on its individual track without affecting the other instruments. Probably the most famous recording using the early 4 track analog recorders was "Sergeant Pepper" by the Beatles in 1967. George Martin actually used two, 4 track analog recorders. All the music was recorded on the four tracks of the first machine. These four tracks were combined together into a final stereo music recording on the first two tracks of the second recorder. That left two tracks open on the second recorder for the vocal parts. The vocals were recorded on the second 4 track machine, long after the orchestra musicians had left the studio. The stereo music tracks and the vocals were then combined into the final stereo recording that is still popular today.

Modern digital tape recorders are available in configurations of up to 48 individual tracks on a single piece of recording tape. Synchronization techniques provide the ability to lock multiple recorders together providing for a relatively unlimited number of available tracks.

Tracking Session

Modern recording sessions are usually broken down into three basic components:

1. Tracking (original recording).

2. Overdubbing (adding of additional instruments and vocals).

3. Mixing (combining of all the recorded tracks into a final mono or stereo format).

The tracking session is first. In a music session, this usually means recording the basic rhythm instruments. For example, bass, drums, piano, guitars, and maybe a scratch vocal track. The scratch vocal is recorded along with the rhythm instruments to allow the musicians to hear something similar to the final vocal track. This scratch track is usually erased when final vocals are recorded.

Overdub Session

Once original tracking has been completed, the overdub process begins. Additional instruments, background singers, and vocals are added to the multitrack tape by overdubbing. The originally recorded rhythm tracks are played back through a cue system (usually headphones) to the overdubbing musician. Their musical part is recorded in sync with the original tracking instruments.

Overdubbing may consist of many musicians adding new tracks to the recording simultaneously or maybe it will be a single vocalist. Overdubbing means to record new tracks of music in sync with music that has been previously recorded. If you were to record music on the left channel of a cassette deck, rewind the tape, and then record your voice on the right channel, you would be overdubbing the voice, using the recorded music as a guide.

Mixdown Session

Once all the tracks of the music have been recorded, they must be mixed together into some type of release format. For example, if the release format is CD, the tracks would be mixed into a final stereo recording. If the release format is a movie, the tracks might be mixed into a final multichannel format such as left, center, right, and surround. Whatever the final release format, the original recorded tracks must be mixed (combined) together specifically for that format.

Audio Post Production for Video

The post production process for adding audio to moving pictures is similar to recording music. However, the audio usually must be recorded while it is synchronized to the picture requiring that the audio recorder and the video recorder be 'locked' together electronically.

Random-Access Hard Disk Recording

Traditional multitrack tape recorders are 'linear' recording devices. You begin recording at a place on the tape and record your song in a linear fashion along the length of the tape until the end. Just like with a typewriter, you can go back and correct a mistake, however, you lose the original in the process. For example, the piano player can go back and re-record over the top of his or her original recording, but the original is lost forever. What if the original was the best performance? Of course, a new piano part could be recorded on a blank track, keeping the original track untouched. However, you quickly run out of tracks for recording the other instruments.

The VS-880EX adds a new dimension to traditional multitrack recording. This is the concept described as Random Access or Non-Linear. Instead of recording your song on a linear piece of recording tape, the recording tracks of your music are turned into digital data and this data is stored on some type of storage device such as a hard disk drive. The term random access means that you can access the data (music) stored on the hard drive in a random manner. For example, let's assume that you have recorded a song on your VS-880EX consisting of 2 Verses, 1 Chorus, 1 Verse, and the ending. If, for example, you wanted to start the song with the chorus on a traditional tape recorder, you would have to physically cut the piece of tape containing the chorus and splice it in front of the first verse. If you didn't like it, you had to replace the section of tape back to its original location.

However, the VS-880EX provides random access to all parts of your song. For example, you just instruct the VS-880EX to play the chorus first, then the first verse, etc. If you didn't like it, you just instruct the VS-880EX to change the order as many times as you wish. Since it is not physically moving your song or re-recording anything, you can rearrange your song a thousand different ways without ever using any addition memory from the hard disk. This ability to "randomly access" all the parts of your song, allows a new level of creative editing capability not available with traditional tape recorders.

TAPE: Total time per each track = 30 minutes
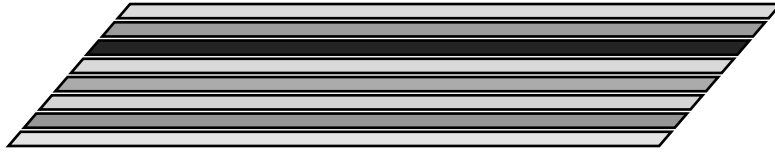
TRUE RANDOM ACCESS DISK RECORDING: Total time per track is variable

Track 1: 60 minutes

Track 2: 10 minutes

Track 4: 12 Minutes

Total track minutes used here: 97 minutes

Track 3: 15 Minutes
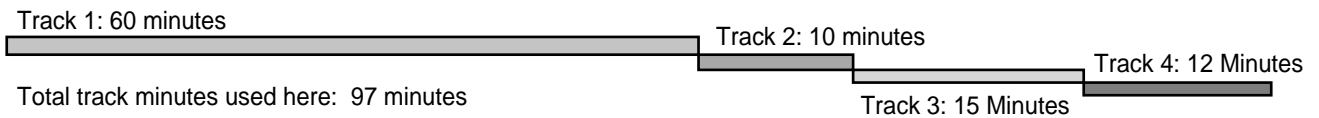
No track minutes (disk space) used for:
Looping, Copying or using the same material more than once.

Pointer Based Editing

When you record sounds into the VS-880EX, they are stored on the hard drive. Once on the drive, the original recording is never changed. All of the editing, copying and moving of the sound is actually just moving and copying "pointers" to the original sound. These pointers indicate when to start and stop playing all or part of the original recording. The advantage to this way of working is that copying or moving or erasing part of a track is only changing these pointers. Pointers take up virtually no disk space, and the VS-880EX can write or change pointers instantly. That allows you to copy all 8 tracks of a song instantly to another location without using additional disk space. The original audio is never changed.

Summary of VS-880EX Terminology

You might want to review the following summary of specific VS-880EX terminology. Even though you will not need to memorize all these items, it will be extremely helpful to at least be exposed to the terminology before you encounter it in context throughout all VS-880EX Manuals. A more extensive glossary of terms is included at the end of the Appendix section of this manual and will serve to familiarize you with many of the general terms used in audio recording.

Auto Punch
The ability for the VS-880EX to Punch Into and Out of Record automatically based on locations that you specify.

Aux Send
An auxiliary signal path normally used to route the signal from a recorded track to an internal or external effects processor device (Reverb, EQ, delay, etc.).

Cancel
To stop in the middle of a command. To instruct the VS-880EX, "No, I don't want to do that."

CH Edit
The button used to select a channel or track for editing.

Channel Link
To link two channels together so they respond as a stereo pair.

Clear
To erase or remove. e.g. To clear a locator point.

Cursor
The line, blinking area, or highlighted box that indicates your current location within a screen display or menu. Also refers to actual buttons on the VS-880EX front panel.

DAT Backup
The ability to store your completed song on an audio DAT tape as a 'backup' in case something goes wrong with your hard disk.

Dat Recover
The ability to recall your completed song from an audio DAT tape and load it into your VS-880EX so it can be played, re-edited, added to, etc.

Digital In
The VS-880EX input that will accept a digital signal such as a DAT or CD.

Digital Out
The VS-880EX output that will send a digital signal from the VS-880EX to some other external digital device.

Display
The LCD screen located in the top of the right hand section of the VS-880EX. Used to display important information to the user such as information about the present recording, edit commands, and song position.

Drive Select
This command allows you to chose which hard disk and/or partition of a hard disk you will be using for song selection and storage.

Fader/Pan
The fader is the linear volume control for each channel on the front panel. The pan control is a rotary knob used to position a mono audio signal within a two channel stereo field.

Amp Profile
The amplitude profile is a visual representation of the audio signal presented as vertical bars in the LCD display.

Edit
Any change made to an original recording. For Example, if a small section is erased from the original recording, that is an edit. Copying one section of a song to another part is an edit.

Effect 1 & 2
Effects are sound modifiers applied to an audio signal to change the sound in some way. For example, digital reverb is an effect. Changing the relative balance of treble and bass with an equalizer is an effect. Effect 1 & 2 may refer to internal effects using the built-in effects or external effects from an external effects processor.

Enter
The same as YES or OK.

EQ High
High frequency equalization boosts or lowers the perceived loudness of treble (high) frequencies. The VS-880EX High EQ can affect frequencies from 500 Hz to 18 kHz.

EQ Low
Low frequency equalization boosts or lowers the perceived loudness of bass (low) frequencies. The VS-880EX Low EQ can affect frequencies from 40 Hz to 1.5 kHz.

EQ Mid
Mid frequency equalization boosts or lowers the perceived loudness of frequencies in the middle part of the hearing range. The VS-880EX Mid EQ can affect frequencies from 200 Hz to 8 kHz.

FF
Abbreviation for Fast Forward. The ability to move forward quickly in your song.

Foot Switch
An optional foot switch can be used to select VS-880EX functions by pressing the switch with your foot, keeping your hands free for playing an instrument.

Initialization (Drive Initialize)
The process of formatting a hard drive or removable cartridge. Initializing a drive erases all its contents. New drives or cartridges must be initialized before they can be used by the VS-880EX.

Input Sensitivity
Adjusts the gain (volume) of an incoming audio signal.

Input/Bus
Selects the routing of the rear panel inputs to different recording channels.

Locator
A position marker placed in your song to help you find sections quickly. Locator locations can be accessed directly from the front panel buttons.

Marker
A marker is any temporary mark placed within a song to indicate a particular location you wish to return to. For example, just like a bookmark points to a page in a book, a marker points to a song location to make it easy to find later.

Previous
An instruction to the VS-880EX to locate to the previous marker position (backwards).

Next
An instruction to the VS-880EX to locate to the next marker position (forwards).

Tap
A button on the front panel used to enter marker locations during recording or playback.

Loc 1-Loc 4
These buttons correspond to Locator position # 1-4. Holding [SHIFT] plus these buttons selects Locator positions # 5-8.

Loop
A loop indicates a section of a song that has been designated by the user to play over and over.

Loop Punch
The ability to instruct the VS-880EX to play a particular section of your song over and over while you rehearse a punch-in. It then allows you to record the punch-in section as many times as you want.

Auto Punch I/O
This is the command to set the location for punching into and out of record mode.

Master
The two channel stereo section of the VS-880EX which is what you listen to in your headphones or speakers.

Master Out
The two channel stereo mix output from the VS-880EX.

Media
Media is the term used to indicate the actual surface or device your song is recorded on. For example, a cassette tape is a recording media. The VS-880EX uses digital recording media such as computer hard disk drives, removable drives, magneto-optical drives, etc.

MIDI In
The connector where an external MIDI signal can be sent into the VS-880EX.

MIDI Out/Thru
The connector where the MIDI signal is sent from the VS-880EX to some external device.

Mute
Turn the signal off.

Numerics
This button allows you to use 10 front panel buttons for quick entry of the numbers 0-9 into the LCD display, location makers, etc.

Now Line
The vertical black line in the center of the LCD display indicates the current VS-880EX position in your song. It is similar to the 'playback' head of a tape recorder with the tape passing over it.

Pan
A control on the VS-880EX that allows you to position a mono recording somewhere in the stereo field.

Parameter

A Parameter refers to some setting within the VS-880EX that you can modify (e.g., EQ frequency is a Parameter, Aux Send level is a Parameter, etc.).

Peak

The maximum recording level of the VS-880EX when digital clipping (distortion) occurs.

Phones

The volume control for headphones which can be connected to the rear of the VS-880EX.

Play

The play button controls the playback of the VS-880EX recorder section.

Play List

The play list is the complete set of instructions built by you during editing to tell the VS-880EX what tracks and recordings to play and when to play them.

Post Level

The audio signal level after it exits the front panel fader. Fader movement will affect the signal level.

Pre Level

The audio signal level before it enters the front panel fader control. Fader movement will not affect the signal level.

Preview - Scrub

The ability for the VS-880EX to play a short continuous loop of audio over and over. This loop can be moved in real time through your song to aid in finding a specific location for editing (see Owner's Manual page 141).

Preview To

The ability to play a short section of audio directly in front of the current time location (see Owner's Manual page 140).

Preview From

The ability to play a short section of audio directly following the current time location (see Owner's Manual page 140).

Preview Thru

The ability to play a short section of audio centered on the current time location.

REC

The master record button to instruct the VS-880EX to record on all tracks that have been selected to record ready mode.

Restart

After the VS-880EX has been properly shut down, the Restart command can be used to reload your song into memory and make it available to play without turning the power off and on.

REW

Short for rewind. The ability to move the current "now time" backwards in your song (same as rewind on your cassette recorder).

Scene

An automation function in the VS-880EX providing an "instantaneous" snapshot picture of every control. This scene snapshot can be recalled to "reset" the VS-880EX to the same settings as when the scene snapshot was stored. Scenes cannot be recalled while the VS-880EX is in play mode.

SCSI

Small Computer System Interface - The connection on the VS-880EX to allow for addition of storage devices (hard disks) or for creating audio CD's with the Roland VS-CDR (optional).

Shift

A button to allow for selection of the alternate function of many front panel buttons.

Shut/Eject

The Shut/Eject command instructs the VS-880EX that you wish to finish recording or editing. This command is important since it instructs the VS-880EX to close all the data files you have been working on (do some housekeeping) and to eject any removable media you might have attached . You should always use the Shut/Eject command before turning off the power.

Solo

This button function allows you to listen to a single channel of the VS-880EX by temporarily turning off the audio from the other channels.

Song Select

This command selects which song you want to work on from all those stored on your hard disk.

Song New

This command is used to begin a new song.

Song Name

A command to enter the name of your song using alphanumeric characters.

Song Copy

A command to provide the ability to copy a song from one recording media to another.

Song Erase
A command to erase a song and all its' associated recordings from your hard disk.

Song Optimize
A command to erase all unused recordings from a song to recover the disk space for additional recording.

Song End
The location of the end of your song.

Song Top
The beginning of your song.

Source
A mode of each channel allowing you to listen directly to the incoming source for your recording (e.g., microphone, guitar, synthesizer, etc.).

Status
A mode selection to choose the monitoring and recording condition of each VS-880EX channel. e.g. Record Ready, Source, Play, Mute.

Stop
Stop playback of the recorder section.

Store
This command instructs the VS-880EX to permanently store all the edits you have made to hard disk. (Similar to the SAVE command of your word processor). This command is important. If you lose power to your VS-880EX during your editing or recording session, you will loose everything you have done since the last time you executed the STORE command.

System
A section of the VS-880EX that refers to the overall settings related to your song such as sample rate, sync source, etc.

Time Compression/Expansion
The ability to compress or expand the playback time of a section of your song with or without affecting the pitch.

Time/Value Dial
A rotary dial used to move forward and backwards in time as well as change the value of parameter settings.

Track Copy
A command to copy all or part of a recorded track to some other location in your song.

Track Move
A command to move all or part of a recorded track to some other location in your song.

Track Xchg
A command to exchange the audio from one virtual track with the audio on some other virtual track.

Track Insert
A command to insert blank time in your song at any location and of any length.

Track Cut
The command to eliminate all or part of a recorded track. The remaining audio past the cut portion, will move backward in time to fill the gap left by the cut command.

Track Erase
The command to erase or eliminate all or part of a recorded track. The remaining audio past the erased portion, will not be affected and will remain in its original time location.

Undo
A command to eliminate a previous action, command, or recording. e.g. Pressing the UNDO button will return the VS-880EX to the condition immediately previous to your last action or last many actions.

Vari Pitch
The ability to play back your song at a pitch different from the original recording. The playback time will also be affected by the change in pitch.

Virtual Tracks (VTrack)
8 layers of recording capability on each primary recording track.

Vocoder
The primary use of a Vocoder is to analyze a spoken or sung human voice, then use the information to shape the harmonic content and envelope of a second musical signal (usually an electronic instrument), giving that instrument the ability to simulate singing.

Zero
A command to instruct the VS-880EX to return to ZERO time location.

VS-880EX Commonly Asked Questions

- "I just want to record - what do I do?" (See Application Guide page 37.)

- "How do I record with effects?" (See Application Guide page 40 for external effects and page 45 for internal effects.)

- "I plugged my foot switch into the VS-880EX and it won't punch into record - what do I do?" (See "Footswitch," Application Guide page 31.)

- "How does the auto punch work?" (See Application Guide page 49.)

- "How do I record digitally into the VS-880EX from my DAT?" (See Application Guide page 57.)

- "What is the best way to have EVERYTHING as a default setting so I can always walk up to the VS-880EX and start a new song?" (See "Default Song," Application Guide page 33.)

- "How do I bounce tracks?" (See Application Guide page 68.)

- "How do I bounce tracks with effects?" (See Application Guide page 69.)

- "Can I plug a mic directly into the unit? What will I need?" (See Application Guide page 32.)

- "How can I use my existing outboard effects units with the VS-880EX in record mode and mix down mode?" (See Application Guide pages 40 & 93.)

- "I move the faders but they don't seem to work. What am I doing wrong?" (See "Nulling", Application Guide page 26.)

- "What are 'Virtual' tracks and what are they used for?" (See Application Guide page 23.)

- "How do I sync my VS-880EX to my sequencer, drum machine, etc.?" (See Application Guide beginning on page 52.)

- "When I try to recover songs from DAT, I lose all the data on my Internal drive. What am I doing wrong?" (See Application Guide page 98.)

- "How do I use the locate buttons to set loop and auto punch points?" (See Application Guide page 49-51.)

- "How do I get the VS-880EX to follow tempo changes in my sequencer?" (See Application Guide page 103-105.)

- "What type of DAT machine is required for DAT backups?" (See Owner's Manual page 55.)

- "What types of hard drives/storage devices are compatible with the VS-880EX?" (See Appendices page 5.)

- "What are 'From' and 'To' points used for?" (See Owner's Manual page 90 and Application Guide page 24.)

- "Is there a particular procedure to turning the VS-880EX on or off?" (See Quick Start Manual pages 4-7.)

- "How can I add more recording time to my VS-880EX?" (See Application Guide page 113.)

- "How do I begin a new song in my VS-880EX?" (See Application Guide page 32, Owner's Manual page 40, or Quick Start Manual pages 12-13.)

- "What are "default settings" in the VS-880EX and why is it important how I set them?" (See Application Guide page 33.)

- "How do I erase the demo songs?" (See Application Guide page 138.)

- "How do I update the system software?" (See Application Guide page 139.)

Understanding Your VS-880EX

This chapter is extremely important. It will explain the necessary concepts you will need to know in order to operate your VS-880EX efficiently, effectively, and creatively.

Sections of the VS-880EX

First, you should familiarize yourself with the VS-880EX front panel.
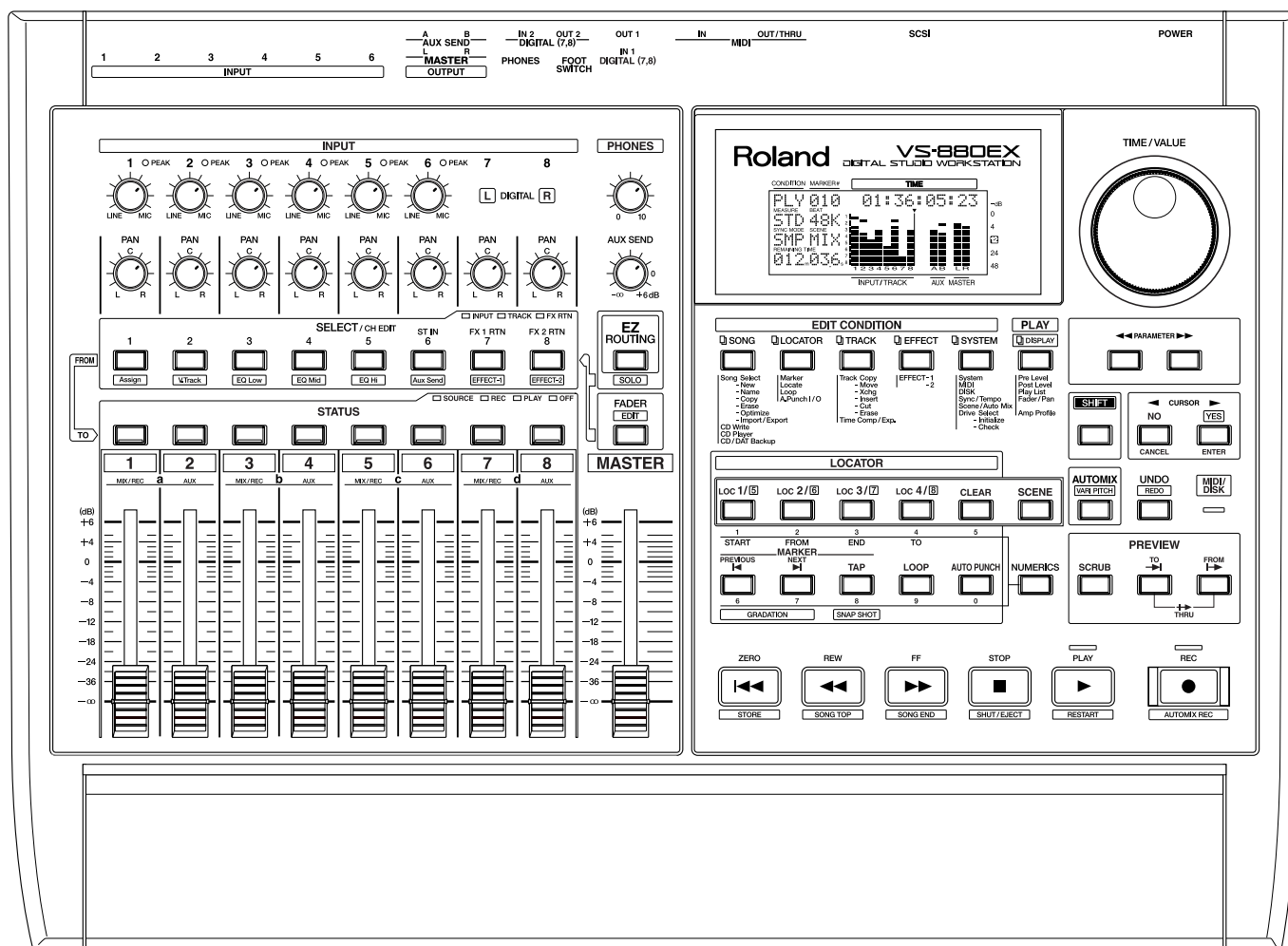
There are three types of devices on the front panel of the VS-880EX.

CONTROLS – Controls make changes to the value of settings. For example, they change volume, amount of EQ, panning position, etc. The only variable controls on the VS-880EX are the channel faders, pan pots, input sensitivity, headphone volume, aux send, and the Time/Value dial.

COMMANDS – Commands instruct the VS-880EX what to do next. For example, pressing the [PLAY] button instructs the recorder to begin playback. Pressing the [UNDO] button tells the VS-880EX to reverse the last action.

VISUAL INDICATORS – The LCD display provides information to the user about song position, editing parameters, song information, etc. Panel mounted LED's indicate command modes, peak recording, etc.

Important Concepts to Understand

Understanding The Mixer

In order to make best use of your VS-880EX, an understanding of the built-in digital mixer is required. This will save you valuable hours later when you are trying to figure out why you can't hear the reverb, why there is EQ on the bass drum, and why you cannot hear anything in your headphones.

The term 'MIXER' is normally applied to any electronic device that 'mixes' one or more audio sources and routes them to one or more destinations.

Signal Flow

What is signal flow and why do you need to know anything about it? Signal flow describes how your music (the signal) flows through the VS-880EX.

There are six important signal flow concepts to understand:

DIRECTION – In order to understand the signal flow of your VS-880EX or any audio device, you should first understand that the audio signal (your music) is always traveling in one direction. It might travel from point A to point B to point C to point B to Point D to Point A, etc.; however, it is always travelling FROM one place TO a different place. It may even travel to one or more destinations at the same time, but it is always travelling FROM > TO.

INPUT – Where your music travels 'TO' is called an INPUT. Every audio amplifying, processing, or mixing device has one or more inputs. You "put a signal IN" to an INPUT. Many terms are used to describe an audio signal going IN to an INPUT. e.g. You 'feed' the guitar into the guitar amp. You 'send' the signal to a reverb device. You 'buss' the piano track to an equalizer. Whatever term you use, you will notice that your music is always traveling towards an INPUT. Even when the music is played through a speaker, it is traveling to your ear - an INPUT. Some devices have multiple inputs, some have analog and digital inputs, and some have different 'level' inputs (discussed later).

OUTPUT – Where your music travels 'FROM' is called an OUTPUT. You receive an audio signal from an OUTPUT. For example, the speaker terminals on the back of your Hi-Fi amplifier are the OUTPUTS of the amplifier, the phone jack on your guitar is the OUTPUT of your guitar, etc.

SIGNAL PATH – The signal path is the wire (conduit, pipe, conductor, etc.) that carries your audio signal (the music) from an OUTPUT to the next INPUT. For example, the wire between your Hi Fi amplifier and your speaker is a SIGNAL PATH. This wire carries the music from the amplifier to the speaker. Your guitar cord is a signal path. It carries the OUTPUT of the guitar to the INPUT of your guitar amp or VS-880EX.

BUS – A BUS is a special type of signal path to which a number of inputs may be connected for feed to one or more outputs. In a mixing console a BUS is usually a long piece of wire to which any input channel may be connected by means of a switch or push button. The end of the wire (bus) goes into a combining amplifier or summing amplifier to combine all the INPUTS together. The combining amplifier then feeds one of the console outputs.

LEVEL – The last item to consider about signal flow is the level or volume of the signal.

Audio signals can be very low level (the output of a dynamic microphone if you whisper into it) or extremely high level (the output of your 400 watt power amplifier).

There are two basic audio levels of interest when using your VS-880EX – Microphone Level and Line Level. The term of measurement for level is the decibel (dB). This is not the place for a complete description of the decibel, however, a few numbers are handy to remember.

Dynamic Microphone Level	-50 dBm
Condenser Microphone Level	-30 dBm
HI FI Line Level	-10 dBV
Professional Line Level	+ 4 dBm

0 dBm = 0.775 Vrms, 0 dBV = 1 Vrms

TECH INFO *These are nominal levels for reference only. In actual usage, microphones and other audio equipment exhibit a very wide dynamic (level) range. The important thing to remember is that all audio equipment operates at some internal "nominal" level. If, for example, you feed a very high level signal into an input designed for a low level signal, the input will distort (you "overdrive" the input). Conversely, if you feed an extremely low level signal into an input designed for a high level signal, you will add noise to the audio signal.*

The VS-880EX uses "variable" level inputs. This allows you to send a wide range of signal levels into the VS-880EX without distortion or noise. The INPUT SENS (input sensitivity) knobs in the upper left corner of the front panel control the variable inputs.
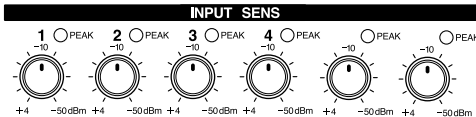
When they are set to -50, it means that they are set to receive a nominal level of -50 dBm (dynamic microphone). Conversely, when they are set to +4, they should receive an input level of approx. + 4 dBm.

TECH INFO *The "nominal" operating level of the VS-880EX is -10 dBV.*

A Mixer Analogy

To best understand the concepts of signal flow, let's think about the plumbing in your own home and use it to illustrate the signal flow in the VS-880EX mixer.

Think of your home as the VS-880EX mixer. The cold water coming into your home from the main supply in the street is just like the audio signal from your guitar entering an input of the VS-880EX. As shown in the plumbing diagram, the cold water branches into two directions, the kitchen sink and your water heater. The same thing can happen in the VS-880EX. The guitar signal can be sent to a reverb device (water heater) and a recording track (kitchen sink) simultaneously.

The water (guitar) that has passed through the water heater (reverb) is now very hot (has lots of reverb). The original cold water (dry guitar) travels to the kitchen sink (recording track) by one path and the hot water (reverb guitar) travels to the kitchen sink (recording track) by a different path or pipe.

We have faucets (faders) at the kitchen sink that can control the mix of cold and hot water entering the sink. Just like a fader or volume control in the VS-880EX controls how much dry guitar and how much reverb guitar are mixed together and sent on to the drain (output).

Once the cold and hot water are mixed in the kitchen sink, they become warm water which flows out the drain to the street (output).

Whenever you want to visualize the signal flow in your VS-880EX, think about the water flow in your own home. If you can always think about "where is the signal coming from" and "where is the signal going next," you should not have any difficulty navigating the mixer in your VS-880EX.

Your House

Kitchen Sink — Bathtub — Toilet

INPUTS   OUTPUT   INPUTS   INPUT

INPUT to house from water line

INPUT / OUTPUT

Water Heater

OUTPUT   OUTPUT   OUTPUT

OUTPUT to street

INPUTS   Bath Sink

Cold Water (Bus)
Hot Water (Bus)
Drain (Bus)
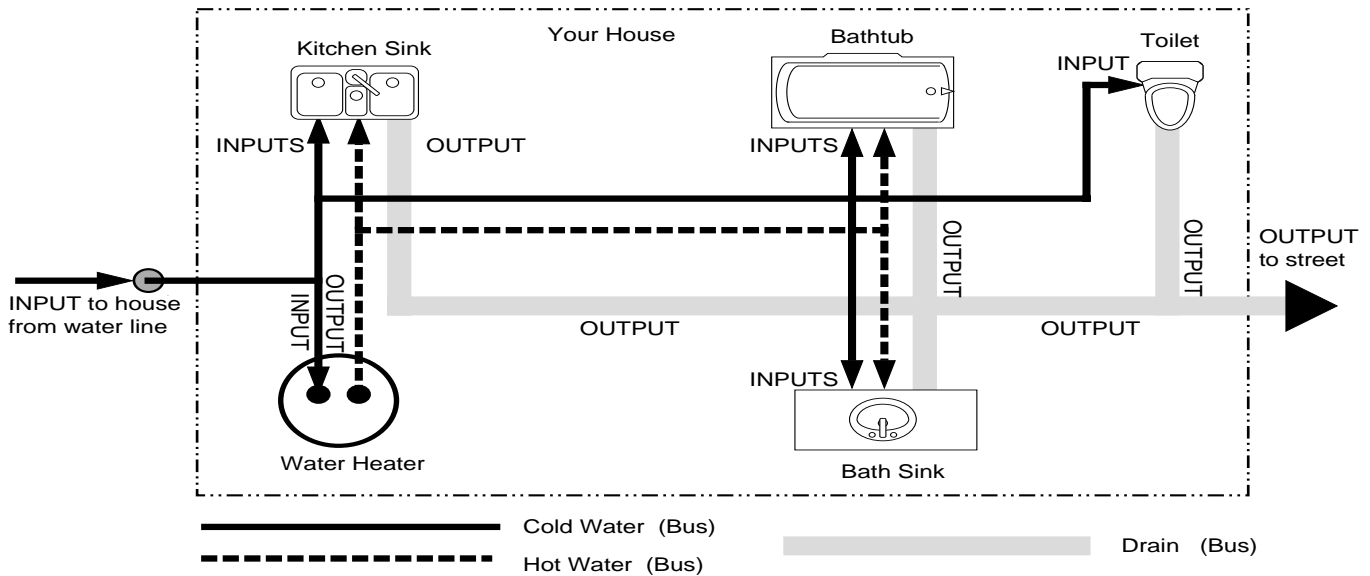
Note *Sometimes it is also helpful to think about the audio signal as an actual wire (patch cord) that you are holding in your hand. For example, plug a cable into your guitar. Hold the other end in your hand. You are now holding an OUTPUT (the output of the guitar). Every OUTPUT is always looking for the next INPUT. So I plug the guitar cord into the INPUT of the VS-880EX. Now you visualize the guitar signal flowing through the input amplifier, etc.*

The VS-880EX Mixer

As you can see from the front panel, the VS-880EX provides 8 channel mixing faders. However, unlike a conventional analog mixer where every fader is hard-wired to perform a specific function, the VS-880EX digital mixer is virtual (assignable) – meaning that you can change the function of the buttons and faders by using the [FADER/EDIT] button. This provides the VS-880EX digital mixer a high degree of flexibility.

The [FADER/EDIT] button can be set to INPUT (orange), TRACK (green), or RETURN (red).

Using the [FADER/EDIT] Button

The [FADER/EDIT] button is the key to using the VS-880EX's mixer. It controls the functions of the faders and the parameters available using the [CH EDIT] buttons.

When the [FADER/EDIT] button is lit orange, the faders are used to control the inputs (anything connected to the input jacks on the VS-880EX's rear panel). When the [FADER/EDIT] button is lit green, the faders are used to control the tracks (anything that is already recorded). When the [FADER/EDIT] button is lit red, the faders are used to control the returns (the output of the effects processors and the inputs designated as the stereo in).

INPUT Mode

When the [FADER/EDIT] button is lit orange, the [CH EDIT] and [STATUS] buttons are used to route the Input signal (rear panel of the VS-880EX) to the desired recording Track (1 – 8). Any Input (1 - 8) can be assigned to record to any Track (1 - 8). In other words, Input 2 could be assigned to record on Track 5. That Track is automatically routed to its corresponding mixer channel (Track 1 > Mixer channel 1, Track 2 > Mixer channel 2, etc.) for playback. Therefore, if we're recording a signal that is coming in from Input 2 and we're recording it onto Track 5, the channel 5 fader will be the fader you use to adjust playback volume. The faders can be used to control the level of the input sources. Faders 1-6 control the analog inputs and faders 7 and 8 control the digital inputs.

Note	*Many DAT machines can be used as an analog to digital converter. Plug a microphone or line level instrument into your DAT machine's analog audio input and connect the digital output of the DAT to the VS-880EX digital input. You will probably have to put the DAT in Record/Pause mode to have the audio pass through it without recording. Check your DAT manual. Of course, you can also use an external analog to digital converter to accomplish this as well.*

TRACK Mode

When the [FADER/EDIT] button is lit green, the faders are used to control the levels of the recorded tracks. The [CH EDIT] buttons are used to access the track parameters (such as effects sends and EQ) and the [STATUS] buttons can be used in combination with the [CH EDIT] buttons to route the recorded tracks. The audio recorded on the Tracks, after the EQ, Fader, and Pan, can be routed to the MIX bus for monitoring, or to any of the record buses. Routing the Track(s) to a record bus is a simple way to merge Tracks or record the output of effects devices to a Track.

RETURN Mode

When the [FADER/EDIT] button is lit red, the faders 7 and 8 are used to control the level of the EFFECT 1 and EFFECT 2 returns. You can also designate any inputs as the Stereo In and control the level of the Stereo In with fader 6. This is convenient if you are linking multiple VS-880EX's together and want to route the audio from one machine to the master output of the other without using any tracks. You can also use the [CH EDIT] buttons and the [STATUS] buttons to route the output of the effects processors and the Stereo In to the tracks for recording. This is great for recording effects such as reverbs and delays.

Use the [FADER/EDIT] button to switch back and forth (toggle) between INPUT Mode, TRACK Mode, and RETURN mode. You are essentially accessing three different mixers with the same set of physical controls (sliders, knobs, buttons, etc.)

Remember, each mixer (INPUT Mode, TRACK Mode, and RETURN Mode) retains its own settings when you switch to the other (using the [FADER/EDIT] button). The fader level, pan position, and EQ settings that you set up in INPUT Mode are memorized by the VS-880EX. So, when you switch to TRACK Mode and adjust the fader for channel 1 (for example), the level of Input 1 in INPUT Mode is not affected.

Mixer Effect Routing

The internal effects can be placed in the audio signal path at any one of three locations.

1. PRE-FADER: The input to the effect is selected from the signal path before the fader. This means that the fader will have no control over the volume of the audio entering the effect. The stereo output from the effect is assignable to the MIX bus or the REC (recorder) buses.

2. POST-FADER: The input to the effect is selected from the signal path after the fader. This means that the fader will control the volume of the audio signal entering the effect. The stereo output from the effect is assignable to the MIX bus or the REC (recorder) buses.

3. INSERT: The audio signal is routed directly through the effect. In other words, you will only hear the "effected" signal because the "dry" signal no longer exists. There are four Insert Effect options: Insert (mono in/mono out), Insert L (processed through the left side of a stereo effect), Insert R (processed through the right side of a stereo effect), and Insert S (mono in through the left side of a stereo effect, then in through the right side of the same stereo effect in series).

| Insert | Insert L | Insert R | Insert S |

Note
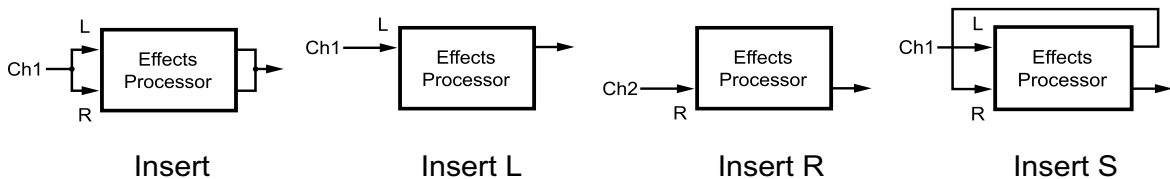
When working with the Preset Patch List in the VS-880EX Appendices, Patches listed as "Snd/Rtn" are best used as Pre Fader or Post Fader. They are intended to be used as if they were on a mixer "effect loop."

Now Time

Now Time indicates the exact location in your song where the VS-880EX is stopped or playing. It is indicated by the vertical black line in the center of the LCD display. You might think of this "now line" as the playback head of a traditional tape recorder. The audio passes under it as it plays. For a look at how the Now Time is used in editing, see the graphic for 'Finding Your Edit Points' on Application Guide page 24.
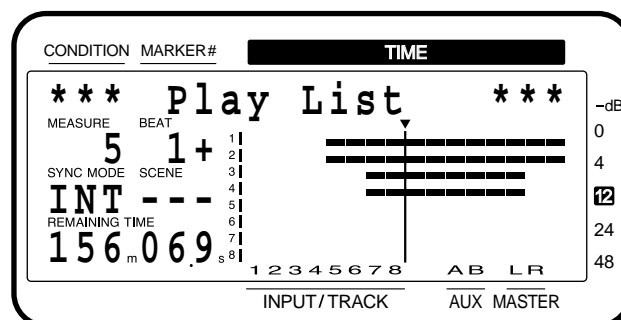
Virtual Tracks

The VS-880EX contains 8 primary recording tracks. In other words, the VS-880EX is capable of playing back 8 independent audio signals simultaneously. Each primary recording track has 8 virtual tracks and there are two banks of Virtual Tracks (A and B) for a total of 128.

Example: Think of a primary recording track as a stack of 8 blank index cards. On the top card (V. Track 1) we will write First Guitar Solo. On the next card in the stack (V. Track 2) you write Second Guitar Solo. The card is V. Track 3 and you write the words Third Guitar Solo. etc. You can read the words on the first card in the stack - First Guitar Solo. The other words are below it, but you cannot read them. However, if you move the third card to the top of the stack, you read the words Third Guitar Solo, but all the others are now hidden. The VS-880EX Virtual Tracks operate the same way. Whatever Virtual Track you "bring to the top of the stack" is the V. Track that you will hear. All the other 7 are still there, but they are hidden below the top one.

Track 2

Virtual Track 1	*First Guitar Solo*
Virtual Track 2	*Second Guitar Solo*
Virtual Track 3	*Third Guitar Solo*
Virtual Track 4	*Fourth Guitar Solo*
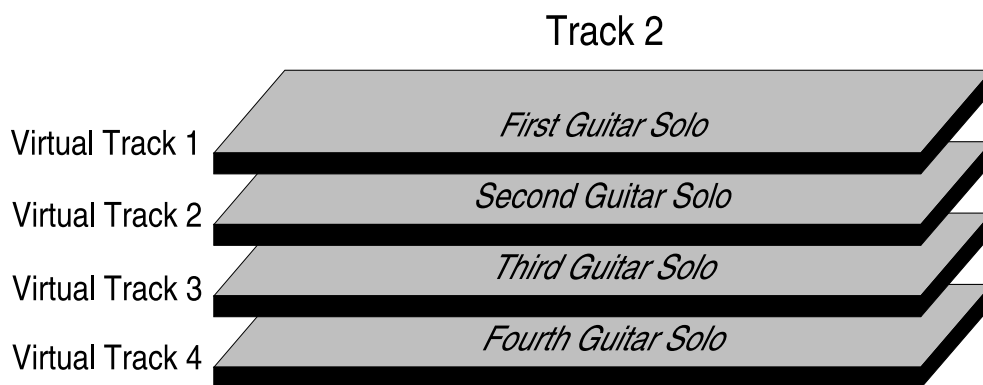
You may find it useful to copy the blank virtual track sheet from the appendix of this Application Guide to keep track of your virtual track recordings.

TRACKS →	1	2	3	4	5	6	7	8
V 1	Final MixL	Final MixR	Gtr Rhy1	Gtr BG1	VoxMix1L	VoxMix1R		Lead 1
I 2			Gtr Rhy2	Gtr BG2	VoxMix2L	VoxMix2R		Lead 2
R 3			Gtr Fast	Gtr BG3	VoxMix3L	VoxMix3R		Lead 3
T 4			Gtr Slo		VoxMix4L	VoxMix4R		Lead 4
U 5								Lead 5
A 6								Lead 6
L 7								Comp 1
TRACKS 8	BG Vox1L	BG Vox1R	BG Vox2L	BG Vox2R				Comp 2

Lets assume that you just recorded your first guitar solo on primary recording Track # 2, Virtual track # 1. To record another guitar solo, you do not have to record over the original recording (as you must do with an analog tape recorder), you simply switch to the next Virtual Track and record another solo. Once you have filled all eight virtual tracks, you can listen to them one at a time to choose the very best performance, or you can mix and merge them as you see fit.

TRACK 8

VIRTUAL TRACKS

V Track 1: Lead 1

Note

V Track 2: Lead 2

V Track 3: Lead 3

V Track 4: Lead 4

V Track 5: Lead 5

V Track 6: Lead 6

V Track 7: Lead Comp

4th Lead   *2nd Lead*   *5th Lead*
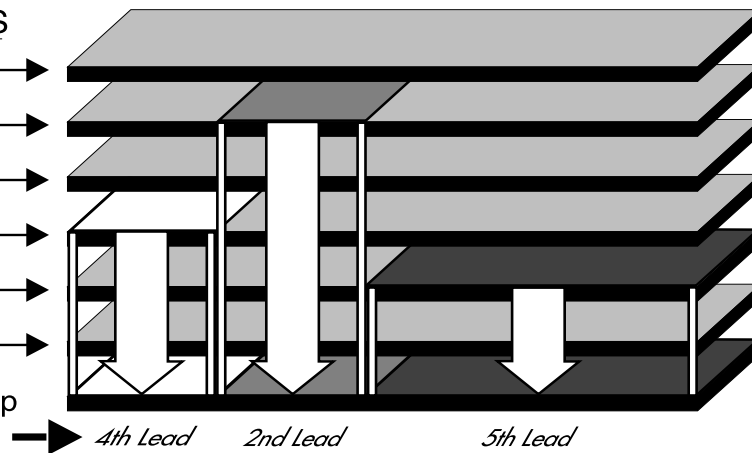
"Best of" version,
copied from other virtual tracks

Note

Think of each of the eight primary recording tracks in the VS-880EX as a stack of tracks that is eight layers deep. Each Virtual Track (layer) is completely independent from the others. You can record up to 64 tracks total, however, only eight (the layers in the top of each stack) can be played simultaneously.

Finding Your Edit Points

The VS-880EX provides a number of tools to assist you in finding the exact location in your song to make a edit. The confident use of these tools will make editing and assembling your song quick and simple.

You may wish to review...
PREVIEW TO,
PREVIEW FROM,
PREVIEW THROUGH (TO + FROM),
and SCRUB.
(see the VS-880EX Owners Manual, page 140)

Current time
(NOW Time)

Sound Data

TIME

PREVIEW
TO

PREVIEW
FROM

PREVIEW
Length
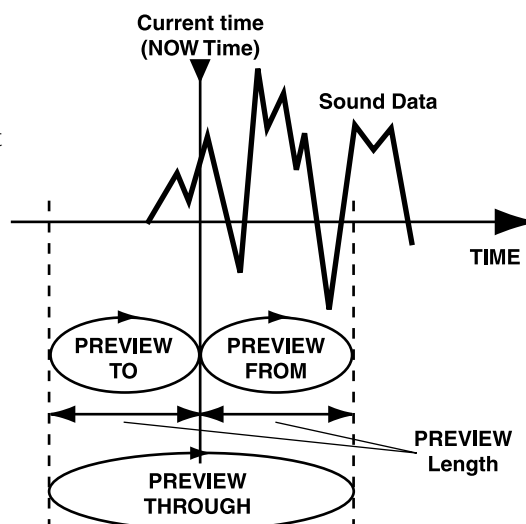
PREVIEW
THROUGH

EXAMPLE: Find the beginning of the word "Cat." During playback, press [STOP] as close to the beginning of the word as possible. Press PREVIEW [FROM] and PREVIEW [TO] alternately. If you do not hear the beginning of "cat" during PREVIEW [FROM], you are too far ahead. If you do not hear the beginning of "cat" during PREVIEW [TO], you are too far behind. Adjust the now time by using the TIME/VALUE dial until you just hear the beginning of the "C" from "cat" using PREVIEW [TO], then backup slightly. PREVIEW [FROM] should then begin playing exactly at the beginning of "cat". Your Now Time is set exactly on the beginning of the word "cat."

An alternate way to edit the above example is the use of SCRUB. Refer to Owner's Manual page 141.

A quick way to assign the Now Time to an edit point is to hold the [TRACK] button (under EDIT CONDITION) and press one of the four Locator buttons. Locator 1 assigns the Now Time to "Start," Locator 2 assigns it to "From," Locator 3 assigns it to "End," and Locator 4 assigns it to "To." When you use a Track Edit function that uses these points, they will already be assigned.

Editing Resolution

The VS-880EX has the ability to move the Now Line in different size steps. This is very important when you want to edit your song. For example, if you set the VS-880EX step size to one measure, you can only set the Now Line on the beginning of each measure. That will not give you much resolution if you want to edit to the beat. If you are editing to SMPTE time code numbers, maybe a resolution of 10 frames per click of the TIME/VALUE dial will be fine for most applications. However, for tight dialogue editing you might need to edit to a resolution of 1/10 frame per click of the dial.

- During editing, you can use the Right Cursor button [CURSOR>] to select the next lowest editing resolution.

1. Press the [PLAY (DISPLAY)] button.

2. Press the < [CURSOR] arrow until the MEASURE value in the LCD display begins to blink. The TIME/VALUE dial will now step through the recording, 1 measure for each click of the dial.

3. Press the > [CURSOR] arrow one time. The BEAT value will begin blinking and the TIME/VALUE dial will step through your song one beat per click of the wheel.

4. Press the > [CURSOR] arrow one more time. The MARKER value will begin blinking indicating that the TIME/VALUE dial will step between marker positions with each click of the dial.

5. Press the > [CURSOR] arrow one more time. Now the TIME/VALUE dial will step through the song 1 SMPTE frame per click.

6. Press the > [CURSOR] arrow one more time. Now the TIME/VALUE dial will step through the song approximately 1/10 of a SMPTE frame per click of the dial.

Resolution Selection in LCD Screen	Time/Value Dial Step Increments	[SHIFT] + Time/Value Dial Step Increments
Measure	Single Measure	10 Measures
Beat	Single Beat	
Marker	Single Marker	10 Markers
SMPTE Frames	Single Frame	10 Frames
SMPTE Sub Frames	1/10 Frame	1/100 Frame

When Sub Frame resolution is selected, use [SHIFT] + the TIME/VALUE Dial to select the very lowest editing resolution. (1/3,000th of a second or 1/100 Frame). This is the preferred setting for extremely detailed editing.

(See Owner's Manual page 36 "Changing the current time," and Applications Guide page 29 "Time/Value Dial.")

Using Waveforms To Edit

The VS-880EX Scrub feature makes it very easy to find your edit points because you can see a visual representation of the sound and hear it at its original pitch while editing at a fine resolution of down to 1/3000th of a second (see Owner's Manual pages 141).

Undo & Redo

The UNDO command will reverse your previous actions up to 999 times. Press the [UNDO] button and the LCD will display - UNDO Level = 1. The TIME/VALUE dial will allow you to select how may previous actions to reverse (undo). For example, if you make 5 recordings on the same track (see figure below) and then execute the UNDO command with level 3, you will erase (undo) the past three actions (the past three recordings). Recording # 2 will now be the one that plays back.
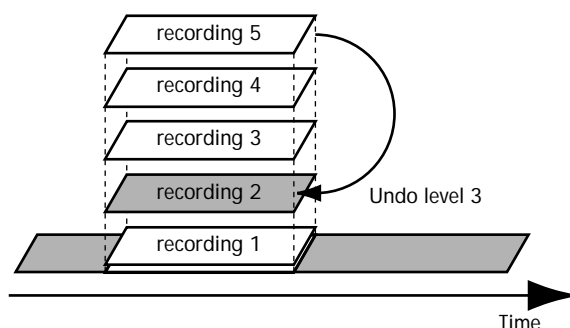
After completing an UNDO command, the UNDO LED will be lit. You can play your song to see if you are happy with the UNDO. If you are not, hold the [SHIFT] button and press the [UNDO] button to REDO the actions. This will effectively cancel the UNDO function you have just completed.

Note

The UNDO command operates for most functions of the VS-880EX. This includes recording, editing, etc. (see Owner's Manual pages 146 for more information).

Nulling - (Faders & Pan Controls)

Since the physical controls of the VS-880EX provide multiple functions (depending on the mixer mode setting), there must be some way to match the 'physical' control position to the 'electronic' control position inside the mixer.

For example, let's assume that you set Fader # 1 to a physical front panel position of -8 dB while using INPUT mode ([FADER/EDIT] lit green). Since you set this Fader in real time, the internal 'electronic' level is -8 (the same as the physical control). Then you switch mixer modes to TRACK mode ([FADER/EDIT lit green). Now you set Fader # 1 to a physical position of +4 dB to mix Track # 1. When you switch back to INPUT mode, the 'physical' fader is set to +4 (you just set it there), but the internal 'electronic' level is still set to -8 dB (which you set the last time you were using INPUT mode).

In order to realign the physical and electronic levels, the VS-880EX provides a function in the System Parameters called Fader Match. When Fader Match is set to Null, the VS-880EX will ignore any movements of the physical fader, until the physical fader position and the internal electronic position are equal (Nulled). In other words when you begin to move the fader from the +4 position, no change will occur in the audio until you lower the fader to -8. Once the internal and physical levels match, the fader will continue to operate normally. The Pan controls operate in the same manner.

When Fader Match is set to Jump, the actual value will change to the current position of the fader or pan knob at the instant they are moved.

Note

A flashing horizontal bar in the LCD display ([SHIFT] + [DISPLAY]) will indicate the internal 'electronic' position of the control. The entire vertical bar indicates the current 'physical' position.

Warning !!!!

If your faders or pan controls do not appear to operate, you can either: Move the physical control from one end to the other to assure that you have crossed the NULL position – or – view the LCD [DISPLAY] to carefully move the physical control into position to match the electronic position.

Channels Versus Tracks

The 8 faders, status buttons, and pan controls on the left side of the VS-880EX represent mixer channels. They may or may not represent actual recorded tracks. However, when a fader is being used for a recorded track, the channel # and the track # will be the same. Here are the rules for Mixer channels:

- INPUT MODE ([FADER/EDIT] lit orange): Channel faders represent rear panel source inputs 1-6 and Digital Left and Right, in that order.

- TRACK MODE ([FADER/EDIT] lit green): Each channel fader represents the corresponding recording track. i.e. Channel 1 = Track 1, Channel 2 = Track 2, etc.

- RETURN MODE([FADER/EDIT] button lit red): The channel 6 fader represents the Stereo In and the channel 7 and 8 faders represent the EFFECT 1 and EFFECT 2 returns respectively.

Important Navigational Rules & Skills to Master

[PLAY (DISPLAY)] Button

Use the [PLAY (DISPLAY)] button (directly below the bottom right hand corner of the LCD display) to escape from the current command. For example, if you are lost or confused about where you are, press the [PLAY (DISPLAY)] button to return to a 'safe' position and start over.

When used with the [SHIFT] button, it toggles the LCD to different displays (see Owner's Manual page 163).

Transport Buttons

The Transport buttons operate the internal recorder section of the VS-880EX (Play, Stop, Record, Rewind, Fast Forward, and Return to Zero).

[SHIFT] Button

Use the [SHIFT] button to access 'white box' commands.

Press and hold the [SHIFT] button whenever you want to access a VS-880EX command which is indicated on the front panel by a white outline box with internal white lettering (for example: SONG END). To locate to the SONG END, hold down the [SHIFT] button and press the [SONG END] button.

[CH EDIT] Buttons
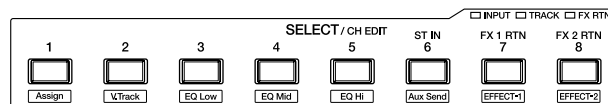
Use the [CH EDIT] button to select a specific channel to edit.

Press the [CH EDIT] button to instruct the VS-880EX which track you want to work with. For example, if you want to change the virtual track on channel 4, you would first press the [CH EDIT] button above fader # 4 to select channel # 4 for editing. Then press [SHIFT] + [VTrack] (CH EDIT button # 2) to select the Virtual Track parameter to edit. Then use the Time/Value dial to select the VTrack of choice.

[STATUS] Buttons

The Channel Status buttons are used to toggle each channel between four operational modes:

SOURCE Listen to the incoming source plugged into the rear panel.

REC Place track into record ready mode.

PLAY Place track into playback mode.

MUTE Turn channel off.

[PARAMETER] Buttons

Use the [PARAMETER] buttons to change screens (pages) in the LCD display.

For example, you would use the [PARAMETER] buttons to move through the different screen displays used during the editing process.

[CURSOR] Buttons
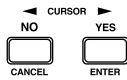
Use the [CURSOR] buttons to navigate around the inside of a single screen display.

For example, use the [CURSOR] buttons to move from one value setting to another inside the same screen. The [CURSOR] buttons are also used as the [YES] / [NO] buttons.

[YES] / [NO] Buttons
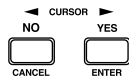
The [YES] button is also used to answer "YES" whenever the VS-880EX displays a question in the LCD. Alternately, the [NO] button signals a "NO" response. For example, anytime the VS-880EX display asks you a question (i.e. when you see a ?), you must press the [YES] button to continue forward or press the [NO] button to return to the previous command.

TIME/VALUE Dial
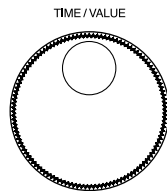
The [TIME/VALUE] dial is used for to two separate functions.

    A: To change the actual value of a selected (highlighted) setting in the LCD screen display.

    B: To move forward or backward in time, through the recording.

Use the cursor buttons to change the selected value of each click of the TIME/VALUE dial (see editing resolution - Application Guide page 25).

VS-880EX Demo Songs

All VS-880EX's are shipped with at least one demo song. Use it to experiment with your VS-880EX to familiarize yourself with the controls. The demo songs contain settings that allow you to switch scenes and compare different versions of the song. The demo songs contain recorded audio and do take up storage space on the internal drive. If you would like to erase the demo songs and restore recording time to the internal hard drive, refer to the section, "Erasing the Demo Songs" (page 138 of this guide).

About the scenes

The demo songs contain scenes. Each scene contains a different selection of Virtual tracks and the appropriate mixer settings. Use the following procedure to switch scenes and compare the performances.

| Note | *For details on scenes, refer to "Storing mixer settings (Scene)" (page 73) in your VS-880EX owner's manual. Each scene also includes effect settings.* |

1. With the song stopped, press the [SCENE] button (the LED will light).

2. Press the [LOC] button for the desired scene number (if the LED's above the LOC buttons are lit, that indicates there is a scene stored in that location).

3. Press the [PLAY] button to playback the demo song. When the demo song finishes playback, select another scene and playback the demo song again.

4. When you finish comparing scenes, press the [SCENE] button again to exit SCENE mode.

VS-880EX Connections

SCSI (Small Computer System Interface)
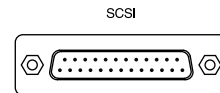
SCSI is a protocol for high-speed recording and data transfer between computer devices. For our purposes, the VS-880EX is a computer that has all the recording hardware and software built in. You will use this SCSI connector to add external hard disks for additional recordings. (see Owner's Manual page 99 for detailed information).

MIDI IN and OUT/THRU
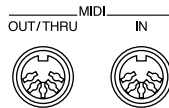
The MIDI connectors on the VS-880EX are very versatile, adding more functionality to the VS-880EX than can be accessed from the front panel. For example, the MIDI ports allow you to connect to external sequencers and MIDI sound modules (see Owner's Manual page 116). MIDI also allows you to record and play back VS-880EX fader movements with your external sequencer and sync your VS-880EX to other MIDI devices.

DIGITAL IN and OUT
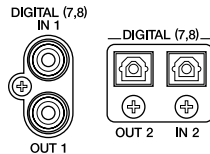
The Digital In connectors allow information from an external digital audio source (CD player, DAT machine) to be digitally recorded into the VS-880EX. Likewise, the Digital Outs allow the VS-880EX to transmit digital audio data to an external recording device (DAT machine, MiniDisc recorder, CD recorder). Besides recording and playback, the Digital In and Out connectors can also be used to Backup and Restore song data to the VS-880EX. You can backup the VS-880EX data to digital audio tape (DAT). The digital connections can also be use in combination with external analog to digital and digital to analog converters to increase the number of analog inputs and outputs.

| TECH INFO | *Both the coaxial and optical Digital IN/OUT jacks conform to the S/PDIF standard.* |

FOOTSWITCH

A momentary switch (e.g., Roland DP-2, DP-6, FS-5U) can be connected to the footswitch jack to activate certain operations. For example, if you set the Footswitch to Record, you could use a DP-2 pedal to activate Punch In/Out, keeping your hands free to play the guitar, keyboard, etc. Other footswitch functions include: Play/Stop, Tap Marker, Previous, Next and GPI (General Purpose Interface is basically an on/off switch contact which can be supplied by an external device such as a video editor - see Owners Manual page 45). Select the function to be controlled by your footswitch in the SYSTEM display. If this is not selected correctly, the footswitch will appear to be non-operational.

PHONES
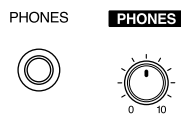
Plug a pair of headphones into the PHONE jack. Use the PHONES control on the front panel to adjust the volume. The PHONES jack and the MASTER OUT jacks have exactly the same program material.

INPUTS
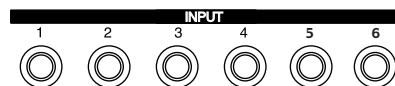
Any of the six Inputs can be routed to any recording track. The front panel knobs labeled INPUT SENS control the volume of Inputs 1-6. These inputs are balanced 1/4" phone jacks.

AUX SEND A & B
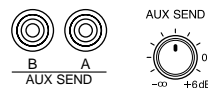
These outputs allow recorded tracks to be sent to external devices in addition to the Maser Outs. There are a number of reasons you might want to do this. For example, you might use the Aux Sends to route the bass track to an external effects processor for compression and the vocal track to an external effects processor for harmonizing. External effects can be used simultaneously with the VS-880EX's built-in effects. Another application for the Aux Sends is to provide additional individual outputs. By assigning two tracks to the Aux Send buses and panning them left and right, those tracks will have discrete analog outputs. This method provides four discrete analog outputs from the VS-880EX.

MASTER OUT

These RCA phono type jacks provide the main stereo output from the VS-880EX. Normally you will connect these jacks to the left and right inputs of your external amplifier or speaker system. If you are using the VS-880EX with an external mixing console, simply plug a cable from each master output connector to a separate input of your mixing console.

Note *With the VS-880EX's default settings, the identical audio program material appears on the Digital Outputs, the Master Outputs, and the Phones Output simultaneously. These settings can be changed in the Master Edit parameters.*

Comments On VS-880EX Connections

The VS-880EX uses balanced 1/4" phone jacks as input connectors. Your microphone may already come equipped with a 1/4" phone plug on the cable or you might need to adapt the XLR connector from some microphones to the 1/4" phone jack on the VS-880EX. Adapters and cables are readily available from your Roland dealer or music supply store.

TECH INFO *1/4" balanced connectors (ring, tip, sleeve) and 1/4" unbalanced connectors (ring, tip) will work equally well with the VS-880EX.*

Phantom Power

All condenser microphones require some type of power source to operate correctly. They may have a built in battery, connect to their own external power supply, or they might require "phantom power." Phantom Power microphones are the most common today. Phantom power microphones obtain their power directly through the mic cable, from the device they are connected to. The VS-880EX does not provide phantom power for this type of microphone. You might use an external analog mixer that does supply phantom power as a mic preamp, or you can use an external microphone preamp to power the microphone and connect its output to the VS-880EX.

Creating A New Song

When you first power on the VS-880EX, the demo song will be loaded. When you want to make your own recordings, you will need to create a new song. Use the following procedure to create a new song:

1. Press [SONG] (under EDIT CONDITION) until "SNG Song New?" is displayed. Press [YES].

2. "SNG SampleRate =" will be displayed. Use the TIME/VALUE dial to select the desired sample rate (32kHz, 44.1kHz, or 48kHz). If you plan to create a CD from your recording, make sure you choose "44.1" as your sample rate.

3. Press the [PARAMETER>>] button and "SNG Record Mode =" will be displayed. Use the TIME/VALUE dial to select the desired record mode (MAS, MT1, MT2, or LIV).
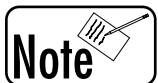
Note *The record mode determines the amount of recording time and sound quality available for recording. We recommend using the MT1 record mode for CD quality recording.*

4. Press [YES].

5. "SNG Create NewSong?" will be displayed. Press [YES].

6. "SNG Create New-Sure?" will be displayed. Press [YES].

7. "SNG STORE CURRENT?" will be displayed. Press [YES] to save any recent changes to the current song or press [NO] to discard all changes made to the current song since the last time it was saved to disk.

"Now Working" will be displayed. When the VS-880EX is finished creating the new song, it will return to Play condition.

Note *You should name your song before you begin recording (see Application Guide page 33).*

Naming A Song

When creating a new song it is a good idea to name that song. If you do not name the song, the VS-880EX automatically assigns a name such as "Init Song 001, 002…," depending on how many new songs have been created during the current recording session. After multiple sessions you may end up with more than one song with the same name at different song *number* locations, which can be confusing. Use the following procedure to name each song before you begin recording.

1. Press [SONG] until "Song Name/Prtct?" is displayed.

2. Press [YES].

3. Use the TIME/VALUE dial and the [<CURSOR>] buttons to select alphanumeric characters for the name of the song.

4. When the name is complete, press the [PLAY (DISPLAY)] button to return to the previous screen.

5. Press [SHIFT] + [STORE]. The display will indicate "STORE OK?"

6. Press [YES].

Defining Default Settings

Note

The VS-880EX has many global system settings that affect your recordings. For example, selection of sampling rate, clock sync source, TIME/VALUE dial step resolution, footswitch function, metronome settings, etc. becomes very important. Once you become familiar with the operation of your VS-880EX, you will establish the "normal default" settings for your particular style of recording. In order to return to these default settings when you begin a New Song:

1. Create a New Song.

2. Name it "DEFAULT SONG."

3. Set all the parameter settings to your chosen defaults.

4. Do not record any audio tracks.

5. Save the Song to disk.

6. Each time you want to begin a new recording, select "Default Song."

7. COPY it to a New Song (see the Owners Manual chapter 6).

8. Name the New Song.

9. Select the New Song and begin recording with all your defaults already preset.

Note

A complete list of the possible parameter settings for the VS-880EX are listed in the "Parameter List" section of the Appendices pages 14-18.

Save Your Song to Disk Often

Since the VS-880EX creates editing information in RAM (Random Access Memory) before it is saved to disk, it is a good idea to save (store) your song to hard disk often. If the AC power failed, you would loose all the recordings and edits made since the last time your song was stored on the hard disk.

1. Press [SHIFT] + [STORE (ZERO)]. The display will indicate "STORE OK?"

2. Press [YES].

Warning !!!! *Since hard disk drives are mechanical devices, they are more subject to failure than any other part of your VS-880EX. If your hard disk develops a problem or fails for any reason, you may lose all the songs stored on that disk. It is a good idea backup your songs often by copying them to another disk, backing them up to DAT (page 97), or backing them up to CD-R (page 109).*

Sample Setup

The VS-880EX can be integrated into a large variety of studio environments. The diagram below depicts one possible system idea.

XP-50/80 Music Workstation

MIDI

Audio from
Keyboard,
Microphone,
Guitar, or
Mixer

MIDI Interface

Computer with
Serial Cable
connection

MIDI Sync via
MMC, MTC

Digital Mix to DAT

DAT Recorder

Chapter 3: Recording Applications
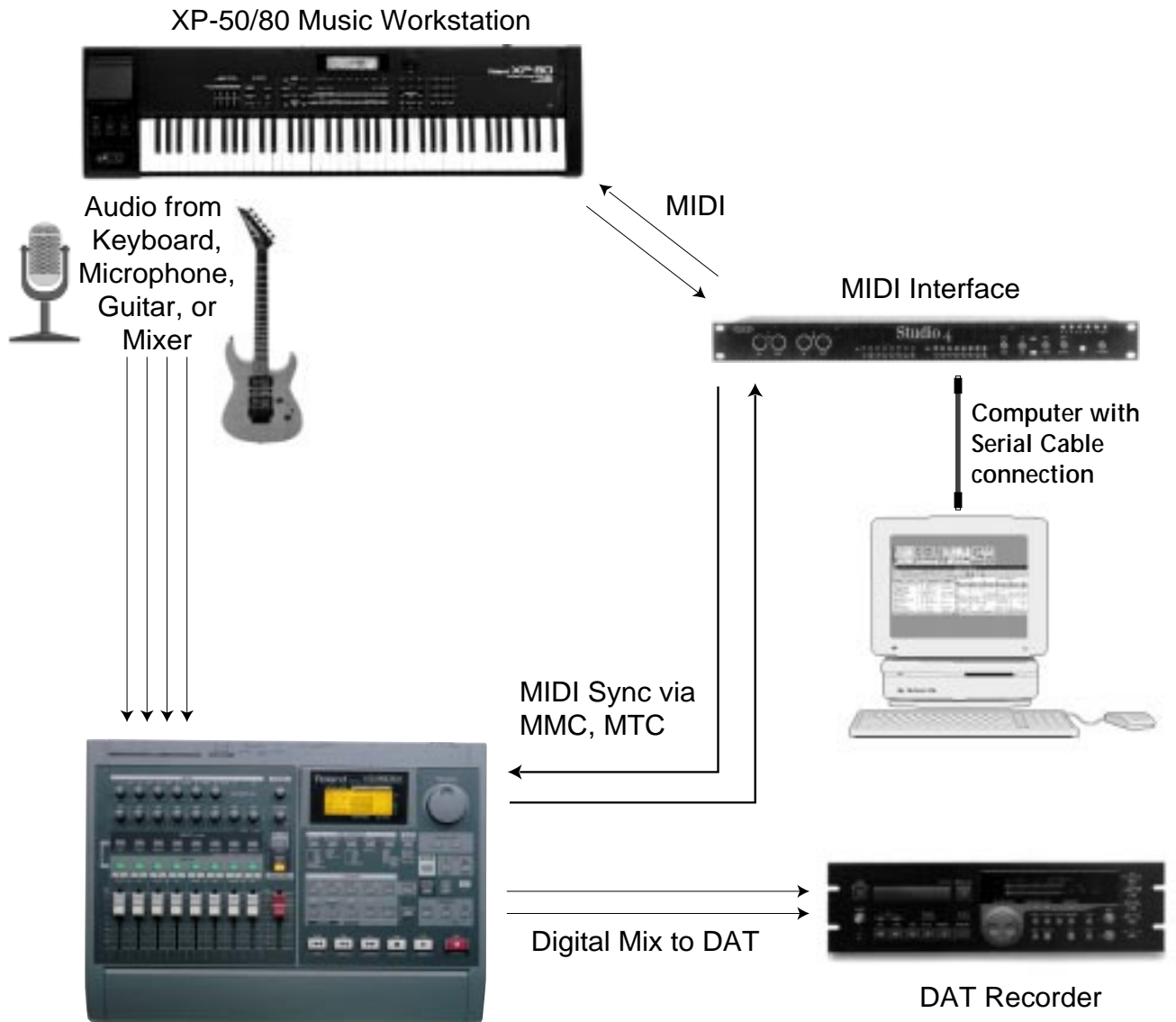
Record A Single Piano Track From A Synthesizer

Probably the most common recording you will do is a single instrument or microphone directly to a single track of the VS-880EX. Our example records a synthesizer as a piano track on the VS-880EX.

You will need to connect your synthesizer to the VS-880EX Input # 1, select Tr. 1-1 for recording, correctly adjust the volume, then finally record the instrument to Tr. 1-1.

ACTION: Record A Single Piano Track From A Synthesizer

1. Connect the output of your synthesizer to the VS-880EX - Input #1.

2. Play the keyboard as loud as you will during the performance and turn the [INPUT SENS 1] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

3. Press the [FADER/EDIT] button until it lights orange.

4. Hold the [STATUS] button 1 and press the [CH EDIT] button 1 until it flashes. This indicates that input 1 is selected for recording onto track 1.

5. Set the [FADER] on channel 1 to 0dB (the bold line about two-thirds of the way up).

6. Press the [FADER/EDIT] button until it lights green.

7. Press the [STATUS] button 1 until it flashes red. This sets track one to record ready mode.

8. Raise the [FADER] on the channel 1 to listen to the keyboard.

Note *The fader controls what you hear, it will not affect the recording level.*

9. Press the [ZERO] button to return the VS-880EX to time location 00:00.

10. Press the [REC] button. The red light will flash.

11. Press the [PLAY] button to begin recording the keyboard track.

Play A Piano Track And Add Markers & Locators

Once a single musical track has been recorded, it is very helpful to place markers throughout the song to make it easy to quickly find different sections. For example, you might want to put a marker at the beginning of each verse, a marker before and after the solo sections, and maybe another marker before the ending.

During playback of your song, you can place markers 'on the fly' at all the appropriate places in your song. 'On the fly' means that you place the markers during the actual playback of the song, in real time. You can always adjust the exact location of the marker later if it is not in precisely the correct place.

Marker Points

The VS-880EX provides up to 1000 potential marker points that can be entered using the [TAP] button and located by two methods outlined below.

Locator Points

The VS-880EX also provides 32 Locator points. These are identical to Marker Points except that they can be directly accessed from buttons on the front panel. These do not use a marker # position since they have corresponding panel buttons.

ACTION: Play A Piano Track And Add Markers & Locators

Marker Points

Setting a Marker Point

1. While playing the piano track you just recorded, press the [TAP] button (in the LOCATOR section) at every location you want to place a mark.

Moving to a Marker Point

1. To move to a marker point after the current location, press the [NEXT] button. Notice the Marker number currently cued shows up in the LCD display under Marker #.

2. To move to a marker point before the current location, press the [PREVIOUS] button.

Directly Specifying a Marker Point

1. Use the [CURSOR] buttons to select the MARKER # field in the LCD display (it will blink when selected).

2. Use the [TIME/VALUE] dial to select what marker # you would like to locate to. The VS-880EX will automatically locate to the marker # you select in the Marker # window.

Alternate Method to Specify a Marker Point

You can directly specify the marker point by pressing the [NUMERICS] button (When the NUMERICS button is lit, the LOCATOR buttons act as numeric keys to specify numbers).

1. Use the [CURSOR] buttons to select the MARKER # field in the LCD display (it will blink when selected).

2. Press the [NUMERICS] button so the LED above remains lit.

3. Use the AUTO PUNCH, LOOP, TAP, PREVIOUS, NEXT, CLEAR, and LOC 1-4 buttons to enter the number of the marker point (the numeric value of each button is printed below it).

4. Press [YES] to locate to the chosen marker point.

Notice the [NUMERICS] LED goes off after each use. To locate using NUMERICS, you must press this button each time.

(Continued)

(Market Points, Continued)

Clearing a Marker Point

1. Locate the VS-880EX to the marker point you wish to clear, hold the [CLEAR] button (in the LOCATOR section) and press the [TAP] button.

Clear All Markers

1. Hold down the [SHIFT] and [CLEAR] buttons, then press the [TAP] button.

2. The display will show "Clear ALLMarker?"

3. Press the [YES] button.

Locator Points

Setting a Locator Point

1. While playing the piano track you just recorded, press one of the [LOC] buttons (in the LOCATOR section) at every location you want to place a Locator point. The LED will light when a location is stored in that button.

Moving to a Locator Point

1. To move to an active Locator point (LED is on), just press the appropriate [LOC] button.

Clearing a Locator Point

1. Hold the [CLEAR] button (in the LOCATOR section) and press the [LOC] button you wish to clear. The LED will turn off, indicating that this location is empty and can be used to store a new location.

Note *Holding the [SHIFT] button when pressing a [LOC] button will access the next set of locator numbers. For Example, [SHIFT] + [LOC] 2 locates to location # 6.*

Using Locator Banks

The VS-880EX provides multiple banks of Locator positions. You have 8 locator positions available directly from the front panel (buttons for [LOC] 1-4, plus [SHIFT] = 5-8). These eight positions can be switched between four different locator banks. In other words, Bank 1 has positions 1-8, Bank 2 has positions 1-8, Bank 3 has positions 1-8 and Bank 4 has positions 1-8. This bank switching provides a total of 32 locator positions.

1. Hold [LOCATOR] (under EDIT CONDITION) and press one of the four [LOC] buttons to select a Locate Bank (LOC 1 will select Locate bank 1, LOC 2 will select bank 2, etc.).

Record Vocal With Mic And External Compressor

In order to control the volume of an audio signal being recorded into the VS-880EX, it is sometimes advisable to use an external limiter or compressor to control the dynamic range of your microphone before recording (limiter and compressor are defined in the Appendix).

You will need to connect your microphone to the VS-880EX Input # 1, select Tr. 1-1 for recording, correctly adjust the volume, then finally record the instrument to Tr. 1-1.

You record on the VS-880EX as outlined on page 37 of this guide, however, you must first make the proper settings on your external compressor/limiter.

ACTION: Record Vocal With Mic And External Compressor

1. Connect the microphone to the input of the compressor/limiter according to the instructions of the compressor device.

2. Connect the output of the compressor/limiter to Input # 1 of the VS-880EX.

3. Adjust the settings of the compressor/limiter (see the instructions for the device).

4. Sing into the microphone as loud as you will during the performance and turn the [INPUT SENS 1] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off (the read peak LED should only come on occasionally during the loudest point of your performance).

5. Press the [FADER/EDIT] button until it lights orange.

6. Hold the [STATUS] button 1 and press the [CH EDIT] button 1 until it flashes. This indicates that input 1 is selected to record onto track 1.

7. Set the [FADER] for channel 1 to 0dB (the bold line about two-thirds of the way up).

8. Press the [FADER/EDIT] button until it lights green.

9. Press the [STATUS] button 1 until it flashes red. This selects track one to record ready mode.

10. Raise the [FADER] for channel 1 to listen to the microphone.

The fader controls what you hear, it will not affect the recording level.

11. Press the [ZERO] button to return the VS-880EX to time location 00:00.

12. Press the [REC] button. The red light will flash.

13. Press the [PLAY] button to begin recording.

Record 5 Guitar Tracks Using Virtual Tracks

If you are unfamiliar with virtual tracks in the VS-880EX, refer to page 23 of this guide for more details. It is often desirable to record many takes or recordings of the same musical instrument or vocal so you can pick the best performance to use in you final song. You could obviously record on separate tracks of the VS-880EX, pick the one you like best, and then erase the other tracks. However, once you erase the other tracks, they are gone forever. Virtual tracks allow you to pick between different performances and change your mind right up until the final mixdown.

If you want to be able to record multiple performances of the same song in sync with each other on separate virtual tracks, you will need some type of recorded track to use as a guide. For example, you might first make a recording of your song using a piano on Tr. 1-1. Now the piano can be your guide for adding a guitar part on multiple virtual tracks of track 2. Once the guide track is recorded, you will set the VS-880EX to playback Tr. 1-1 while recording your guitar on Tr. 2-1. You then record Tr. 2-2, then Tr. 2-3, etc. Once all virtual tracks are recorded, you can go back and listen to the tracks one by one to choose the best performance.

ACTION: Record 5 Guitar Tracks Using Virtual Tracks

1. Connect your guitar to INPUT # 2 of the VS-880EX.

2. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 2] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

3. Press the [FADER/EDIT] button until it lights orange.

4. Hold the [STATUS] button 2 and press the [CH EDIT] button 2 until it flashes. This indicates that input 2 is selected to record onto track 2.

5. Set the [FADER] for channel 2 to 0dB (the bold line about two-thirds of the way up).

6. Press the [FADER/EDIT] button until it lights green.

7. Press the [STATUS] button 2 until it flashes red. This sets track (channel) 2 to record ready mode.

8. Raise the [FADER] on channel 2 to listen to the guitar.

9. Press the [ZERO] button to return the VS-880EX to time location 00:00.

10. Press the [REC] button. The red light will flash.

11. Press the [PLAY] button to begin recording the guitar.

12. After you complete your first guitar track, stop the VS-880EX and press the [ZERO] button to return to the beginning of the song.

13. Press the [CH EDIT] button 2.

14. Hold the [SHIFT] button and press [V TRACK] (CH EDIT 2 button).

(Continued)

Chapter 3: Recording Applications **43**

(Record 5 Guitar Tracks using Virtual Tracks, Continued)

15.   Use the [TIME/VALUE] dial to select Virtual Track 2. The top line of the LCD should display "CH2 V.Track= 2."

16.   Press the [PLAY/DISPLAY] button to return to the play screen.

17.   Press [REC], then [PLAY] to record your second guitar track on Tr. 2-2.

18.   Repeat steps 13-17 to record the other virtual tracks.

19.   To listen to each virtual track recording, press the [STATUS] button above fader 2 repeatedly until the LED is green (play mode).

20.   Hold the [SHIFT] button and press [V TRACK] (CH EDIT 2 button).

21.   Use the [TIME/VALUE] dial to select between each of the Virtual Tracks you have recorded. You can listen to one, then select another and listen, then select another and listen, etc.

Note   *You cannot change Virtual tracks while the VS-880EX is in PLAY. You must press [STOP] before changing virtual tracks.*

Listening To A Guitar Using Internal Effects

There may be occasions where you want to just audition different effects on your instrument without actually recording anything. Maybe you just want to experiment with different reverb effects or change an EQ. This example uses the VS-880EX's built-in effects.

You will setup the VS-880EX as though you are going to record the guitar with effects, however, you will not actually press the record button to begin recording.

ACTION: Listening To A Guitar Using Internal Effects

1. Press the [FADER/EDIT] button until it lights orange.

2. Plug your Guitar into Input #2 on the rear of the VS-880EX (1/4" phone jack).

3. Press the [STATUS] button 2 until it lights orange (source mode).

4. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 2] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

5. Raise the FADER on channel 2 to listen to the guitar.

6. Press the [CH EDIT] button 2 to select Channel 2.

7. Hold the [SHIFT] button and press the [EFFECT 1] (CH EDIT 7) button.

8. Press the [<<PARAMETER] button to display the "FX1 Ins" screen.

9. Use the TIME/VALUE dial to select "TR2 FX1 Ins = Insert."

9. Press the [EFFECT] button under EDIT CONDITION repeatedly until you see "EFFECT-1 PRM ?" in the LCD display.

10. Press the [YES] button.

11. Use the TIME/VALUE dial to select the effect you want to hear, then press the [YES] button.

Note *See information about Pre-Fade, Post-Fade, and Insert on page 22 of this guide.*

Recording A Guitar 'Dry' While Listening With Effects

There are many times that you may want to record a track"dry," (without any effects), but you might want to listen to effects during the recording. A typical example is listening to reverb on your guitar while you are recording it, but not recording the reverb on the guitar track. By listening to the effects during recording, you can begin to think about what you might use for effects during the mixdown. However, since the track is "dry" (no recorded effects), you will be able to wait until mixdown to make your final effects decisions. The example uses the VS-880EX's built-in effects.

You will connect your guitar to the VS-880EX, select an effect to listen to, select a track to record to, and then record the guitar 'dry' to the VS-880EX.

ACTION: Recording A Guitar 'Dry' While Listening With Internal Effects

1. Press the [FADER/EDIT] button until it lights orange.

2. Plug your Guitar into Input #2 on the rear of the VS-880EX (1/4" phone jack).

3. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 2] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

4. Hold the [STATUS] button 2 and press the [CH EDIT 2] button until it is flashing orange.

5. Press the [STATUS] button 2 until it flashes red. This sets track two to record ready mode.

6. Raise the [FADER] on channel 2 to monitor the guitar.

7. Press the [CH EDIT 2] button to select Channel 2 for editing.

8. Hold [SHIFT] and press the [EFFECT 2] (CH EDIT 8) button. Use the TIME/VALUE dial to select "OFF."

9. Press the [FADER/EDIT] button until it lights green.

10. Hold [SHIFT] and press the [EFFECT 1] (CH EDIT 7) button.

11. Press the [<<PARAMETER] button and use the TIME/VALUE dial to select "TR2 FX1 Ins = Insert."

12. Press the [EFFECT] button under EDIT CONDITION repeatedly until you see "EFFECT-1 PRM?"

13. Press the [YES] button.

14. Use the TIME/VALUE dial to select the effect you want to hear, then press the [YES] button.

15. After you choose the effect you want to listen to during the recording, press the [PLAY (DISPLAY)] button.

16. Press the [ZERO] button to return to the beginning of your song.

17. Press the [REC] and [PLAY] buttons to begin recording.

Recording A Guitar 'Wet' With Internal Effects

Sometimes you want to make an original recording into the VS-880EX with some type of effect added to the track during the recording. You might want to change the EQ of the guitar before it is recorded and add some type of interesting delay effect as you record it. The most common reason to record instruments with effects is to save your effects devices for use on other channels during mixdown. For example, if you only have the two internal effects devices in the VS-880EX and you have 8 tracks of recording, you may need to add some of the effects during recording, so the effects device can be used on a different track during mixdown. One negative aspect of recording with effects is that you cannot remove the effect from the track if you decide later that you don't like it. You would need to re-record the track without the effect in order to remove it. The example uses the VS-880EX's built-in effects.

You will set up the VS-880EX to record your instrument on Tr. 1-1. You will then select that type and amount of effect that you wish to use. The final step will be to actually record your instrument on Tr. 1-1 with the effect.

ACTION: Recording A Guitar 'Wet' With Internal Effects

1. Press the [FADER/EDIT] button until it lights orange.

2. Plug your Guitar into Input #2 on the rear of the VS-880EX (1/4" phone jack).

3. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 2] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

4. Hold the [STATUS] button 2 and press the [CH EDIT 2] button so it is flashing orange.

5. Press the [STATUS] button 2 until it flashes red. This sets track two to record ready mode.

6. Raise the [FADER] on channel 2 to monitor the guitar.

7. Press the [CH EDIT 2] button to select Channel 2 for editing.

8. Hold the [SHIFT] button and press the [EFFECT 2] (CH EDIT 8) button. Use the TIME/VALUE dial to select "OFF."

9. Hold [SHIFT] and press the [EFFECT 1] (CH EDIT 7) button.

10. Press the [<<PARAMETER] button and use the TIME/VALUE dial to select "IN2 FX1 Ins = Insert."

11. Press the [EFFECT] button under EDIT CONDITION repeatedly until you see "EFFECT-1 PRM?"

12. Press the [YES] button.

13. Use the TIME/VALUE dial to select the effect you want to hear, then press the [YES] button.

14. After you choose the effect you want to listen to during the recording, press the [PLAY (DISPLAY)] button.

15. Press the [ZERO] button to return to the beginning of your song.

16. Press the [REC] and [PLAY] buttons to begin recording.

Record A Guitar On Tr. 1, Record The Effects On Tr. 2

There are occasions when you might want to record your guitar 'dry' on Tr. 1-1, but record guitar effects on another track. A typical reason for this is when you have one or two effects devices. If you want to use individual effects on individual tracks, you will only be able to add effects to two tracks during mixdown with two effects devices. By adding effects during recording, you can reuse the effects device during mixdown for a different track. When you are completely sure about the type of effect you want to use and the amount or volume of it, you can record it onto the same track with the instrument. However, when you are unsure about the amount or level of an effect, you might want to record the effect on a separate track so that during mixdown you can control the level of the instrument and the effect independently.

You will plug your guitar into Input # 1, set the VS-880EX to record it on Tr. 1-1, determine what effect you will use, then set the effect to record on Tr. 2-1, and finally make the actual recording.

ACTION: Record A Guitar On Track One, Record The Effects On Track Two

1. Connect your guitar to Input # 2 of the VS-880EX.

2. Press the [FADER/EDIT] button until it lights orange.

3. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 2] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

4. Raise the [FADER] on channel 2 to about 0dB to monitor the guitar.

5. Press the [CH EDIT 2] button to select Channel 2 for editing.

6. Hold the [SHIFT] button and press the [EFFECT 1] button (CH EDIT 7).

7. Use the TIME/VALUE dial to select "PRE FADE."

8. Press the [EFFECT] button under EDIT CONDITION repeatedly until you see "EFFECT-1 PRM?"

9. Press the [YES] button.

10. Use the TIME/VALUE dial to select the effect you want to hear, then press the [YES] button.

11. Hold the [STATUS] button 1 and press the [CH EDIT] button 2 until it is flashing orange.

12. Press the [FADER/EDIT] button until it lights red.

13. Hold the [STATUS] button 2 and press the [CH EDIT] button 7 until it is flashing red.

14. Raise the [FADER] on channel 7 to about 0dB to set the effect return level.

15. Press the [STATUS] buttons 1 and 2 until they are flashing red (record ready mode).

16. Press [REC] followed by [PLAY] to begin recording. Press [STOP] when you are finished.

17. Press the [FADER/EDIT] button until it lights green.

18. Reset your song to the beginning and press [PLAY] to hear the results. Use the [FADER] for channel 1 to adjust the dry signal and the [FADER] for channel 2 to adjust the wet signal.

Punching In And Out - Manual (with Undo & Redo)

Sometimes you just want to record over a section of your song or vocal because you know that you don't want to keep the original. You might want the VS-880EX to simulate a traditional analog tape recorder and allow you to record over a part of a track that already exists.

The VS-880EX allows you to manually 'punch in and out' on any track, in real time. You will set the punch-in track to record, play the track, then place the VS-880EX into record at the appropriate place. Once you have finished recording over the section of interest, you can take the VS-880EX out or record mode.

Playback	Recording	Playback

Start [PLAY] Punch-in [REC] Punch-out [REC] Stop [STOP] Time
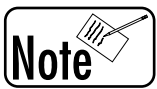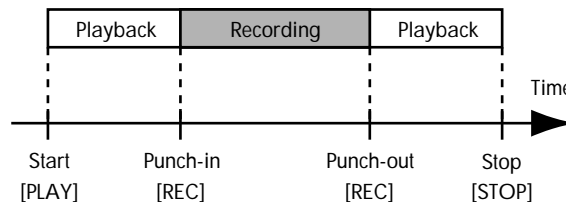
Note: *Even though punch in and punch out looks like it is recording over the existing track, the VS-880EX does not actually destroy the original recording. You can always return to the original recording by pressing [UNDO].*

ACTION: Punching In And Out - Manual

1. Connect the output of your synthesizer to the VS-880EX - Input #1.

2. Play the keyboard as loud as you will during the performance and turn the [INPUT SENS 1] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

2. Press the [FADER/EDIT] button until it lights orange and set the [FADER] for channel 1 to 0dB (the bold line approximately two thirds of the way up).

3. Hold the [STATUS] button for track 1 and press the [CH EDIT] button 1 so it is flashing. This indicates that input 1 is selected to record onto track 1.

4. Press the [FADER/EDIT] button until it lights green.

5. Press the [STATUS] button for track 1 so it lights orange. Play your synthesizer and adjust the [FADER] for channel 1 to the desired listening level.

6. Press the [STATUS] button of channel 1 until it flashes red. This sets track one to record-ready mode.

7. Press [PLAY] to begin playback of your track.

8. When you reach the section you want to re-record, press the [REC] button to begin recording.

9. When you reach the end of the section, press the [REC] button again to punch out (the original track will continue to play).

UNDO

If you make a recording that you do not want to keep, the UNDO function will eliminate it.

1. Press [UNDO]. The LCD will indicate "***UNDO Level= 1."

2. Change the LEVEL value using the TIME/VALUE dial.

(Continued)

(Punching In And Out - Manual (with Undo & Redo), Continued)

Note *UNDO LEVEL allows you to choose how many previous actions to "UNDO." For example, if you made 7 punch in/out recordings and then selected an UNDO LEVEL of 6, the VS-880EX would UNDO the previous 6 recordings leaving only the first one. This UNDO LEVEL also functions the same way during editing.*

3. Press [YES]. After performing the UNDO command, the LED above the UNDO button will remain lit.

Note *If you wish to REDO your last edit, hold [SHIFT] and press [UNDO].*

Use Auto-Punch For Punch In/Out

There are occasions when you want to punch in and out at very specific time locations. For example, maybe you need to change a guitar solo that is exactly 8 measures long and you are playing the guitar.

First you will choose which track to punch into, then you can select the exact location for the punch in and the punch out, then you will rewind to a location before the punch in point and begin playing the song. The VS-880EX will not actually enter the record mode until the specified location and it will exit the record mode at the specified punch out location. You can then rewind the song, place the record ready track into play mode, and play back the newly recorded solo.

```
        +-----------+-----------+-----------+
        | Playback  | Recording | Playback  |
        +-----------+-----------+-----------+
                                                Time
        ----------------------------------------->

         Start       Punch-in    Punch-out    Stop
        [PLAY]        [REC]        [REC]      [STOP]
```
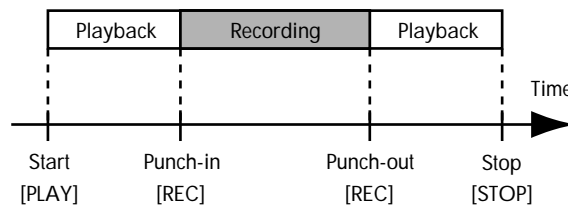
ACTION: Use Auto-Punch For Punch In/Out

1. Find the punch in location in your song and store it in the LOC 1 locator point by pressing [LOC] 1 (the LED will come on).

Note *If LOC 1 position already contained a previous location (LED was on), you can erase the old location by holding the [CLEAR] button and pressing the [LOC] 1 button. Then, proceed with step 1.*

2. Find the punch out location and store it in LOC 2 by pressing [LOC 2].

3. Press [LOCATOR] (under EDIT CONDITION-just under the LCD screen) repeatedly until "LOC APin" is displayed.

Warning !!!! *Perform steps 4, 5, and 6 without releasing the [AUTOPUNCH] button.*

4. Press and HOLD the [AUTOPUNCH] button.

5. Press the [LOC] 1 button where the punch in location is stored.

6. Press the [LOC] 2 button where the punch out location is stored.

7. Release the [AUTOPUNCH] button.

8. Press [AUTOPUNCH] so it is lit.

9. Press the [STATUS] button for the track you wish to record on until it is flashing red.

10. Reset your song to some point before the punch in location. Then, press [REC] followed by [PLAY]. The [REC] button will flash until you reach the punch in location, then it will light red indicating that you are in record mode.

11. Press [STOP] when you are finished.

ALTERNATE METHOD:

1. Alternatively, you can enter the AUTOPUNCH in and out locations manually while viewing their respective screen displays by using the TIME/VALUE dial or NUMERICS buttons (for more information on Numerics, see Owner's Manual page 153).

Loop Recording

Loop record is very similar to Auto Punch (see Use Auto-Punch for Punch In/Out) in that you are able to rehearse the part you are going to record many times before you actually record it. In addition, you are able to record over and over in the same area until you are satisfied with the recording. This is a very important feature if you are operating the VS-880EX and playing the instrument you are recording.

First you will choose which track to punch into, then you can select the exact location for the punch in and the punch out, the loop start and end, then you will rewind to a location before the loop start and begin playing the song. As long as you do not press the [REC] button, the VS-880EX will not actually enter the record mode. The VS-880EX will continue to play from the loop start to the loop end location, over and over until you press [STOP]. Once you have completed your rehearsal, you can press the [REC] button anytime before the designated punch in location and the VS-880EX will automatically enter the record mode at the correct punch in location and will exit the record mode at the punch out point. During the next playback of the loop, you will automatically hear what you just recorded. If you wish to record it again, just press the [REC] button before the punch in time and the VS-880EX will record the section again. The loop will continue to play over and over, allowing you to press [REC] when you wish to record. When you have completed a recording you are satisfied with, press [STOP].
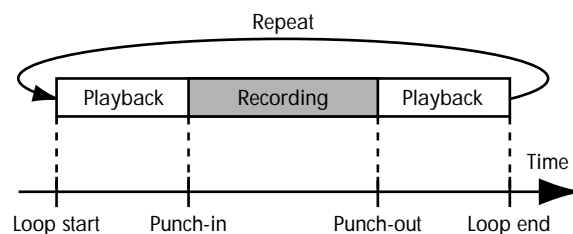
ACTION: Loop Recording

1. Find the punch in location in your song and store it in the LOC 1 locator point by pressing [LOC] 1 (the LED will come on).

Note *If LOC 1 position already contained a previous location (LED was on), you can erase the old location by holding the [CLEAR] button and pressing the [LOC] 1 button. Then, proceed with step 1.*

2. Find the punch out location and store it in LOC 2 by pressing [LOC 2].

3. Press [LOCATOR] (under EDIT CONDITION-just under the LCD screen) until "LOC APin" is displayed.

Warning !!!! *Perform steps 4, 5, and 6 without releasing the [AUTOPUNCH] button.*

4. Press and HOLD the [AUTOPUNCH] button (the one with the led above it next to [LOOP]), for the next two steps.

5. Press the [LOC] 1 button where the punch in location is stored.

6. Press the [LOC] 2 button where the punch out location is stored.

Note *You can then check the punch out point by pressing the right [PARAMETER>>] button (LOC APOt).*

7. Find the LOOP start point by rewinding to a point before the punch in location (beginning of a Verse, Chorus etc.) and store this location in LOC 3 by pressing [LOC] 3 (the LED will illuminate).

(Continued)

(Loop Recording, Continued)

8. Find the loop end point by using fast forward to locate a point after the punch out location (end of a Verse, Chorus etc.) and store this location in LOC 4 by pressing [LOC] 4 (the LED will illuminate).

9. Press [LOCATOR] (under EDIT CONDITION-just under the LCD screen) repeatedly until "LOC LpSt" is displayed.

Warning !!!! *Perform steps 10, 11, and 12 without releasing the [LOOP] button.*

10. Press and HOLD the [LOOP] button (the one with the LED above it next to AUTOPUNCH), during the next two steps.

11. Press the [LOC] 3 button where the loop start location is stored.

12. Press the [LOC] 4 button where the loop end location is stored.

13. Press [AUTOPUNCH] and [LOOP] so they are lit.

14. Press the [STATUS] button for the track you wish to record on until it is flashing red.

15. Reset your song to some point before the loop start location. Then, press [REC] followed by [PLAY]. The [REC] button will flash until you reach the punch in location, then it will light red indicating that you are in record mode. The VS-880EX will automatically to the loop start location after it reaches the loop end location so you can listen to what you just recorded. If you want to redo your recording, press [REC] at any time before the punch in location.

16. Press [STOP] when you are finished.

### Alternate Method:

1. Alternately, you can enter the LOOP start and end locations manually while viewing their respective screen displays by using the TIME/VALUE dial or [NUMERICS] buttons (for more information on Numerics, see Owner's Manual page 153).

Sync To A MIDI Sequencer Using MTC (MIDI Time Code)

If your external MIDI sequencer is playing your music tracks from a sound module or sampler, you may want to record your vocals or saxophone solos on the VS-880EX. However, they must be recorded in sync with the music tracks.

The VS-880EX can easily be synced to your external MIDI sequencer using MTC (MIDI Time Code).

Note *If you are not completely familiar with the terms MTC (MIDI Time Code), MMC (MIDI Machine Control), SPP (Song Position Pointer), Tempo Map, and MIDI Clock, please review their definitions in the Appendix glossary section (page 123).*

You must first connect the VS-880EX to your sequencer with a MIDI cable, then make the proper system settings in the VS-880EX.

ACTION: Sync To An External MIDI Sequencer Using MTC

Slaving your sequencer (slave) to the VS-880EX (master) using MTC:

MIDI TIME CODE (MTC) is a sync code based on real time (time on your watch: hours/minutes/seconds etc.) as opposed to MIDI Clock which is based on tempo (musical divisions: measures/beats). If your sequencer can slave to MTC, use the following steps to sync your sequencer as a slave to the VS-880EX:

1. Connect a MIDI cable from the MIDI output of the VS-880EX to the MIDI input of your external sequencer.

2. Press the [SYSTEM] button until "SYS Sync/Tempo?" is displayed in the LCD screen.

3. Press [YES].

4. Using the [<<PARAMETER>>] buttons, scroll through the various pages and set each parameter to the following settings:

Syn:Source=	INT
Syn:Gen=	MTC
Syn:ErrLevel=	5
Syn:MTC Type=	30
Syn:Tmap	*
Syn:Ofs	*
Syn:Sync.Tr Rec?	*
Syn:Sync.Tr Cnv?	*

`5. Press [SYSTEM] repeatedly until "MIDI PRM?" is displayed.

6. Press [YES].

7. Use the [<<PARAMETER>>] buttons to display "MIDIThr=" and use the Time/Value dial to change it to "Out" (if it is not already set to "Out").

8. Press the [PLAY (DISPLAY)] button.

Note ** These screens apply to MIDI Clock (not MTC) and are not used here.*

9. Set your sequencer to "Slave to External Sync." Make sure that it is set to receive MTC and that the MTC Type is 30 frame (if using a different frame rate, make sure that it matches what was set in the VS-880EX).

10. Press "PLAY" on the external sequencer (it will probably indicate that it is waiting for MTC).

11. Press [PLAY] on the VS-880EX and both units will start to play in sync with each other.

(Continued)

(Sync To A MIDI Sequencer Using MTC (MIDI Time Code), Continued)

Slaving the VS-880EX (slave) to your sequencer (master) using MTC:

1. Connect a MIDI cable from the MIDI output of the external sequencer to the MIDI input of the VS-880EX.

2. Press the [SYSTEM] button repeatedly until "SYS Sync/Tempo?" is displayed.

3. Press [YES].

4. Using the [<<PARAMETER>>] buttons, scroll through the various screen pages and set each parameter to the following settings:

Syn:Source=	EXT
Syn:Gen=	Off
Syn:ErrLevel=	5
Syn:MTC Type=	30
Syn:Tmap	*
Syn:Ofs	*
Syn:Sync.Tr Rec?	*
Syn:Sync.Tr Cnv?	*

5. Press the [PLAY (DISPLAY)] button.

Note ** These screens apply to MIDI Clock (not MTC) and are not used here.*

6. Set your sequencer to "Transmit MTC." Make sure that the MTC Type is 30 frame (if you use a different frame rate, make sure that it matches what was set in the VS-880EX).

7. Press [PLAY] on the VS-880EX. The [PLAY] button will flash green indicating that the VS-880EX is waiting to receive a MTC signal.

8. Press "PLAY" on your sequencer and both units will start to play in sync with each other.

Sync To A MIDI Sequencer Using MIDI Clock

MIDI Clock is a sync code that uses the tempo settings of your song to lock two devices together. In order to use MIDI Clock with the VS-880EX, you first must make a "Tempo Map" (see page 102 of this guide). Some of the reasons to use MIDI Clock instead of MTC are as follows:

1. Some sequencers cannot sync to MTC.

2. If you use the internal click (metronome) of the VS-880EX, you must make a Tempo Map in the VS-880EX that the metronome uses as a reference. You will want your sequencer to follow that same Tempo Map.

TECH INFO *The VS-880EX does not slave to MIDI Clock, it can only generate MIDI Clock based on its own internal Tempo Map.*

Use the following steps to slave your sequencer to the VS-880's Tempo Map (master) using MIDI Clock:

ACTION: Sync To An External Sequencer Using MIDI Clock

Setting System Parameters

1. Press the [SYSTEM] button repeatedly until "SYS Sync/Tempo?" is displayed.

2. Press [YES].

3. Using the [<<PARAMETER>>] buttons, scroll through the various screen pages and set each parameter to the following settings:

Syn:Source=	INT
Syn:Gen=	MIDIclk
Syn:ErrLevel	*
Syn:MTC Type	*
Syn:Tmap	see Step # 4 below
Syn:Ofs	***
Syn:Sync.Tr Rec?	**
Syn:Sync.Tr Cnv?	***

Note **These screens apply to MTC (not MIDI Clock), and are not used here. **This screen applies to recording a tempo track into the VS-880EX from an external MIDI sequencer, and is not used here. ***These screens apply to MIDI Clock, but their specific functions are not used here.*

Creating A Tempo Map

4. When you reach the Tempo Map page (step #3 above), use the [<CURSOR>] buttons to navigate around the screen.

5. Enter the tempo of the song in the tempo field.

6. If there are tempo changes during the song, [<CURSOR>] back to the Tmap#, select Tmap 2, and then enter the new tempo in the bpm field.

7. [<CURSOR>] to the measure field and input the measure where the new tempo starts.

8. Repeat steps 6-7 to create additional tempo changes as desired.

The VS-880EX will generate a MIDI Clock signal from this Tempo Map and transmit this MIDI clock to the MIDI out connector on the VS-880EX rear panel. The MEASURE and BEAT display will also be based on this tempo map information as will the tempo of the internal click (metronome).

Sync To An External Sequencer Using MMC

MIDI Machine Control (MMC) is a set of commands that can be sent from your sequencer to control the VS-880's Transport Control buttons (ZERO, REW, FF, STOP, PLAY, and REC) and set tracks to Record Ready mode. You must use MTC or MIDI Clock to provide location/timing information to synchronize the two units. For example, you would use MMC if you are working on your sequencer and would like to start and stop the VS-880EX without ever having to press any transport buttons on the front panel of the VS-880EX, especially if your sequencer does not transmit MTC (MIDI Time Code).

In this example, your sequencer is the MMC Master and the VS-880EX is the MMC Slave. The VS-880EX is also the Time Code Master (MTC) and your sequencer is the Time Code Slave (MTC).

ACTION: Sync To An External Sequencer Using MMC

1. Connect a MIDI cable from the MIDI output of the VS-880EX to the MIDI input of your external sequencer.

2. Press the [SYSTEM] button repeatedly until "SYS Sync/Tempo?" is displayed in the LCD screen.

3. Press [YES].

4. Using the [<<PARAMETER>>] buttons, scroll through the various pages and set each parameter to the following settings:

Syn:Source=	INT
Syn:Gen=	MTC
Syn:ErrLevel=	5
Syn:MTC Type=	30
Syn:Tmap	*
Syn:Ofs	*
Syn:Sync.Tr Rec?	*
Syn:Sync.Tr Cnv?	*

Note

* These settings apply to MIDI Clock (not MTC) and are not used here.

5. Set your sequencer to "Slave to External Sync." Make sure that it is set to receive MTC and that the MTC Type is 30 frame (if using a different frame rate, make sure that it matches what was set in the VS-880EX). Also set your sequencer to transmit MMC.

6. Connect a MIDI cable from the MIDI output of the sequencer to the MIDI input of the VS-880EX.

VS-880EX SETUP

7. Press [SYSTEM] repeatedly until "MIDI PRM?" is displayed.

8. Press [YES].

(Continued)

(Sync To An External Sequencer Using MMC, Continued)

9. Using the [<<PARAMETER>>] buttons, scroll through the various screen pages and set each parameter to the following:

MID:DeviceID=	*
MID:MIDIThr=	OUT
MID:SysEx.Rx=	On
MID:SysEx.Tx=	Off
MID:MMC=	Slave
MID:CtrLocal=	*
MID:CtrType=	*
MID:P.C.Scne	*
MID:P.C.Eff	*
MID:C.C.Eff	*

Note

* These parameters do not apply to MMC Sync and are not used here.

THE EXTERNAL SEQUENCER SETUP

10. Set the sequencer to "MMC Master" mode.

11. Set it to slave to MTC (MTC slave mode).

12. Press "PLAY" on the external sequencer – OR – press [PLAY] on the VS-880EX.

TECH INFO

MIDI Clock can also be used as the sync source in this example. Follow the instructions detailed in "Using MIDI Clock" on page 54 of this guide, along with the instructions above.

Recording From A Digital Source

Recording from a digital source into the VS-880EX is very similar to recording an analog source. The only major difference is the need for the VS-880's sample clock to be locked to the incoming digital signal.

Connect your digital source, probably a DAT machine, to Digital In 1 or Digital In 2 on the VS-880EX. You will then need to select the track you wish to record, select the digital input as the source for recording, and finally record the digital audio into the VS-880EX.

Warning !!!! *The sample rate of the VS-880EX must match the sample rate of the connected digital source. Remember, the proper sample rate must be set when a new VS-880EX song is created if you want to use the digital input.*

ACTION: Recording From A Digital Source

1. Connect the digital S/PDIF output of your digital source to the digital input of the VS-880EX.

2. Turn on the power of the digital source (the power can be on while the digital connection is made). It must be on in order for the VS-880EX to "see" that there is a digital clock connected to its digital input.

3. Press the [SYSTEM] button repeatedly until SYSTEM PRM appears.

4. Press [YES].

5. Using the TIME/VALUE dial, set: MasterClk = "Dig 1" or "Dig 2" (depending on the input you are using).

6. Press the FADER/EDIT button so it lights orange.

7. Hold the [STATUS] button for the track you want to record on and press [CH EDIT] button 7 so it flashes red. This indicates that the digital input will be recorded on that track.

8. Press the [STATUS] button for the track(s) that you selected until the LED's flash red (record mode).

9. Press [REC] followed by [PLAY].

10. Start sending audio from your digital source.

Recording Multiple Inputs To A Single Mono Track

What if you want to record multiple microphones to a single track of the VS-880EX simultaneously? For example, maybe you have three background vocalists that you wish to record on a single track using individual microphones for each one.

You would first connect the three microphones to three inputs of the VS-880EX. We will use inputs 1-3. You will set these inputs to faders 1-3 of the VS-880EX, select each channel to record onto Tr. 1-1, adjust their individual levels, and then record all three vocalists on Tr. 1-1.

ACTION: Recording Multiple Inputs To A Single Mono Track

1. Press the [FADER/EDIT] button so it lights orange.

2. Connect the three microphones to Inputs 1-3 on the VS-880EX.

3. Hold the [STATUS] button for Track 1 and press the [CH EDIT] buttons for Channels 1, 2, and 3 so they are flashing orange. This indicates that Inputs 1-3 will be recorded on Track 1.

4. Use the INPUT SENS knobs to adjust the level of each microphone.

5. Press the [STATUS] button for Track 1 until it is flashing red (record ready mode).

6. Press [REC] followed by [PLAY]. All three microphones will now be recording on Track 1.

To add depth and dimension to your background vocal recordings, you might choose to record them as a stereo mix onto two tracks of the VS-880EX. It is very similar to recording multiple inputs to a single track, however, your will use the pan pots to position each microphone in the stereo mix before recording (see the action page - Recording Multiple Inputs to a Single Mono Track).

You would first connect multiple microphones to inputs of the VS-880EX. For example, let's use all four inputs. You will select these inputs to faders 1 through 4 of the VS-880EX, link the recording tracks as a stereo pair, route inputs 1-4 to record on the stereo pair of tracks, and then set each channel pan pot to the correct position in the stereo mix. For example, maybe the bass singer would be placed slightly right of center with the tenor vocal slightly left of center. Maybe two additional singers would be placed hard left and hard right. Audition different pan pot settings until you are satisfied with the positioning. You will then adjust the individual channel levels before recording the composite stereo mix of all four microphones onto Tr. A-1.

ACTION: Recording Multiple Inputs To Two Tracks As A Stereo Mix

1. Press the [FADER/EDIT] button so it lights orange.

2. Connect the four microphones to Inputs 1 through 4 on the VS-880EX.

3. Press the [CH EDIT] button for Channel 1.

4. Press the right [PARAMETER] button until "LINK" is displayed.

5. Use the TIME/VALUE dial to select "ON."

6. Hold the [STATUS] button for Track 1 and press the [CH EDIT] buttons for Channels 1, 2, 3, and 4 until they are flashing orange. This indicates that Inputs 1-4 will be recorded to stereo Track A.

7. Use the PAN knobs for Inputs 1 through 4 to position each microphone location in the left/right stereo field.

8. Use the INPUT SENS knobs to adjust the level of each microphone.

9. Press the [STATUS] button for Track 1 until it is flashing red (record ready mode). Track 2 will automatically go into record ready mode because they are linked.

11. Press [REC] followed by [PLAY]. The stereo mix of all four microphones will now be recording to Tracks 1 and 2.

Record 4 Mics, Using Internal Compressor, To 1 Track

What if you want to record multiple microphones to a single track of the VS-880EX simultaneously using one of the internal compressors? For example, maybe you have four background vocalists that you wish to record on a single track using individual microphones for each one. You may also want to use an internal compressor to control the final dynamic range of the recorded signal.

You would first connect the four microphones to the four inputs of the VS-880EX. You will select these inputs to faders 1 through 4 of the VS-880EX, select the compressor, select each channel to record onto Tr. 1-1, adjust their individual levels, and then record all four vocalists on Tr. 1-1.

ACTION: Record 4 Microphones, Using Internal Compressor, To One Track

1. Connect the output of the microphones to Inputs 1-4 on the VS-880EX.

2. Press [FADER/EDIT] until it lights orange.

3. Hold the [STATUS] button for Track 1 and press the [CH EDIT] buttons for Channels 1, 2, 3, and 4 so they are flashing orange. This indicates that Inputs 1-4 will be recorded to Track 1.

4. Hold [SHIFT] and press the [CH EDIT] button for Channel 7. Press the left [PARAMETER] button until "EFF 1 INSERT SW" is displayed.

5. Press the [CH EDIT] button for Channel 1 and use the TIME/VALUE dial to select "INSERT L."

6. Press the [CH EDIT] button for Channel 2 and use the TIME/VALUE dial to select "INSERT R."

7. Press the right [PARAMETER] button until "EFF 2 INSERT SW" is displayed.

8. Press the [CH EDIT] button for Channel 3 and use the TIME/VALUE dial to select "INSERT L."

9. Press the [CH EDIT] button for Channel 4 and use the TIME/VALUE dial to select "INSERT R."

10. Use the INPUT SENS knobs to adjust the levels of each of the microphones.

11. Press [EFFECT] (under EDIT CONDITION) until "EFFECT-1 PRM?" is displayed.

12. Press [YES].

13. Use the TIME/VALUE dial to select "EF1 A66=CL:Comp." Press [YES].

14. Use the {<<PARAMETER>>] buttons and the TIME/VALUE dial to adjust the compressor settings. Compressor A will control Input 1 and Compressor B will control Input 2.

15. Press [EFFECT] (under EDIT CONDITION) until "EFFECT-2 PRM?" is displayed.

16. Press [YES].

17. Use the TIME/VALUE dial to select "EF2 A66=CL:Comp." Press [YES].

18. Use the {<<PARAMETER>>] buttons and the TIME/VALUE dial to adjust the compressor settings. Compressor A will control Input 3 and Compressor B will control Input 4.

19. Press the [STATUS] button for channel 1 until it is flashing red (record mode).

20. Start recording on the VS-880EX. The four microphone signals will now be recording on Track 1 after being processed independently by the compressors.

Using the Serial Insert Path

The serial insert FX path routing allow you to send the same mono channel thru both the left and right sides of a stereo effect. This is useful, for example, for using a four band stereo EQ as an eight band mono EQ. This will allow you to make more precise EQ adjustments on your mono signal.

ACTION: Use the Serial Insert Path to Create an 8 Band Parametric EQ

1. Press the [FADER/EDIT] button until it lights green.

1. Hold SHIFT and press EFFECT-1 [CH EDIT button 7]. Press the left [PARAMETER] button until "EFF 1 INSERT SW" is displayed.

2. Press the CH EDIT button that corresponds to the track that you want to EQ.

3. Use the TIME/VALUE dial to select "InsertS."

4. Press EFFECT (under EDIT CONDITION) until "EFFECT-1 PRM?" is displayed.

5. Use the TIME/VALUE dial to select "B93=ParametricEQ" and press YES/ENTER.

6. Use the PARAMETER buttons and the TIME/VALUE dial to adjust the EQ settings for Input A and B. The signal will be processed by the Input A settings before being routed to Input B. This, in essence, creates an 8-band parametric EQ.

Note *This procedure requires a mono signal. Make sure that Channel Link is set to "Off" for the designated channel (see Owner's Manual page 149).*

Using the COSM Microphone Simulator

You can record a vocal using an inexpensive dynamic mic such as the Roland DR-20 and then, using the Microphone Simulator in the effects section, emulate the warmth and tone of a much more expensive microphone. This can be done during the recording process or at any later time, even at mix down. This processing can also be applied to line level signals, such as the output from an acoustic guitar pickup. You do this by just inserting the microphone simulator into the path of the channel you want to affect.

ACTION: Use the COSM Microphone Simulator to emulate the sound of a vintage microphone

1. Press EFFECT (under EDIT CONDITION) until "EFFECT-1 PRM?" is displayed and press YES/ENTER.

2. Use the TIME/VALUE dial to select "B99=MicSimulator."

3. Press YES/ENTER.

4. Press PARAMETER>> until "MCA:Input" is displayed and use the TIME/VALUE dial to select the desired input/mic type.

5. Press PARAMETER>> until "MCA:OUT" is displayed and use the TIME/VALUE dial to select the desired microphone algorithm. For example, if you want to make a dynamic mic (such as the Roland DR-20) sound like a vintage condenser mic, select "Sml.Dy" in step 4 and "Vnt.Cn" in step 5.

6. Press the [FADER/EDIT] button until it lights orange.

7. Hold [SHIFT] and press EFFECT 1 [CH EDIT 7]. Press the left [PARAMETER] button until "EFF 1 INSERT SW" is displayed.

7. Press the desired CH EDIT button (1-8) and use the TIME/VALUE dial to select "Insert."

8. Set the corresponding STATUS button to SOURCE (orange) to hear the microphone simulation.
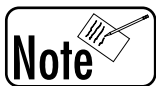
The microphone you use plays an important role in acheiving the best results when using the Microphone Simulator. Dynamic microphones work the best (we recommend the Roland DR-10 or DR-20). Condenser microphones are not the best choice for use with the Microphone Simulator if you are trying to emulate the sound characteristics of a different microphone. Condenser mics usually sound very good on their own, although you can use them with the Microphone Simulator if you like the effect it creates.

Using the Voice Transformer

The Voice Transformer algorithm can be used to change the sound of a recorded track. For example, you can transform the pitch of a male vocal to a female, harmonize a track, or create a wacky cartoon character from a voice over track. Using only the Formant parameter, it can be used to fatten a vocal or bass track. The algorithm allows the user to edit the effect in real time using the first 5 faders of the VS-880EX mixer.

ACTION: Use the Voice Transformer to Affect a Vocal Track

1. Connect a microphone to Input 1.

2. Press the [FADER/EDIT] button until it lights orange.

2. Hold SHIFT and press EFFECT-1 [CH EDIT button 7]. Press the left [PARAMETER] button until "EFF 1 INSERT SW" is displayed.

3. Press the [CH EDIT] button for Channel 1 and use the TIME/VALUE dial to select "Insert."

4. Press the channel 1 STATUS button until it is set to source (orange). Use the INPUT SENS knob for Input 1 to adjust the mic level as desired.

5. Press EFFECT (under EDIT CONDITION) until "EFFECT-1 PRM?" is displayed.

6. Use the TIME/VALUE dial to select "B07=Voice Trans."

7. Press YES/ENTER.

8. Press PARAMETER>> until "FE:FaderEdit" is displayed and use the TIME/VALUE dial to select "On."

9. Speak into the microphone and use faders [1]-[5] to alter the sound of your voice. The following shows the effect of the various faders:

Fader 1	Controls the 'Robot' (monotone) effect.
Fader 2	Controls the pitch.
Fader 3	Controls the formant.
Fader 4	Controls the balance between effect and dry signal.
Fader 5	Controls the reverb level.

The EZ Routing function can be used to step you through the necessary settings for recording, track bouncing, and mixing down. You can also use EZ Routing to create User templates that recall your own custom setups at the touch of a button. You can store up to 29 of your own routing setups in the VS-880EX. This is a real timesaver if you find yourself frequently using the same routings.

The following example will show you how to create a template for recording inputs 1-4 to tracks 1-4 with a compressor inserted on each input. It will also show you how to store this template to User 001 so that it can be recalled later.

ACTION: Creating a User Template With EZ Routing

Warning !!!! *EZ Routing will change your current mixer settings. If you would like to go back to those settings at a later time, make sure you save them as a Scene (see Application Guide page 91).*

1. Press [EZ ROUTING] so that "EXR Recording?" is displayed.

2. Press [YES] and "Use Template?" will be displayed.

3. Press [NO] and "REC Track = ?-?" will be displayed.

4. Press the [STATUS] buttons 1-4 so they are flashing red (this indicates that tracks 1-4 will be used for recording). You can use the TIME/VALUE dial to select the desired Virtual Track.

5. Press the [PARAMETER>>] button until "EZR IN1 to =" is displayed.

6. Hold the [CH EDIT] button 1 and press [STATUS] button 1 so that "IN1 to = TR1" is displayed.

7. Hold the [CH EDIT] button 2 and press [STATUS] button 2.

8. Hold the [CH EDIT] button 3 and press [STATUS] button 3.

9. Hold the [CH EDIT] button 4 and press [STATUS] button 4.

10. Press the [PARAMETER>>] button until "IN4 Level =" is displayed and set the [FADERS] for channels 1-4 to 0dB.

11. Press the [PARAMETER>>] button so that "Use EFFECT 1?" is displayed and press [YES].

12. Use the TIME/VALUE dial to select "A96 = Dual Comp/Lim."

13. Press the [PARAMETER>>] button so that "IN4 FX1 Ins =" is displayed.

14. Press [CH EDIT] button 1 and use the TIME/VALUE dial to select "InsL."

15. Press [CH EDIT] button 2 and use the TIME/VALUE dial to select "InsR."

16. Press the [PARAMETER>>] button until "Use EFFECT2?" is displayed and press [YES].

17. Use the TIME/VALUE dial to select "A96 = Dual Comp/Lim."

18. Press the [PARAMETER>>] button so that "IN2 FX2 Ins =" is displayed.

19. Press [CH EDIT] button 3 and use the TIME/VALUE dial to select "InsL."

20. Press [CH EDIT] button 4 and use the TIME/VALUE dial to select "InsR."

21. Press the [PARAMETER>>] button until "EQ Sel =" is displayed and use the TIME/VALUE dial to select "3BandEQIN."

(Creating a Template With EZ Routing - Continued)

22. Press the [PARAMETER>>] button until "Change Routing?" is displayed and press [YES]. After the VS-880EX is finished making the routing changes, "Complete" will be displayed and you will be returned to the main play screen.

23. Press [EZ ROUTING] until "SaveCurRouting?" is displayed and press [YES].

24. Use the TIME/VALUE dial to select "001."

25. Press the [PARAMETER>>] button and use the CURSOR buttons and TIME/VALUE dial to name your template (e.g., "IN1-4 W/COMP").

26. Press the [<<PARAMETER] button so that "001" is flashing and press [YES]. "Save Routing 001?" will be displayed. Press [YES] again to store your template.

Now that you have created a User template, you can recall those settings at a later time.

1. Press [EZ ROUTING] until "User Routing?" is displayed and press [YES].

2. Use the TIME/VALUE dial to select "EZR 001" and press [YES]. "Change Routing?" will be displayed.

3. Press [YES].

Chapter 4: Overdub Applications

Add A Guitar Track To The Existing Piano Track

Probably the most common overdubbing situation is adding one new instrument at a time to a recording. If you begin with a single recorded piano on Tr. 1-1, you might want to next add a guitar on Tr. 2-1.

You will need to configure the guitar input to record on Tr. 2-1, set Tr. 1-1 for playback, adjust the incoming guitar level and mixer balance for monitoring, then record the guitar in sync with the piano.

ACTION: Add A Guitar Track To The Existing Piano Track

1. Connect the guitar to INPUT 2 of the VS-880EX.

2. Play the guitar as loud as you will during the performance and turn the [INPUT SENS 1] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

3. Press the [FADER/EDIT] button until it lights orange.

4. Hold the [STATUS] button for Track 2 and press the [CH 2 SELECT] button so it flashes orange.

5. Press the [STATUS] button for Track 2 so it flashes red (record ready mode).

6. Raise the FADER on the channel 2 to monitor your guitar.

7. Press the [FADER/EDIT] button until it lights orange.

8. Press the [STATUS] button for Track 1 so it flashes green (play mode). This will enable track 1 for playback.

9. Raise the FADER on Track 1 to hear the piano previously recorded.

10. Press the [REC] button. The red led will flash.

11. Press the [PLAY] button to begin recording.

12. After you complete your guitar track, [STOP] the VS-880EX and press the [ZERO] button to return to the beginning of the song.

Bouncing Tracks 1-6 To Tracks 7-8

Sometimes you will want to make a submix of existing tracks to free up tracks for more recording or to use one or two faders to control the instruments. For example, you might have 6 different background vocal performances recorded on tracks 1-6. Once you are sure that these are the performances you want to keep, it might be handy to pre-mix (bounce) them to two new tracks as a stereo mix. You can adjust the level and panning position of each vocal track within the stereo mix. Once the bounce is complete, it will be much easier to control the entire background vocal section using just two faders instead of the original six.

To accomplish this, you will need to first assign tracks 1 through 6 to record on Tr. 7-1 and Tr. 8-1. Once you have made your level, EQ, panning, and other creative choices, you will record the six tracks down to two tracks.

ACTION: Bouncing Tracks 1-6 To Tracks 7-8

1. Press the [FADER/EDIT] button so it is flashing green.

2. Press the [TR 1-6 STATUS] buttons so they light green (play mode).

3. Adjust the faders, pans and effects of tracks 1 through 6 as needed.

4. Press the [CH 7 SELECT] button and PARAMETER>> until "LINK" is displayed.

5. Use the TIME/VALUE dial to select "ON."

6. Hold the [TR 7 STATUS] button and press the [CH 1-6 SELECT] buttons so they flash green (make sure that the TR 7-8 status buttons are not lit). This indicates that Tracks 1-6 will be recorded on Tracks 7-8.

7. Press the [TR 7 STATUS] button so it flashes red (record ready mode). Track 8 will automatically be set to record ready mode.

8. Press [REC] and then [PLAY] to record (bounce) tracks 1 through 6 to tracks 7 and 8. You can use the faders of channels 1-6 to mix levels in real-time and those changes will be recorded onto tracks 7 and 8.

Using The Internal Effects When Bouncing

When bouncing multiple recorded tracks down to a single mono or stereo track, you may want to add effects during the bouncing process. For example, you might want to take the six background vocal tracks (see Bouncing Tracks 1 through 6 to 7 & 8), and add some reverb to each individual vocal track during the bounce down.

To accomplish this, you will need to first assign tracks 1 through 6 to record on Tr. 7-1 and Tr. 8-1. You will also need to select the tracks to add effects and assign them to the effect of choice. The effect output must be routed to Tr. 7-1 and Tr. 8-1 as well. Once you have made your level, EQ, panning, effects, and other creative choices, you will record the six tracks down to two tracks.

ACTION: Effects Processing - Using The Internal Effects When Bouncing

1. Press the [FADER/EDIT] button so it is flashing green.

2. Press the [TR 1-6 STATUS] buttons so they light green (play mode).

3. Adjust the faders, pans and effects of tracks 1 through 6 as needed.

4. Press the [CH 7 SELECT] button and PARAMETER>> until "LINK" is displayed.

5. Use the TIME/VALUE dial to select "ON."

6. Hold the [TR 7 STATUS] button and press the [CH 1-6 SELECT] buttons so they flash green (make sure that the TR 7-8 status buttons are not lit). This indicates that Tracks 1-6 will be recorded on Tracks 7-8.

7. Press the [FADER/EDIT] button so it lights red.

8. Hold the [TR 7 STATUS] button and press the [CH 7-8 SELECT] buttons so they are flashing red. This routes the output of the effects processors to Tracks 7 and 8.

9. Press the [TR 7 STATUS] button so it flashes red (record ready mode). Track 8 will automatically be set to record ready mode.

10. Press [REC] and then [PLAY] to record (bounce) tracks 1 through 6 to tracks 7 and 8. You can use the faders of channels 1-6 to mix levels in real-time and those changes will be recorded onto tracks 7 and 8.

Using The Aux Bus As A Headphone Monitor

Sometimes a musician overdubbing a solo part wants to hear a blend of instruments in his or her monitor headphones that is different from the main stereo mix of the VS-880EX. For example, maybe they would like their individual instrument and the piano part to be very loud, but all the other instruments to be very soft, and they do not want to hear the acoustic guitar at all. The VS-880EX allows you to use the internal AUX bus as a cue (headphone) bus in order to provide a separate mix for the musician.

You will first need to configure the mixer correctly, set up the incoming microphone for recording, adjust the track levels for the headphone mix and the main mix, then overdub the new instrument.

ACTION: Using The Aux Bus As A Separate Headphone Monitor - Cue

Note *You will need an external headphone amplifier.*
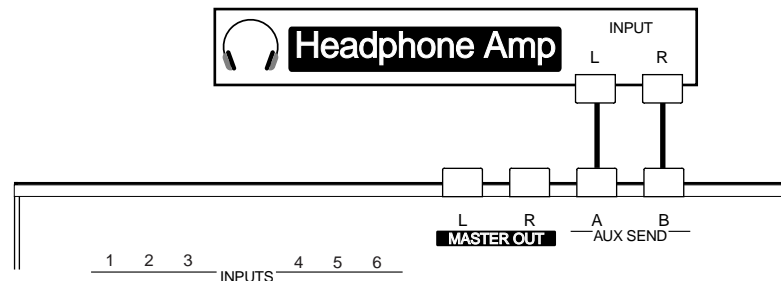
1. Connect the output of your microphone to Input # 1 of the VS-880EX.

2. Sing into the microphone as loud as you will during the performance and turn the [INPUT SENS 1] knob clockwise until the PEAK light turns red, then turn it slightly counterclockwise until the red peak LED goes off. (The read peak LED should only come on occasionally during the loudest point of your performance.)

3. Connect the AUX SEND jacks (VS-880EX rear panel) to the input of the external headphone amp and connect a pair of headphones to the headphone amp output.

4. Turn the AUX SEND knob, located above the EDIT SOLO button, clockwise to about the 2 o'clock position.

5. Press the [FADER/EDIT] button so it lights green.

6. Hold [SHIFT] and press [AUX SEND] button (CH EDIT 6 button).

7. Press the CH SELECT button on one of the playback channels so that "AUX SW" is displayed.

8. Using the TIME/VALUE dial to select "PREFADE."

9. Press the PARAMETER>> button so that "AUX Level" is displayed.

10. Using the TIME/VALUE dial, adjust the volume of the channel that will be going to the headphones (127 = Full level, 0 = Off).

11. Repeat steps 6 thru 9 for the other playback tracks you want to hear in the headphone mix.

12. Begin recording the microphone.
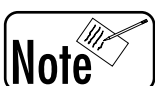
Note *When you press play, you will hear the mix you just made in the head-phones. If you adjust the faders, the mix for the MASTER OUT will change but the headphone mix will not be affected.*

Combining Lead Vocal Tracks Into One Using [Mute]

This function is known in recording studios as "vocal comps" or "comping vocals." Let's assume that you have two lead vocal parts recorded on Tr. 1-1 and Tr. 2-1. You decide that the best performance of the first verse, third verse, and ending are the recording on track one. However, the best performance of the second and fourth verses is on track two. A simple way to make one final vocal performance track from the two recorded tracks is to use the channel MUTE function to make a new recording on Tr. 3-1. As you will remember, the channel [STATUS] button is used to select Source, REC, Play or Mute status for each individual channel.

Select Tr. 1-1 and Tr. 2-1 to record to Tr. 3-1 using the internal mixing bus. Select Tr. 3-1 to REC mode. Since the first verse of the vocal we wish to keep is on Tr. 1-1, we will use the [STATUS] button on channel 2 to select MUTE (turn OFF channel 2, the LED will be OFF). The first verse will play from Tr. 1-1 and be recorded onto Tr. 3-1. At the end of the first verse, while still recording, you will MUTE channel 1 and UN-MUTE (turn on again) channel 2. The second verse will then record onto Tr. 3-1 from Tr. 2-1. You can follow this process to the end of the song.

ACTION: Combining Two Lead Vocal Tracks Into One Using [Mute]

1. Press the [FADER/EDIT] button so it lights green.

2. Hold the [TR 3 STATUS] button and press the [CH 1-2 SELECT] buttons so they are flashing green. This indicates that Tracks 1 and 2 will record on Track 3.

3. Press the [TR 3 STATUS] button so it lights orange (source mode).

4. Press the [TR 1-2 STATUS] buttons so they light green (play mode).

5. Raise the Faders for Channels 1, 2, and 3 to the desired level.

6. Press the [TR 3 STATUS] button so it flashes red (record ready mode).

7. Press the [TR 2 STATUS] button until the LED is off (track is muted).

8. Reset your song to the beginning and press [REC] and [PLAY] to begin recording the first verse's vocal part.

9. When the first verse is over, press the [TR 1 STATUS] button to mute it. The led will turn off. You don't need to stop the recording.

10. Before the 2nd verse starts, turn channel 2 on (unmute) by pressing the [TR 2 STATUS] button. The led will light green (play mode).

11. Switch between the two channels by pressing the [STATUS] buttons on either channel to mute and unmute the tracks.

12. When you are finished recording the vocal comp to track 3, press the [TR 3 STATUS] button so it lights green (play mode).

13. Reset your song to the beginning and press [PLAY] to hear the results.
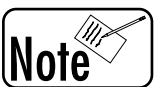
Note *Be sure to MUTE tracks 1 & 2 or move fader # 1 or 2 to off.*

Making A New Version of Your Song

Once you have recorded some material into the VS-880EX, moving, erasing or copying is not really affecting the original recordings, it is just changing the "pointers" to that original material. This makes it very fast and easy to try different versions of your songs. You can experiment with doubling a chorus, rearranging the order of your verses, shortening a bridge, or just about anything you want to try. And all of this can be done without losing the original order of your first recording.

One approach is to copy your whole song to another location in the VS-880EX time line. You would do this using the Copy function and using the Song Top as the Copy Start and Copy From points, the Song End as the Copy End and some marker that is after the song end as your Copy To location.

After making a copy of the whole song, you can then easily Cut out a section of the song or even Insert some space and add more material or copy a chorus to double its length, etc. The following action steps explain a method of using the Copy function to completely re-arrange your song, section by section.

You will need to do each step that follows for each section of the song that you want to copy to your new version location.

ACTION: Making A New Version of Your Song

1. First, set [LOC 4] Point #4 to the starting location of your new version (somewhere after the end of your original song). You can do this easily by pressing Song End and then holding the FF button for a second or two.

2. Then set [LOC 1] to the START of the section that you want to copy first, and set [LOC 3] to the END of the end of that section.

3. Press [TRACK] until "COPY?" is displayed.

4. Press [YES].

5. Press the [CH SELECT] button for the first track you wish to copy.

6. Press the corresponding [STATUS] button so it is flashing red. This indicates that the original track will be copied to the same track.

7. Repeat steps 5-6 for any addtional tracks as desired. If you are copying all eight tracks, the [STATUS] buttons for Tracks 1-8 should all be flashing red.

8. Press the [PARAMETER>>] button so that "TRK St" is displayed.

9. Press [LOC 1] to enter the copy start location.

10. Press the [PARAMETER>>] button so that "TRK Frm" is displayed.

11. Press [LOC 1] to enter the copy from location.

12. Press the [PARAMETER>>] button so that "TRK End" is displayed.

13. Press [LOC 3] to enter the copy end location.

14. Press the [PARAMETER>>] button so that "TRK To" is displayed.

15. Press [LOC 4] to enter the copy to location.

16. Press [PARAMETER>>] to display "Copy time" and leave it set to 1.

17. Press the [PARAMETER>>] button. "Track Copy OK?" will be displayed.

(Continued)

(Making A New Version of Your Song, Continued)

    18.   Press [YES] to execute the copy function.

Now you need to find the destination for the next section you want to copy, which will be the end of the section you just copied.

    19.   Press the [Song End] Button.

    20.   Use the Scrub Functions or Preview Functions to find the exact point you want the next section to start.

    21.   Hold [CLEAR] and press [LOC 4].

    22.   Press [LOC 4] to reuse this location for the next Copy Destination.

Now find the Start of the next section that you want to Copy.

    23.   Clear [LOC 1] and then re-enter it here.

Do the same for the end of the section that you want to copy next.

Switching the Virtual Track Bank

The VS-880EX contains 128 Virtual Tracks that can be used for recording and editing.

These tracks are divided into two banks (A and B) of 64. One bank can be selected for the eight playback tracks and you can copy Virtual Tracks from one bank to the other.

ACTION: Switching the Virtual Track Bank

1. Press [SYSTEM] (under EDIT CONDITION) until "System PRM?" is displayed.

2. Press [YES].

3. Press [PARAMETER>>] until "V. Track Bank" is displayed and use the TIME/VALUE dial to select the desired bank (A or B).

4. Press [PLAY/DISPLAY] to return to the main play screen.

Chapter 5: Editing Applications

## Use {Cut} To Shorten Your Song

Warning !!!! *Be sure you have read and understand the sections of the VS-880EX Owner's Manual describing: scrub, using waveforms to edit, and preview to/from/thru (Chapter 4); editing resolution (Application Guide page 25); and undo & redo (Application Guide page 26). These are important skills that will be used during editing.*

One of the best parts of the VS-880EX is the ability to cut and paste your audio material, just like you would use a word processor on your computer to cut and paste a written document. One common editing function is the cut command. It functions just the way it sounds. You specify a section of audio to be "cut" from the music. For example, let's assume you have recorded a song that is too long. You decide to cut the second verse from the song in order to shorten it.

Instruct the VS-880EX which track you intend to "cut", then specify the start and end of the section to be removed. The VS-880EX will execute the CUT command and move all the material following the CUT backwards in time to join with the first section of audio. e.g. If you CUT the second verse from your song, the VS-880EX will move the beginning of the third verse to directly follow the end of the first verse (For more - see the VS-880EX Owner's Manual Page 94).

ACTION: Use {Cut} To Shorten Your Song
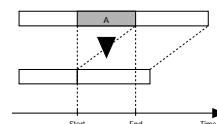
Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1. Advance your song to the beginning of the section you want to cut and set a locate point. Press [LOC] 1 (the LED will turn on).

2. Advance your song to the end of the section you want to cut and set a locate point. Press [LOC] 2 (the LED will turn on).

3. Press [TRACK] repeatedly until "Track Cut ?" appears in the display.

4. Press [YES].

5. Press [NO] repeatedly until the display shows "?-?" (to clear previous track selections).

6. Press the [STATUS] button for the Track(s) that contains the material you want to cut so it is flashing red.

7. Use the TIME/VALUE dial to select the Virtual Track that contains the material you want to cut. **

8. Press [PARAMETER>>] until "TRK St =" is displayed and press [LOC 1].

9. Press [PARAMETER>>] until "TRK End =" is displayed and press [LOC 2].

10. Press [PARAMETER>>] and "Track Cut OK?" will be displayed.

11. Press [YES] to complete the CUT command.

Note *** If you turn the TIME/VALUE dial past V. Track 8 you will see the Virtual Track number replaced by an asterisk. This indicates that the specified time on all Virtual Tracks for that Primary Track will be cut. If you turn the dial further both numbers will be replaced by asterisks. This indicates that the specified time on all Tracks (Virtual and Primary) for the current Virtual Track bank will be cut.*

Use {Erase} To Eliminate Unwanted Material

Another common editing function for the VS-880EX is the ERASE command. It is very similar to the CUT command, however, it does not move the section of your song following the part to be erased. You specify a section of audio to be ERASED from the music. For example, let's assume you have recorded a song that contains three guitar solos recorded at various places in the music on Tr. 2-1. You decide to erase the second solo from the song because you don't like it, but you wish for the other two solos to remain in exactly the same place they were recorded.

Instruct the VS-880EX which track you intend to ERASE, then specify the start and end of the section to be erased, and finally instruct the VS-880EX to execute the erase command. You may think of the ERASE command exactly like your were erasing an analog tape or cassette. You could ERASE (i.e. record silence) the middle part of a cassette tape and the remainder of the material would remain in the exact same position as it was recorded (for more - see the VS-880EX Owner's Manual Chapter 6).

ACTION: Use {Erase} To Eliminate Material
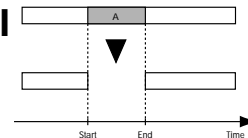
Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1. Advance your song to the beginning of the section you want to erase and set a locate point. Press [LOC] 1 (the led will turn on).

2. Advance your song to the end of the section you want to erase and set a locate point. Press [LOC] 2 (the LED will turn on).

3. Press [TRACK] repeatedly until "Track Erase ?" appears in the display.

4. Press [YES].

5. Press [NO] repeatedly until the display shows "?-?" (to clear previous track selections).

6. Press the [STATUS] button for the Track(s) that contains the material you want to erase so it is flashing red.

7. Use the TIME/VALUE dial to select the Virtual Track that contains the material you want to erase. *

8. Press [PARAMETER>>] until "TRK St =" is displayed and press [LOC 1].

9. Press [PARAMETER>>] until "TRK End =" is displayed and press [LOC 2].

10. Press [PARAMETER>>] and "Track Erase OK?" will be displayed.

11. Press [YES] to complete the procedure.

Note
*If you turn the TIME/VALUE dial past V. Track 8 you will see the Virtual Track number replaced by an asterisk. This indicates that the specified material on all Virtual Tracks for that Primary Track will be erased. If you turn the dial further both numbers will be replaced by asterisks. This indicates that the specified material on all Tracks (Virtual and Primary) for the current Virtual Track bank will be erased.

Warning !!!!
The CUT and ERASE commands function for a single track or across multiple tracks. Be sure you specify if you intend to CUT or ERASE one specific track, or all tracks. If you already have multiple tracks of your song recorded, you will probably want to CUT all tracks at the same time to shorten each track by the same amount (for more - see the VS-880EX Owner's Manual Chapter 6).

Use {Insert} To Add Space Into An Existing Recording

Sometimes your song is too short and you would like to add 2 additional verses after verse # 2. The INSERT command will allow you to insert blank space into your recording at the correct location.

First choose which track or tracks to insert blank time into. The VS-880EX will let you specify the location to insert the time and also the length of time to insert (for more - see the VS-880EX Owner's Manual, Chapter 6).
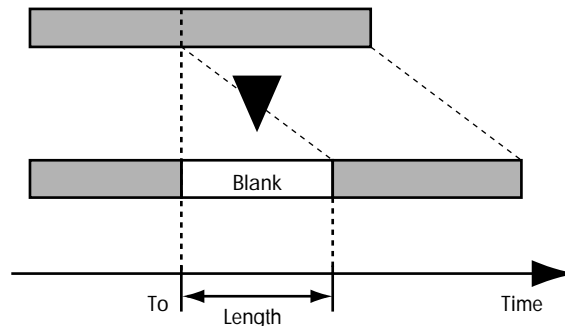
ACTION: Use {Insert} To Add Space Into An Existing Recording

Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1. Press [TRACK] repeatedly until "Track Insert?" appears in the display.

2. Press [YES].

3. Press [NO] repeatedly until "?-?" is displayed (to clear previous track selections).

4. Press the [STATUS] button for the Track(s) you wish to wish to add space to so it is flashing red.

5. Use the TIME/VALUE dial to select the Virtual Track you wish to add space to.
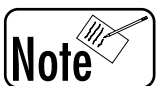
Note *If you turn the TIME/VALUE dial past V. Track 8 you will see the Virtual Track number replaced by an asterisk (*). This indicates that space will be inserted on all Virtual Tracks for that Primary Track. If you turn the dial further both numbers will be replaced by asterisks. This indicates that space will be inserted on all Tracks (Virtual and Primary) in the current Virtual Track bank.*

6. Press the right [PARAMETER>>] button ("To = _____" will be displayed), then use the TIME/VALUE dial to set the time location where the blank space will be inserted. You can also use locator buttons to select the correct insert time if you have a marker preset to the correct time.

7. Press the right [PARAMETER>>] button ("Len = _____" will be displayed), then use the TIME/VALUE dial to set the length (amount) of blank space to be inserted.

Note *Blank space will be inserted from the point specified on the "TRK To" screen to the point specified in the "TRK Len" screen.*

8. Press the right [PARAMETER>>] button again and "Track Insert OK?" will be displayed.

9. Press [YES] to complete the procedure.

Use {Move} To Place Guitar Part in New Location

When you decide to make a new arrangement of your song, the MOVE command is very useful. Maybe you decide that the second verse is musically stronger than the first, so you want to move the first verse to the end of the song, leaving the second verse as the new beginning.

Select which track you want to move something from, you will designate the start and end of the section you wish to move, then select the location and track where you want to move the section to, then compete the move.

START of the EDIT.
Beginning of the material to edit

END of the EDIT.
End point of the material to edit

FROM of the EDIT.
Convenient reference point for the edit

TO of the EDIT.
Final destination for the FROM point
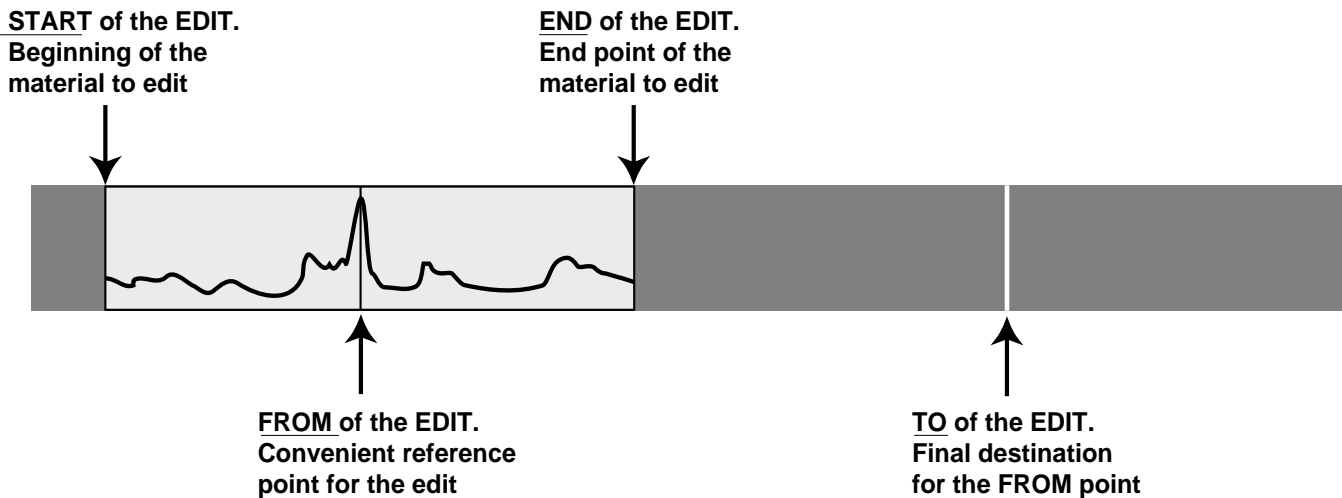
Note *By setting the 'START' and 'FROM' marker to the same location, the start of the section you are moving will be relocated to the designated 'TO' destination (for more - see the VS-880EX Owner's Manual Chapter 6).*

ACTION: Use {Move} To Place Guitar Part in New Location

Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1. Set a Locate point with [LOC 1] at the start of the section you want to move.

2. Set a Locate point with [LOC 2] at the end of the section you want to move.

3. Set a Locate point with [LOC 3] at the time location you want to move this section to.

4. Press [TRACK] until "Track Move?" is displayed.

5. Press [YES].

6. Press [NO] repeatedly until "?-? => ?-?" is displayed (to clear previous track selections).

7. Press the [SELECT] button that corresponds to the Track you want to move.

8. Press the [STATUS] button that corresponds to the Track you want to move this part of your song to (this can be the same as the source Track) so it is flashing red.

9. Use the TIME/VALUE dial to select the Virtual Track that you want to move this section to.

10. Repeat steps 7-9 to select additional Tracks as desired.

11. Press right [PARAMETER>>] button, "TRK St.=" should be displayed.

(Continued)

(Use {Move} To Place Guitar Part in New Location, Continued)

12. Press [LOC 1].

13. Press the right [PARAMETER>>] button, "TRK Frm=" should be displayed.

14. Press [LOC 1].

15. Press the right [PARAMETER>>] button, "TRK End=" should be displayed.

16. Press [LOC 2].

17. Press the right [PARAMETER>>] button, "TRK To=" should be displayed.

18. Press [LOC 3].

19. Press the right [PARAMETER>>] button, "Track Move OK ?" should be displayed.

20. Press [YES] to complete the move.

Moving within the same track.
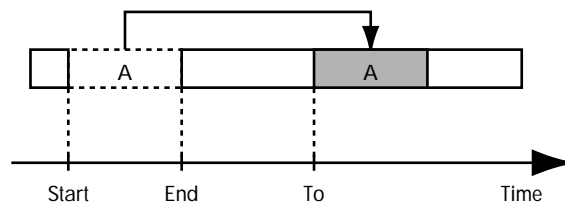
Moving to a different track.
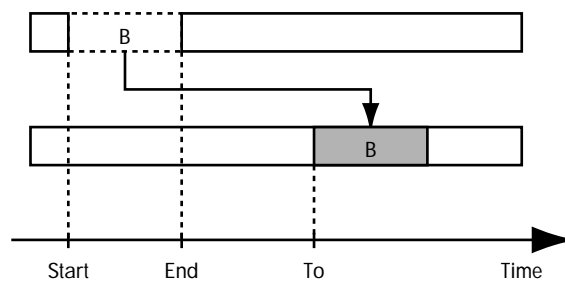
Moving using the "Frm" setting.
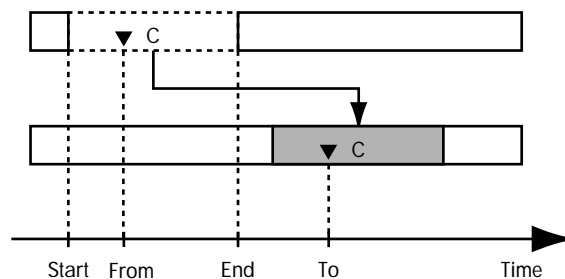
Use {Move} & Sync Point - Align Music With Narration

If you have already used the MOVE command without designating a 'FROM' location, you noticed that the beginning of the section to be moved was moved to the location you designate as 'TO.' This is very good if you are moving verses of a song and the beginning of a verse or section is also the beginning of the section to be moved. It is easy to instruct the VS-880EX to {MOVE} the beginning of a verse # 2 to the end of verse # 4.

However, what do you do if you need to move a section of audio, but the point of synchronization is not at the beginning. For example, you have a voice narration recorded on Tr. 1-1 and an instrumental music recording on Tr. 2-1 and Tr. 3-1. You then decide that you want the solo piano section of the music to begin at a particularly expressive point in the voice narration. The solo piano section begins somewhere in the middle of the musical recording. The task is to move the entire musical recording in time so that the solo piano section begins at the exact same moment as the important expressive point in the narration. You are not interested when the music begins or ends, only that the particular section of the music begin at the correct time. The VS-880EX accomplishes this with great ease by adding the additional parameter 'FROM' to the {MOVE} command.

Set the 'START' parameter at the beginning of the music and the 'END' parameter at the end of the music. You will then mark the beginning of the solo piano as the 'FROM' parameter and set the expressive narration point as the 'TO' parameter. When you execute the full {MOVE} command, the entire musical recording will be moved to the new location, however, the solo piano will begin at the correct point in the narration.

(For more - see the VS-880EX Owner's Manual, Chapter 6).

START of the EDIT.
Beginning of the
material to edit

END of the EDIT.
End point of the
material to edit

FROM of the EDIT.
Convenient reference
point for the edit

TO of the EDIT.
Final destination
for the FROM point

ACTION: Use {Move} And Sync Point To Align Music With Narration

Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1. Set a Locate point with [LOC 1] at the start of the section you want to move.

2. Set a Locate point with [LOC 2] at the start of the piano solo.

3. Set a Locate point with [LOC 3] at the end of the section you want to move.

4. Set a Locate point with [LOC 4] at the time location you want the piano solo to start.

5. Press [TRACK] until "Track Move?" is displayed.

6. Press [YES].

7. Press [NO] repeatedly until "?-? => ?-?" is displayed (to clear previous track selections).

8. Press the [SELECT] button that corresponds to the track you want to move.

(Continued)

(Use {Move} To Place Guitar Part in New Location, Continued)

9. Press the [STATUS] button that corresponds to the track you want to move this section of the music to (this can be the same as the source track) so it is flashing red.

10. Use the TIME/VALUE dial to select the Virtual Track that you want to move the section to.

11. Repeat steps 8-10 to select additional Tracks as desired.

12. Press the right [PARAMETER>>] button, "TRK St.=" should be displayed.

13. Press [LOC 1].

14. Press the right [PARAMETER>>] button, "TRK Frm=" should be displayed.

15. Press [LOC 2].

16. Press the right [PARAMETER>>] button, "TRK End=" should be displayed.

17. Press [LOC 3].

18. Press the right [PARAMETER>>] button, "TRK To=" should be displayed.

19. Press [LOC 4].

20. Press the right [PARAMETER>>] button, "Track Move OK ?" should be displayed.

21. Press [YES] to complete the {Move} command.

Moving within the same track.

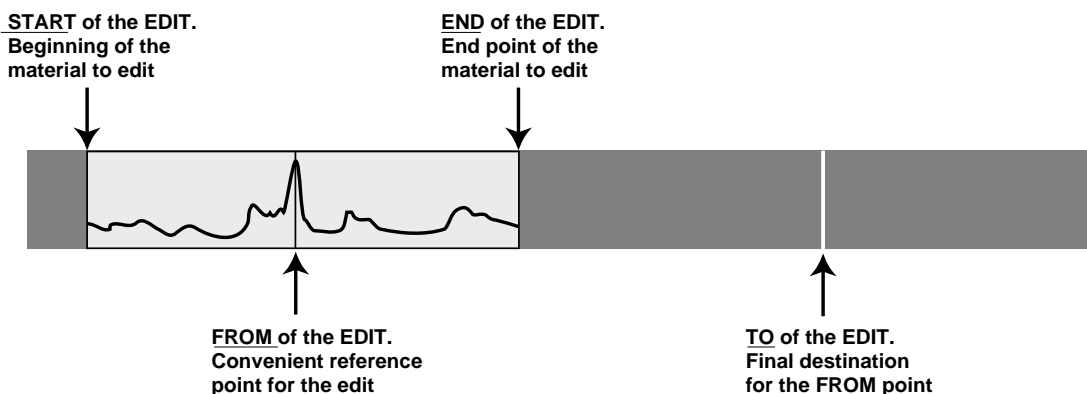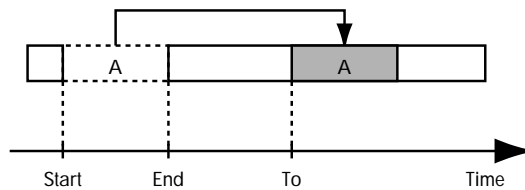**Moving to a different track.**
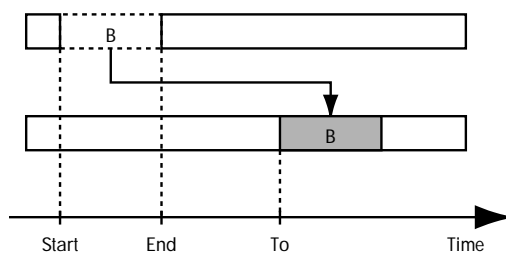
Moving using the "Frm" setting.
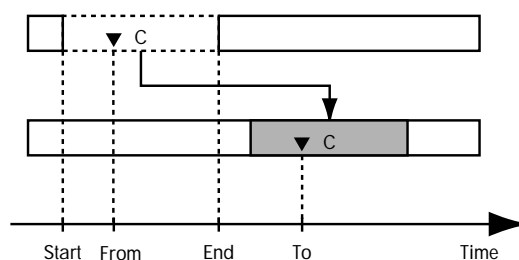
Use {Copy} To Create A Drum Loop

A very important feature of random access recording is the ability to play the same recording over and over and over, without actually recording it that way. For example, let's assume that you have recorded a drum groove on Tr. 1-1 for 12 measures. Now you decide that you want to make a 10 minute dance mix based on this 12 measure drum groove.

The beginning and ending of the drum part will define the section to be copied. Then instruct the VS-880EX to copy the drum part, end to end, for a defined number of times up to 99. The drum part will now repeat over and over again, end to end, creating a long dance track (for more - see the VS-880EX Owner's Manual, Chapter 6).

ACTION: Use {Copy} To Create A Drum Loop

Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1.   Set a Locate point with [LOC 1] at the start of the drum groove.

2.   Set a Locate point with [LOC 2] the end of the drum groove.

3.   Press [TRACK] until "Track Copy?" is displayed.

4.   Press [YES].

5.   Press [NO] repeatedly until "?-?>?-?" is displayed (to clear previous track selections).

6.   Press the [SELECT] button that corresponds to the Track you want to copy.

7.   Press the [STATUS] button that corresponds to the Track you want to copy this drum groove to (this can be the same as the original source Track) so it is flashing red.

8.   Use the TIME/VALUE dial to select the Virtual Track that you want to copy the drum groove to.

9.   Repeat steps 6-8 to select additional Tracks as desired.

10.   Press the right [PARAMETER>>] button, "TRK St.=" should be displayed.

11.   Press [LOC 1].

12.   Press the right [PARAMETER>>] button, "TRK Frm=" should be displayed.

13.   Press [LOC 1].

14.   Press the right [PARAMETER>>] button, "TRK End=" should be displayed.

15.   Press [LOC 2].

16.   Press the right [PARAMETER>>] button, "TRK To=" should be displayed.

17.   Press [LOC 2].

18.   Press the right [PARAMETER>>] button, "Copy Time =" should be displayed.

19.   Use the TIME/VALUE dial to select the number of times you want the drum groove to be copied end to end.

20.   Press the right [PARAMETER>>] button, "Track Copy OK?" should be displayed.

21.   Press [YES] to execute the copy function.

(Continued)

(Use {Copy} To Create A Drum LoopContinued)

Copying twice to the same Track

Copying twice to a different Track
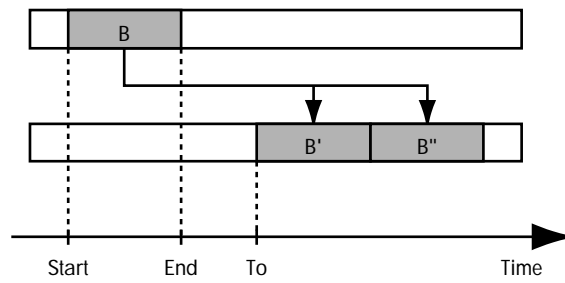
Copying using the "Frm" setting
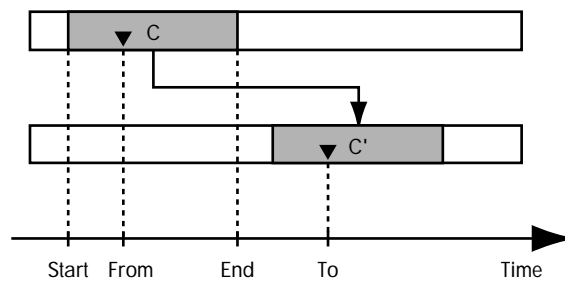
Use {Copy} To Re-Use A Vocal In Multiple Verses

What if you have a song with 3 chorus sections but you have the perfect background vocals recorded on Tr. 6-1 for the first chorus only? It would be extremely helpful to be able to use the first chorus background vocals for the other 2 chorus sections.

Again using the {COPY} command, you can select the first chorus recording on tracks Tr. 6-1 as the 'START' and 'END' of the section to be copied. You can then instruct the VS-880EX to {COPY} this background vocal section to the second and then to the third chorus. You will first specify the beginning of the second chorus as your COPY TO location and then choose the third chorus as the COPY TO location (for more - see the VS-880EX Owner's Manual, Chapter 6).

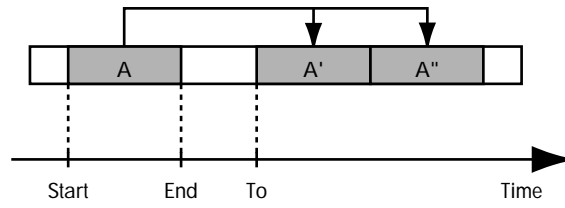### ACTION: Use {Copy} To Re-Use A Vocal Background In Multiple Verses

Clear Locate Points First: Hold the [CLEAR] button and press any [LOC] buttons with lit LED.

1.   Set a Locate point with [LOC 1] at the beginning of the chorus # 1.

2.   Set a Locate point with [LOC 2] at the end of the chorus # 1.

3.   Set a Locate point with [LOC 3] at the beginning of chorus # 2

4.   Set a Locate point with [LOC 4] at the beginning of chorus # 3.

5.   Press [TRACK] until "Track Copy?" is displayed.

6.   Press [YES].

7.   Press [NO] repeatedly until "?-?>?-?" is displayed (to clear previous track selections).

8.   Press the [SELECT] button that corresponds to the first track you want to copy from.

9.   Press the [STATUS] button that corresponds to the Track you want to copy to (this can be the same as the original source track) so it is flashing red.

10.   Use the TIME/VALUE dial to select the destination Virtual Track.

11.   Repeat steps 8-10 to select additional Tracks as desired.

TECH INFO	*You can only use those tracks and Virtual Tracks that are "on top" or ready to play as source tracks for copying. If you want to copy a Virtual Track that is below a currently playing track, you must first make that Virtual Track the current playable track (see Owner's Manual page 49 - Switching V-tracks).*

12.   Press the right [PARAMETER>>] button, "TRK St.=" should be displayed.

13.   Press [LOC 1].

14.   Press the right [PARAMETER>>] button, "TRK Frm=" should be displayed.

15.   Press [LOC 1].

16.   Press the right [PARAMETER>>] button, "TRK End=" should be displayed.

17.   Press [LOC 2].

18.   Press the right [PARAMETER>>] button, "TRK To=" should be displayed.

19.   Press [LOC 3] (the beginning of chorus # 2).

(Continued)

(Use {Copy} To Re-Use A Vocal In Multiple Verses, Continued)

20. Press the right [PARAMETER>>] button, "Copy Time =" should be displayed.

21. Use the TIME/VALUE dial to select 1 (number of times to copy the background vocal).

22. Press the right [PARAMETER>>] button, "Track Copy OK?" should be displayed.

23. Press [YES] to complete the copy command.

24. Repeat Steps # 5 through # 23 to copy the selected section to the beginning of chorus # 3. When you execute step # 19, Press [LOC 4] (the beginning of chorus # 3).

Copying twice to the same Track
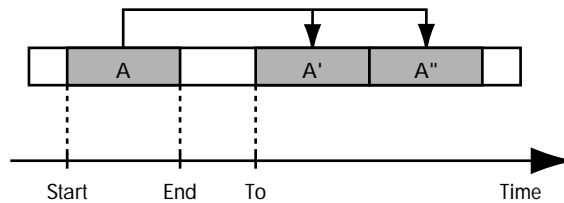
Copying twice to a different Track

Copying using the "Frm" setting

Chapter 6: Mixdown Applications
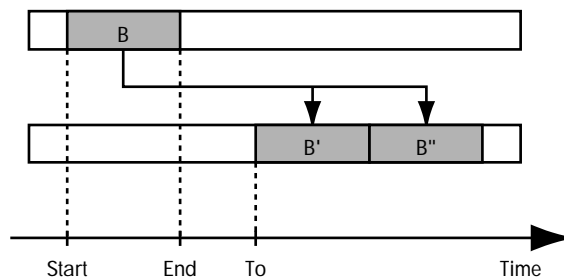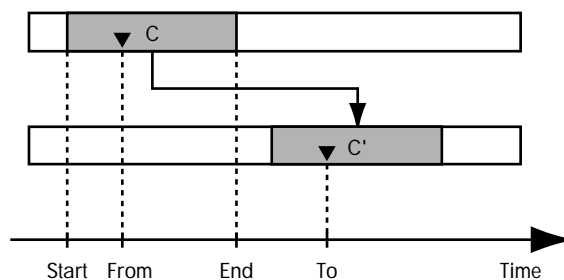
Mixing 8 Tracks To Stereo Analog Outputs

Once you have your final tracks recorded and have chosen which virtual tracks you wish to use, you are ready to mix them all to a final stereo mix. Using the analog output, you might mix to a cassette deck or other analog tape recorder.

You will need to make your appropriate pan pot settings, connect your mixdown device to the analog master output, adjust your fader levels, and record your final mix on the stereo analog device.

ACTION: Mixing 8 Tracks To Stereo Analog Outputs

1. Press [FADER/EDIT] until it lights green.

2. Press the [TR 1-8 STATUS] buttons until they light green (play mode).

3. Connect the MASTER OUT L and R (VS-880EX rear panel) to the left and right inputs of your mastering tape recorder.

4. Put your mastering deck in record pause mode and press [PLAY] on the VS-880EX.

5. Use the MASTER fader on the VS-880EX and the record input level knob on your tape deck (if it has one) to set the optimum record level (around 0 dB).

6. Use the PAN knobs and FADERS to adjust the desired level of each track.

7. Press [STOP] on the VS-880EX.

8. Start recording on your tape deck.

9. Press [ZERO] on the VS-880EX (to return to the beginning of the song).

10. Press [PLAY] on the VS-880EX. Use the FADERS and PAN knobs to make any real time adjustments to the music as it is recorded to your mixdown recorder.

11. Press [STOP] on the VS-880EX and your tape deck when the song is finished.

Mix 8 Tracks To Stereo DAT - Digitally

Mixing your 8 VS-880EX tracks to stereo DAT digitally is exactly the same as recording to a stereo analog recorder. With the VS-880EX's default settings, the master analog outputs and the digital outputs contain exactly the same information.

ACTION: Mix 8 Tracks To Stereo DAT - Digitally

1. Press the [FADER/EDIT] button until it lights green.

2. Press the [TR 1-8 STATUS] buttons until they light green (play mode).

2. Connect the DIGITAL OUT of the VS-880EX to the digital input of your DAT recorder.

3. Make sure that your DAT machine is set to record from its digital input (S/P DIF coaxial or optical).

4. Make sure that the sampling rate of your DAT recorder matches the sampling rate of the current song in the VS-880EX (some DAT recorders will do this automatically).

If you are unsure of the sample rate of your song, press the [PLAY (DISPLAY)] button, then press [SHIFT] + [SONG] to display the sampling rate of the current song.

5. Set the panning and level to the desired position for each track on the VS-880EX.

6. Start recording on your DAT machine.

7. Press [ZERO] on the VS-880EX.

8. Press [PLAY] on the VS-880EX. Use the FADERS and PAN knobs to make any real time adjustments.

9. Press [STOP] on the VS-880EX and your DAT machine when the song is finished.

Mixing 8 Tracks With Internal Effects To Stereo Output

Using the 2 effects processors built into the VS-880EX you can add additional creativity during the mixdown process. For example, maybe you have a 'dry' vocal on Tr. 1-1 (no effects recorded on it). Tr. 2-1 has a piano that was originally recorded using reverb. Tr.3-1 is the BASS guitar with no effects. Tr. 4-1 is an acoustic guitar that was also recorded with reverb. Tr. 5-1 is your dry (no effects) solo saxophone recording. You decide that you want to add reverb to the vocal on Tr. 1-1 during the mixdown. You might also want to add chorus to the saxophone.

You will select EFFECT # 1 to Tr. 1-1 and select the output of EFFECT # 1 to the final stereo mix. You will then select EFFECT # 2 to Tr. 5-1 and select the output to the final stereo mix. Each EFFECTS device can be assigned to the appropriate effect you are looking for.

ACTION: Mixing 8 Tracks With Internal Effects To Stereo Output

1. Press the [FADER/EDIT] button until it lights green.

2. Connect the MASTER OUT L and R to the left and right inputs of your mastering recorder.

3. Hold [SHIFT] and press [EFFECT-1] (CH SELECT button 7).

4. Press the [SELECT] button for the Track you wish to assign to this effect.

5. Use the TIME/VALUE dial to select "PstFade."

6. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to adjust the effect send level as desired.

7. Repeat steps 4-6 to assign additional Tracks to the EFFECT-1 as desired.

8. Press [EFFECT] (under EDIT CONDITION) until "EFFECT 1 PRM ?" is displayed. Press [YES].

9. Use the TIME/VALUE dial to select the effect that you want and press [YES] to confirm your selection.

10. Hold [SHIFT] and press [EFFECT-2] (CH EDIT button 8).

11. Press the [SELECT] button for the Track you wish to assign to this effect.

12. Use the TIME/VALUE dial to select "PstFade."

13. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to adjust the effect send level as desired.

14. Repeat steps 11-13 to assign additional Tracks to EFFECT-2 as desired.

15. Press [EFFECT] (under EDIT CONDITION) until "EFFECT 2 PRM ?" is displayed. Press [YES].

16. Use the TIME/VALUE dial to select the effect that you want and press [YES] to confirm your selection.

17. Using the PAN knobs and FADERS, adjust your mix as desired.

18. Start recording on your master recorder.

19. Press [ZERO] on the VS-880EX.

20. Press [PLAY] on the VS-880EX. Use the FADERS and PAN knobs to make any real time adjustments.

21. Press [STOP] on the VS-880EX and your master recorder when the song is finished.

Using Mute During Mixdown

The channel [STATUS] buttons are very useful during mixdown.

MUTE

The normal playback mode during mixdown is that all channels are set to PLAY mode (STATUS LED is green). By pressing the status button of a channel during playback the LED goes off. This is the MUTE function of the channel. Basically, you have turned the channel OFF and the audio will stop playing from that channel. Let's assume that you have two tracks of recorded lead vocals, Tr. 1-1 and Tr. 2-1. Maybe you want to use the first verse from Tr. 1-1 and the second verse from Track 2-1. As you are recording your mixdown, you can use the [STATUS] buttons to MUTE track 1 when you want the vocal part from track 2, and alternatively MUTE track 2 and return track 1 to play mode when you want to hear track 1.

ACTION: Using Mute During Mixdown

1. Press [PLAY].

2. Press the [STATUS] button for the Track that you want to mute until the LED turns off (mute).

3. Press the [STATUS] button until the LED lights green to un-mute that track (return to Play mode).

SOLO

The opposite of the MUTE function is the SOLO function. Pressing the [SHIFT] + [SOLO] buttons enters the SOLO mode. The individual [STATUS] buttons become SOLO buttons. A SOLO button acts the way you would expect. By pressing a channels [STATUS] button when the master SOLO mode is on, that individual channel is the only one that will be heard. Essentially, all the other channels will MUTE.

This feature is very useful during a mixdown if you want to MUTE all the channels except for one or two during a particular section of your music. For example, let's assume that your piano track is recorded on Tr. 6-1 in one of your songs. During the middle of the song, the piano plays a short passage that you want to be the only instrument playing. However, all the other tracks are still playing back, even though the musicians might have stopped playing during that passage. But maybe there is noise from the microphones, or buzz from a synthesizer on some of those tracks during the solo piano passage. By using the SOLO function on the piano track, you can MUTE (turn OFF) all the other tracks during the solo piano passage and then press the [STATUS] button on the piano track again at the end of the passage to return all the tracks to PLAY mode.

ACTION: Using Solo During Mixdown

1. Hold [SHIFT] and press [SOLO] (EZ ROUTING).

2. Press the [SELECT] button of the track or tracks that you want to hear.

3. Press the [SELECT] button of that track or tracks again to return all tracks to play mode.

4. Hold [SHIFT] and press [SOLO] (EZ ROUTING) again to exit SOLO mode.

The SOLO function can be used on more that one channel (track) at a time.

Using Scenes To Help With Mixdown

The VS-880EX allows you to recall mixer settings at the touch of a button using the Scene function. Essentially, the VS-880EX allows you to take a 'snapshot' or picture of all the settings in the VS-880EX at a particular point in time. The 'snapshot' is stored in one of the 8 available scenes. These scenes or snapshots can be recalled by pressing the correct [SCENE] button. By using SCENES you can try or audition different mixes of your song. For example, you might try one mix with the vocal very loud with reverb and the drums very soft. You could store that 'snapshot' into SCENE # 1. You might then try a mix with no reverb on the vocal, the drums very loud, and the guitar solo panned to the left speaker. That would be stored as SCENE # 2, etc. Once you have tried many different mixes and stored them as SCENES, you can alternately listen to them to pick which one you think is best. That would be the mixdown you would then record to your final cassette or DAT tape (for more - see Owner's Manual page 73.).

ACTION: Using Scenes To Help With Mixdown

1. Adjust the panning, levels, effects levels, and EQ as desired for all the tracks you intend to mix.

2. Press [STOP].

3. Press [SCENE] (the LED will light).

4. Press [LOC 1]. The led should now be lit, indicating that you stored all the present mix information in scene location # 1.

5. Experiment with some different level and/or pan settings.

6. Make sure that the [SCENE] LED is still on and press [LOC 2]. You have now stored your new mix settings into scene location # 2.

7. Press [LOC 1] followed by [PLAY]. Your song will play back with the mix information stored in scene location # 1.

8. Press [STOP] followed by [ZERO].

9. Make sure that the [SCENE] LED is still on and press [LOC 2].

10. Press [PLAY]. Your song will now play back with the mix information from scene location 2.

Warning !!!!

IMPORTANT: The VS-880EX cannot recall scenes while it is playing back. You can only select a new scene when the VS-880EX is STOPPED.

Note

Remember actual fader levels may not match the physical fader position (see Nulling - Application Guide page 26).

CLEARING A SCENE

- To clear a scene, hold [CLEAR] and press the [LOC] (scene) button that corresponds to the scene that you want to erase (make sure that SCENE is lit).

Note

Remember that SCENES are 'SNAPSHOTS' of all the settings in the VS-880EX at a single point in time. SCENES do not record any movement of controls. That function is available using an external MIDI sequencer (page 99 of this guide) or realtime automated mixing (page 100 of this guide.)

Mixing 8 Tracks and External Source To 2 Track DAT

There are occasions when you have all 8 tracks recorded and you would like to add just one more instrument or vocal to your song during mixdown. This is a simple process in the VS-880EX using the [FADER/EDIT] button.

You will first connect your external device to the VS-880EX, connect your DAT recorder, adjust the mix of your pre-recorded tracks, adjust the level of your incoming source, and then record the final mix to DAT.

ACTION: Mixing 8 Tracks & External Sources To 2 Track DAT

1. Press [FADER/EDIT] until it lights orange.

2. Connect the output of an external source into Input 1 of the VS-880EX.

3. Use the [INPUT 1] knob and [FADER] to adjust the level of the external source.

3. Connect the Digital Out of the VS-880EX to the Digital In of your DAT recorder.

4. Make sure that your DAT machine is set to record from its Digital Input (S/P DIF coaxial or optical) and that its sampling rate matches the sampling rate of the current song in the VS-880EX (some DAT machines do this automatically).

Note: *If you are unsure of the sample rate of your song, press the [PLAY (DISPLAY)] button, then press [SHIFT] + [SONG] to display the sampling rate of the current song.*

5. Press [FADER/EDIT] until it lights green.

6. Press the [TR 1-8 STATUS] buttons until they light green (play mode).

7. Press [PLAY] on the VS-880EX and use the PAN knobs and faders to adjust the recorded Tracks to their desired settings.

8. Press [STOP].

9. Start recording on your DAT recorder.

10. Return the VS-880EX to the beginning of the song (press [ZERO]) and then press [PLAY]. Press the [FADER/EDIT] button until it lights orange and use the faders to adjust the signal from your external source. Press the [FADER/EDIT] button until it lights green and use the faders to adjust the level of the recorded Tracks.

Note: *You can use the [FADER/EDIT] button to set the faders to control the inputs or tracks during the mixdown.*

Using External Effects During Mixdown

Let's assume that you want to do your final mixdown of a song using your favorite external reverb device. Sometimes both internal effects are already being used or maybe you just like the sound of a particular external effects device. Let's assume that you have a stereo background vocal recording on tracks 7 & 8. You want to use your external reverb device to add reverb to these vocals during mixdown.

Assign tracks 7 & 8 to use the AUX SEN bus 1 and 2 to pass the audio out the AUX SEND jacks to the external reverb. Then, bring the outputs from the reverb back into the VS-880EX through Inputs # 1 and 2.

ACTION: Using External Effects During Mixdown

1. Connect the AUX SEND outputs of the VS-880EX to the Inputs of your external effects device. Connect the Outputs of your effects device to Inputs 1 and 2 on the VS-880EX.
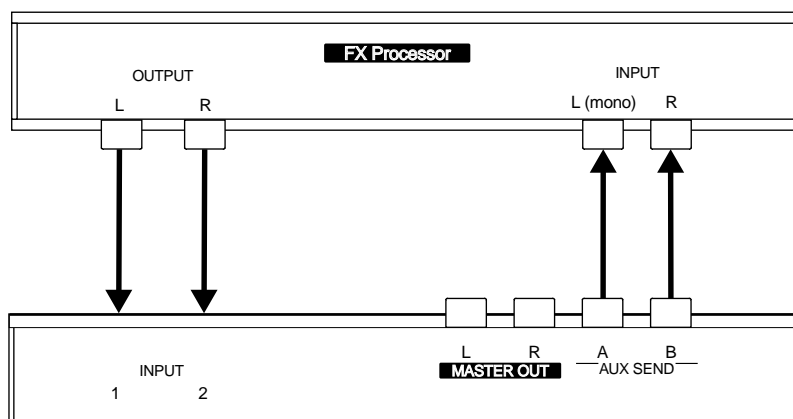
2. Press the [FADER/EDIT] button until it lights green.

3. Hold [SHIFT] and press [AUX SEND] (CH EDIT button 6).

4. Press [CH SELECT] button 7 and use the TIME/VALUE dial to select "PstFade."

5. Press [CH SELECT] button 8 and use the TIME/VALUE dial to select "PstFade."

6. Turn the AUX SEND knob all the way left and right and then back to 0 dB.

7. Use the channel 7 and 8 FADERS to adjust the amount of signal that is sent to your external effects.

8. Press the [FADER/EDIT] button until it lights orange.

9. Use the INPUT knobs and the faders for Inputs 1 and 2 to adjust the level of the signal returned from your external effects.

10. Press [PLAY]. Your dry tracks can be controlled by setting the [FADER/EDIT] button to green and using faders 7 and 8. Your effected signal can be controlled by setting the [FADER/EDIT] button to orange and using faders 1 and 2.

Use Virtual Tracks To Re-Use The Internal Effects

What do you do if you want to add a different reverb sound to each individual track of the VS-880EX using only the 2 internal effects devices? You re-record two tracks at a time to new virtual tracks, using the internal effects. Maybe you have a song recorded on all 8 tracks of your VS-880EX and you want to add different effects to the first 6 of the 8 tracks. You might begin by selecting Tr. 1-1 and Tr. 2-1 to use the two internal effects and bounce (re-record) them to Tr. 7-2 and Tr. 8-2. Once that is completed, you can listen to Tr. 7-2 and Tr. 8-2. You can then select Tr. 3-1 and Tr. 4-1 to use the internal effects devices and record them to Tr. 1-2 and Tr. 2-2. You can continue this process of re-recording instruments with effects onto unused virtual tracks, until all the instruments have been recorded with the effect of choice. You can then select the correct virtual track of each channel for playback and complete your final mix.

ACTION: Use Virtual Tracks To Re-Use The Internal Effects

1. Press the [FADER/EDIT] button until it lights green.

2. Hold [SHIFT] and press [EFFECT 1] (CH EDIT 7).

3. Press [CH EDIT] button 1 and use the TIME/VALUE dial to select "PstFade."

4. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to set the EFFECT 1 send to "100."

5. Hold [SHIFT] and press [EFFECT 2] (CH EDIT 8).

6. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to set the EFFECT 2 send to "100."

7. Press the [EFFECT] button (under EDIT CONDITION) repeatedly until "EFFECT 1?" is displayed. Press [YES].

8. Use the TIME/VALUE dial to select the desired effect and press [YES] to confirm that selection.

9. Press the [EFFECT] button (under EDIT CONDITION) repeatedly until "EFFECT 2?" is displayed. Press [YES].

10. Use the TIME/VALUE dial to select the desired effect and press [YES] to confirm that selection.

11. Hold [SHIFT] and press [V.Track] (CH EDIT 2).

12. Press [CH EDIT] button 7 and use the TIME/VALUE dial to select Virtual Track "2."

13. Press [CH EDIT] button 8 and use the TIME/VALUE dial to select Virtual Track "2."

14. Press the [FADER/EDIT] button until it lights red.

15. Hold the [STATUS] button 7 and press the [CH EDIT] button 7 so it is flashing red.

16. Hold the [STATUS] button 8 and press the [CH EDIT] button 8 so it is flashing red.

17. Use the channel 7 and 8 faders to adjust the effect return level (0dB is recommended).

18. Press the [STATUS] buttons for Tracks 7 and 8 until they are flashing red (record mode).

19. Press [REC] followed by [PLAY]. The signal from the effects processor will now be recorded on Tracks 7-8.

Note *Use {TRACK EXCHANGE} to swap track positions (see next page >).*

The {TRACK EXCHANGE} command allows you to move track data to another Track or V.Track (e.g. 1-2, 7-3, 5-6). This will allow you to listen to multiple Virtual Tracks (different recordings) at the same time. For example, let's assume that you have recorded 6 guitar solos on the first 6 Virtual Tracks of recording track # 8. After listening to each Virtual Track, you decide that you would like to listen to Virtual Track # 2, 5, and 6 all at the same time. Since the VS-880EX will only play one Virtual Track at a time for a given recording track, you must move some of your virtual guitar tracks to other recording tracks so that they can be selected for playback. You might think that the MOVE command would perform this function, and it will. However, the MOVE command replaces the existing material with the material that is moved. For example, if you {MOVE} Tr. 8-2 to Tr. 1-2, whatever was already on Tr. 1-2 will be gone.

The VS-880EX also provides a command called {TRACK EXCHANGE} to accomplish this task. It will allow you to exchange or swap the information from two different tracks. No material is lost during {TRACK EXCHANGE}, it is just swapped with another track.

Using the example above of the three Virtual Tracks of guitars, you could use {TRACK EXCHANGE} to exchange Tr. 8-5 with Tr. 1-1 and exchange Tr. 8-6 with Tr. 2-1. The audio that was originally on Tr. 1-1 will now be on Tr. 8-5 and vice versa. The audio from Tr. 2-1 will be on Tr. 8-6 and vice versa. You can listen to all three guitar solos simultaneously by selecting Tr. 1-1, Tr. 2-1 and Tr. 8-2 for playback.

Exchanging Tracks 1 and 2
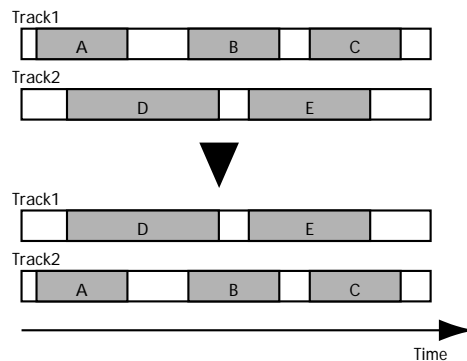
ACTION: Using The {Track Exchange} Function

1. Press [FADER/EDIT] until it lights green.

2. Hold [SHIFT] and press [V.Track] (CH EDIT 2).

3. Press [CH EDIT] button **8** and use the TIME/VALUE dial to select Virtual Track "A:5."

4. Press [TRACK] (under EDIT CONDITION) repeatedly until "Track Exchange?" is displayed.

5. Press [YES].

6. Press [CH EDIT] button **8** so it stops flashing.

7. Press [STATUS] button **1** so it flashes red and use the TIME/VALUE dial to select Virtual Track 1. "XchgTr.=8-A:5=>1-A:1" should be displayed.

8. Press the right [PARAMETER>>] button. "Track Exchange OK?" should be displayed.

9. Press [YES]. The information that was on Virtual Track 5 of primary Track 8 is now on Virtual Track 1 of primary Track 1 and vice versa. You can repeat this procedure for additional Tracks and Virtual Tracks.
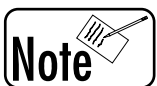
Note *It will cause much less confusion if you can exchange tracks with other blank tracks. However, it is always good to keep your track sheet (see appendix) up to date with the correct recordings listed on the correct virtual tracks.*

Process Entire Mix With Internal EQ And Compressor

On some occasions you might already have a really good mix set up in your VS-880EX, but you find that you would like to add a little more low frequency boost to the overall mix. In addition, you might want to compress the dynamic range so your song will sound "louder" when played in your auto cassette player.

You will need to set up a normal mix situation, then assign the stereo mix to the effects processor, choose the EQ and Compressor, then record your final mix.

ACTION: Process Your Entire Mix With Internal EQ And Compressor

1. Press the [FADER/EDIT] button until it lights green.

2. Hold [SHIFT] and press the [FADER/EDIT] button.

3. Use the left/right [<<PARAMETER>>] buttons to display "MST FX1 INS Sw=."

3. Use the TIME/VALUE dial to select "On."

4. Press [EFFECT] (under EDIT CONDITION section) until "EFF EFFECT-1 PRM?" is displayed.

5. Press [YES].

6. Use the TIME/VALUE dial to select "EF1 A66=CL:Comp." Then, press [YES] to confirm your selection.

7. Use the left/right [<<PARAMETER>>] buttons and the TIME/VALUE dial to adjust the compressor settings.

8. Use the left/right [<<PARAMETER>>] buttons and the TIME/VALUE dial to adjust the EQ settings.

9. Return the VS-880EX to the beginning of the song and press [PLAY]. All tracks will be routed to the compressor and then to the mix bus to be recorded on your mastering device. Any level or EQ changes will be recorded as well.

Backup Your Song to DAT

Since hard disk drives are mechanical devices, they are more subject to failure than any other part of your VS-880EX. If your hard disk develops a problem or fails for any reason, you may loose all the songs stored on that disk. It is a good idea backup your songs often by copying them to another disk or backing them up to DAT (for more information see the Owner's Manual page 129).

ACTION: Backup Your Song to DAT

1. Connect the Digital output of the VS-880EX to Digital input of your DAT recorder (the VS-880EX uses S/P DIF coaxial (RCA phono) and optical connectors).

2. Set the sample rate of your DAT machine to 48kHz (some DAT machines do this automatically).

3. Press [SONG] (under EDIT CONDITION) until "SNG DAT Backup" is displayed. Press [YES].

4. Use the TIME/VALUE dial to select the song you wish to backup (select "ALL" if you would like to backup all songs on the current drive).

5. Press the right [PARAMETER>>] button until "SNG Tape Len =" is displayed.

6. Use the TIME/VALUE dial to select a tape length that is slightly shorter than the length of the tape that you are using. For example, if the shortest tape you are using is 60 minutes long you would select a tape length of 55 minutes on the VS-880EX.

7. Press [YES]. "Backup Ready?" will be displayed.

8. Press [YES]. "Please Rec DAT" will be displayed.

9. Start recording on your DAT machine and the press [YES] on the VS-880EX. If multiple tapes are required to store your backup, the VS-880EX will pause after the amount of time specified in step 5 and allow you to change tapes. You may wish to make a note of where the recording began on your DAT tape. This information will be useful when loading the song back into the VS-880EX.

10. "Please Stop DAT" will be displayed when the backup is complete. Stop your DAT machine and the press [YES] on the VS-880EX. Press [PLAY (DISPLAY)] to return to Play mode.

Note *The Backup to Dat function copies everything about your song from the hard disk onto the DAT tape. This includes all the music, edits, mixer settings, effect settings, etc. If you ever need to Recover from DAT (reload the song onto the hard disk from the DAT tape), the song will be restored exactly as you saved it.*

Recover Your Song from DAT

If you ever need to recover your song from DAT (reload the song onto the hard disk from the DAT tape), use the following procedure (for more information see Owner's Manual page 131).

ACTION: Recover Your Song from DAT

1. Connect the Digital output of your DAT recorder to the Digital input of the VS-880EX (the VS-880EX uses S/P DIF coaxial (RCA phono) and optical connectors).

2. Load the appropriate DAT tape containing the song you wish to recover.

3. Press [SONG] (under EDIT CONDITION) until "SNG DAT Recover ?" is displayed.

4. Press [YES].

5. "STORE Current?" is displayed. Press [YES] to save any recent changes to the current song.

6. "Recover Ready?" is displayed. Press the right [PARAMETER>>] button until "Name Ready?" is displayed.

7. Press [YES].

8. "Please Play DAT" is displayed momentarily, then "Waiting Start ID" is displayed. Play your DAT machine from the beginning of the song you wish to recover, "Receiving DATA!!" will be displayed.

9. The name of your song will appear in the display followed by "Complete!!" Stop your DAT machine.

10. "SNG Rcv = [Your Song Name]" will be displayed. If this is the song you wish to recover, press [YES].

11. "Select Song Recover" is displayed. Press [YES].

12. "Init IDE:0 OK?" is displayed.

Warning !!!! *Press [NO] (the VS-880EX is prompting you to initialize the current drive, which erases all data on that drive including all the songs. However, if you would prefer to erase the entire hard disk drive before recovering your song, you can press the [YES] button instead.*

13. "SNG Set To Tape No.[001]" is displayed. Press [YES].

14. "Please Play DAT" is displayed, then "Waiting Start ID" is displayed. Rewind your DAT to the beginning of your song and press play on your DAT machine.

15. When the recover procedure is done, "Complete-Please Stop DAT" will be displayed. Stop your DAT machine and press [YES] on the VS-880EX.

16. Press [PLAY (DISPLAY)] to return to Play mode.

Automated Mixing Using a MIDI Sequencer

This guide described the use of scenes for mixdown in an earlier section. You can also add dynamic automation for actual fader and other control movements by connecting an external MIDI sequencer to your VS-880EX. This automation function (as well as the built-in automation) can be very useful if you have a complicated mix requiring many level changes during the song.

ACTION: Automated Mixing Using a MIDI Sequencer

1. Connect the MIDI OUT of your sequencer/MIDI interface to MIDI IN of the VS-880EX and connect the MIDI OUT of the VS-880EX to MIDI IN of your sequencer/MIDI interface.

Note *Make sure that your sequencer is set to record MIDI Control Change messages.*

2. Press [SYSTEM] (under EDIT CONDITION) until "SYS MIDI PRM?" is displayed. Press [YES].

3. Press the right [PARAMETER>>] button until "SYS MID:MIDIThr=" is displayed. Use the TIME/VALUE dial to select "Out" (if it is not already selected).

4. Press the right [PARAMETER>>] button until "SYS MID:CtrLocal=" is displayed. Use the TIME/VALUE dial to select "On" (if it is not already selected).

5. Press the right [PARAMETER>>] button until "SYS MID:CtrType=" is displayed. Use the TIME/VALUE dial to select "C.C." (if it is not already selected).

6. Make sure that the VS-880EX and your sequencer are synced together (refer to the Application Guide page 116, if you are unsure how to do this) and record enable one of your sequencer tracks to record MIDI messages from the VS-880EX. Also, make sure that your sequencer does not reassign the MIDI channels of the incoming MIDI signal.

7. Set your sequencer to record mode and start playback on the VS-880EX. Hold [SHIFT] and press [SCENE] (this will send the initial mixer setting information to your sequencer where it will be recorded).

8. Adjust the track levels, panning, EQ, and effect settings on the VS-880EX as desired. All the settings and changes are sent as MIDI Control Change messages and recorded into your sequencer.

9. Set your sequencer to play mode, reset the song to the beginning, and start playback. The VS-880EX will now respond to the Control Change messages recorded into your sequencer to create an automated mix.

It is also possible to add dynamic automation for actual fader and other control movements within the VS-880EX itself. There are three methods for accomplishing this, and inputs and tracks can be automated independently.

ACTION: Realtime Automated Mixing

Realtime automated mixing allows you to record your fader and knob adjustments for automatic playback. This means you can perfect your 'mix' before you start recording on your master tape. The VS-880EX provides the option of automated mixing without any additional equipment.

1. Press [AUTOMIX] so it is lit.

2. Adjust the initial mixer settings as desired.

3. Press [ZERO]. Hold [AUTOMIX] and press [TAP].

4. Hold [AUTOMIX] and press [REC] (the display condition will alternate between PLY and mix).

5. Press [PLAY] and adjust the faders and knobs as desired.

6. Press [STOP] when you are finished.

7. Reset your song to the beginning and press [PLAY]. Marker points will be created automatically and you will hear your fader/knob adjustments in realtime.

Note *To hear your song without automation, press [AUTOMIX] so it is not lit.*

ACTION: Automated Mixing using Snapshots

Another type of automated mixing is referred to as 'snapshot' mixing. A 'snapshot' stores the current mixer settings at a certain point in time. This is very convenient for turning effects on or off, changing the track routing, etc. You can even have the effects that you are using change at any point in the song.

1. Press [AUTOMIX] so it is lit.

2. Adjust the initial mixer settings as desired.

3. Press [ZERO]. Hold [AUTOMIX] and press [TAP].

4. Advance the VS-880EX to the point in your song where you want the mixer settings to change.

5. Adjust the mixer settings as desired.

6. Hold [AUTOMIX] and press [TAP]. A marker will be created at that point.

7. Play your song from the beginning. When your song reaches that marker point you will hear the mixer settings change automatically.

(Continued)

ACTION: Automated Mixing using Gradation

The VS-880EX provides yet another type of automated mixing that is referred to as gradation. In this type of automation the VS-880EX will interpolate the settings between two marker points (snapshots). This is a very effective method for creating smooth fadeouts. Use the following procedure to create a fadeout using gradation:

1. Advance the VS-880EX to the time location where you want the fadeout to begin.

2. Press [AUTOMIX] so it is lit.

3. Adjust fader levels as desired. Hold [AUTOMIX] and press [TAP] (a marker will be created at that point).

4. Hold SHIFT and press SONG END [FF].

5. Move the master fader all the way down.

6. Hold [AUTOMIX] and press [TAP] (a second marker will be created at that point).

7. Hold [AUTOMIX] and press [PREVIOUS]. "GRADATION OK?" will be displayed.

8. Press [YES]. The mixer settings will automatically interpolate between the two marker points.

Creating A Tempo Map

A tempo map provides location and timing information about the bars and beats of your song. It describes the tempo of each song measure in BPM (beats per minute) and designates the location of each beat and fraction of a beat within each measure. This allows other devices to synchronize to your song.

ACTION: Creating A Tempo Map

1. Press [SYSTEM] (under EDIT CONDITION) until "SYS System PRM?" is displayed. Press [YES].

2. Press the right [PARAMETER>>] button until "SYS MetroOUT =" is displayed. Use the TIME/VALUE dial to select "INT."

Note *If you would prefer to use a MIDI sound module as the source for the metronome sound, select "MIDI" instead of "INT." The VS-880EX defaults to sending MIDI note C#2 on MIDI channel 10. These settings, as well as MIDI velocities can be changed in the MIDI Parameter menu of the VS-880EX.*

3. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to adjust the metronome level.

4. Press the right [PARAMETER>>] button and use the TIME/VALUE dial to set the metronome mode. This determines whether the metronome will play only in Record mode (Rec Only) or in Record and Play modes (Rec & Play).

5. Press [SYSTEM] (under EDIT CONDITION) until "SYS Sync/Tempo?" is displayed. Press [YES].

6. Press the right [PARAMETER>>] button until "SYS Syn:Gen.=" is displayed. Use the TIME/VALUE dial to select "MIDIclk."

7. Press the right [PARAMETER>>] button until "SYS Syn:Tmap 1=" is displayed.

8. Press the right [CURSOR>] button so that the tempo (120.0) is flashing. Use the TIME/VALUE dial to select the desired tempo for your song.

Note *Tempo Map 1 determines the initial tempo of the song and the measure number is fixed at measure 1.*

9. Press the right [CURSOR>] button so that the time signature (4/4) is flashing. Use the TIME/VALUE dial to select the desired time signature.

10. Press the right [CURSOR>] button until the Tmap "1" is flashing. Use the TIME/VALUE dial to select 2.

11. Use the right [<CURSOR>] buttons and the TIME/VALUE dial to set the new tempo, the measure number where Tempo Map 2 will take effect, and a new time signature (if desired).

12. Advance the VS-880EX to the next tempo map change and continue this procedure if you would like any additional changes. The VS-880EX allows up to 50 tempo maps (changes) per song.

13. Press [PLAY] and the metronome will reflect any tempo/meter changes that were made. If you play in time with the metronome while recording you will be in sync with the bar/beat display of the VS-880EX. This will make it easier for you to edit your song.

Using the Sync Track (3 methods)

The VS-880EX provides a separate Sync track for recording the tempo map from an external sequencer. This tempo map can then be used to synchronize the VS-880EX and an external MIDI sequencer.

ACTION: Recording a Sync Track from a MIDI Sequencer

1. Connect the MIDI OUT of your sequencer/interface to the MIDI IN of the VS-880EX and connect the MIDI OUT of the VS-880EX to the MIDI IN of your sequencer/MIDI interface.

Note *Make sure that your sequencer is set to transmit MIDI Clock messages.*

2. Press [SYSTEM] (under EDIT CONDITION) until "SYS Sync/Tempo?" is displayed. Press [YES].

3. Press the right [PARAMETER>>] button until "SYS Syn:Sync. Tr Rec?" is displayed. Press [YES]. If you already have a sync track recorded "Overwrite Sync?" will be displayed. Press [YES] if you want to replace the existing sync track with a new one.

4. "=Wait for Start=" will be displayed. Reset your sequencer song to the beginning and press play on the sequencer. Stop your sequencer when the song is finished. The VS-880EX will display "Complete!!" momentarily and then return to the play screen.

5. Press [SYSTEM] (under EDIT CONDITION) until "SYS MIDI PRM?" is displayed. Press [YES].

6. Press the right [PARAMETER>>] button until "SYS MID:MIDI Thr=" is displayed. Use the TIME/VALUE dial to select "Out" (if it is not already selected).

7. Press [SYSTEM] (under EDIT CONDITION) until "SYS Sync/Tempo?" is displayed. Press [YES].

8. Use the TIME/VALUE dial to select "Syn:Source= INT" if it is not already selected.

9. Press the right [PARAMETER>>] button and "Syn:Gen.=" will be displayed. Use the TIME/VALUE dial to select "SyncTr."

10. Set your sequencer so that it is slaved to MIDI Clock. Press [ZERO] on the VS-880EX followed by [PLAY]. Your sequencer should start to play in sync with the VS-880EX and the VS-880EX will now send out all of the tempo and meter changes that were contained in your original sequence.

ACTION: Generating a Sync Track & Tempo Map from Markers (Tap Tempo)

Markers can be used to generate the Sync Track. This is very useful for syncronizing a sequencer or drum machine with a song that was recorded without using the metronome. The first step in this process is to assign markers in time with your song.

Assigning markers according to tempo:

1. Hold [SHIFT] and [CLEAR], then press [TAP] to clear any existing markers.

2. Press [ZERO] followed by [PLAY].

3. While listening to your song, press [TAP] at the beginning of each measure or beat. Press [STOP] when you are finished.

(Continued)

(Generating a Sync Track & Tempo Map from Markers (Tap Tempo), Continued)

Creating a Sync Track from marker points:

1. Press [SYSTEM] until "SYS Sync/Tempo" is displayed. Press [YES/ENTER].

2. Press the right [PARAMETER>>] button until "Syn:Gen=" is displayed.

3. Use the TIME/VALUE dial to select "SyncTr."

4. Press the right [PARAMETER>>] button until "Sync.Tr Cnv?" is displayed. Press [YES/ENTER].

5. Use the TIME/VALUE dial to select "CV1=Tap ->S.Tr."

6. Press the right [PARAMETER>>] button until "CV:Beat=" is displayed and use the TIME/VALUE dial to select the amount of beats in each measure.

7. Press the right [PARAMETER>>] button until "CV:Tap Beat=" is displayed and use the TIME/VALUE dial to select the number of markers in each measure. For example, if your song has 4 beats per measure and you created a marker for every beat, you would select "4." If you created a marker at the beginning of each measure, you would select "1."

8. Press [YES/ENTER] (if a Sync Track or Tempo Map already exists, "Overwrite Sync" and/or "Overwrite Tempo" will be displayed. Press [YES/ENTER]). "Now Working" will be displayed and a new Sync Track will be created.

9. Connect the MIDI OUT of the VS-880EX to the MIDI IN of your sequencer/MIDI interface. Set your sequencer to sync to MIDI Clock.

10. Press PLAY on the VS-880EX and your sequencer will play in sync with your song.

ACTION: Generating a Sync Track from Start & End Times

Another way to create a Sync Track is by inputting the start time, end time, and total number of measures for your song. If your song has a constant tempo you can use this method and let the VS-880EX do the math for you.

1. Press SYSTEM until "SYS Sync/Tempo" is displayed. Press [YES/ENTER].

2. Press the right [PARAMETER>>] button until "Syn:Gen=" is displayed.

3. Use the TIME/VALUE dial to select "SyncTr."

4. Press the right [PARAMETER>>] button until "Sync.Tr Cnv?" is displayed. Press [YES/ENTER].

5. Use the TIME/VALUE dial to select "CV4=Time ->S.Tr."

6. Press the right [PARAMETER>>] button until "SYS:St=" is displayed and use the TIME/VALUE dial to select the start time of your song (you can also use locate points or [SHIFT & SONG TOP]).

7. Press the right [PARAMETER>>] button> until "SYS:End=" is displayed and use the TIME/VALUE dial to select the end time of your song (you can also use locate points or [SHIFT & SONG END]).

(Continued)

8. Press the right [PARAMETER>>] button until "SYS CV4:Measure=" is displayed and use the TIME/VALUE dial to select the number of measures in your song.

9. Press PARAMETER>> until "SYS CV4:Beat=" is displayed and use the TIME/ VALUE dial to select the number of beats in each measure.

10. Press [YES/ENTER]. "Overwrite Tempo?" will be displayed, press [YES/ENTER] and a Sync Track will be created.

Note *The Sync Track offset allows you to start your Sync Track at a time other than 00h00m00s00f (since most recordings do not actually begin at this time). Set the offset to match the time location where your recording actually begins.*

Offsetting the Sync Track

1. Press SYSTEM until "SYS Sync/Tempo" is displayed. Press [YES/ENTER].

2. Press PARAMETER>> until "SYS Ofs=" is displayed and use the TIME/VALUE dial to select the time location for the beginning of the Sync Track (you can also use locate points or the numeric buttons to do this).

3. Press [PLAY/DISPLAY] to return to Play condition.

Preparing a Song for CD Burning

If you have the VS-CDR (optional), you can create an audio CD of your music directly from the VS-880EX. You can then add additional songs to your CD or "finalize" your CD so it can be played on ordinary CD players.

You will need to bounce your tracks to a stereo mix (page 68 of this guide) on tracks 7-1 and 8-1, use the Track Cut and Track Insert functions to adjust the space at the beginning and end of your song (see pages 75 and 77 of this guide), and listen to your "mastered" version of your song to determine if any final adjustments are necessary.

ACTION: Auditioning Your Stereo Mix for CD Burning

Note *Only songs using a 44.1kHz sampling rate can be written to the CD-R.*

1. Hold [SHIFT] and press [AUX SEND] (CH EDIT button 6).

2. Press the [CH EDIT] button 7.

3. Press the [PARAMETER>>] button and use the TIME/VALUE dial to select "Channel Link = On."

4. Press the [PARAMETER>>] button until "TRd FX1 Ins" is displayed and use the TIME/VALUE dial to select "Off."

5. Press the [PARAMETER>>] button so that "TRd EFFECT 1" is displayed and use the TIME/VALUE dial to select "Off."

6. Press the [PARAMETER>>] button so that "TRd FX2 Ins" is displayed and use the TIME/VALUE dial to select "Off."

7. Press the [PARAMETER>>] button so that "TRd EFFECT2" is displayed and use the TIME/VALUE dial to select "Off."

8. Hold [SHIFT] and press [ASSIGN] (CH EDIT button 1).

9. Press the [PARAMETER>>] button so that "TRd ATT" is displayed and use the TIME/VALUE dial to select "0dB."

10. Press the [PARAMETER>>] button until "TRd EQ Switch" is displayed and use the TIME/VALUE dial to select "Off."

11. Press [PLAY/DISPLAY] to return to the main play screen and make sure that the [AUTOMIX] button is not lit.

12. Press the [STATUS] button 7 until it lights green (play mode). Press the [STATUS] buttons 1-6 so they are not lit (mute).

13. Raise the [FADER] for channel 7 to 0dB and set the pan position to 12 o'clock (straight up).

14. Reset your song to the beginning and press [PLAY] to hear your song as it will sound on the CD. If any mixer settings such as level, effects, or EQ do not sound the way you want them to, make the necessary adjustments and bounce the tracks again. Then, repeat these steps for the new tracks until you are satisfied with the results.

Writing One Song to CD

The combination of the VS-880EX and the VS-CDR (optional) allows you to create your own audio CDs. This allows you to keep your audio in the pristine digital domain from the initial recording stage through to the finished CD. The VS-880EX is capable of recording a song to the CD and then adding additional songs to that same CD at a later time. This process is sometimes referred to as the "track-at-once" method and is appropriate when you want to combine different VS-880EX songs onto a single CD. The VS-CDR can be used to audition your CD until you are finished adding songs, at which point it can be finalized for playback on consumer CD players.

You will connect the VS-CDR to the VS-880EX via the SCSI port (make sure and turn on the VS-CDR first). Then, you will insert a blank recordable CD into the VS-CDR, select tracks 7-1 and 8-1 as the source tracks for the CD, and write the song to the CD without finalizing it. Make sure that your song is prepared for the CD (Application Guide page 106) and that Virtual Track A-1 is selected for tracks 7 and 8.

ACTION: Writing Tracks 7-1 and 8-1 to CD

Note *Only songs using a 44.1kHz sampling rate can be written to the CD-R.*

1. Insert a blank recordable disc into the VS-CDR. (Roland recommends the Mitsui brand.)

2. Press [SONG] (under EDIT CONDITION) until "SNG CD-R Write?" appears in the display.

3. Press [YES]. The VS-880EX will scan the SCSI IDs looking for the VS-CDR and "SNG Write+Finalize?" will appear in the display.

4. Press the [PARAMETER>>] button until "Write w/o Finalize?" is displayed.

5. Press [YES].

6. Press the [CH EDIT] button 7 to select track 7-1 as the source for the left side of the CD and press [YES].

7. Press the [CH EDIT] button 8 to select track 8-1 as the source for the right side of the CD. "L= 7-1 / R= 8-1" will be displayed.

8. Make sure that the top number in the display (under MEASURE/BEAT) is smaller than the bottom two numbers (under SYNC MODE/SCENE and REMAINING TIME). Then, press the [PARAMETER>>] button so that "SNG CD-R Write Sure?" is displayed.

9. Press [YES] and "SNG CD Track No. OK?" will be displayed.

10. Press [YES] and "Obey Copyrights?" will be displayed. Carefully read the License Agreement on the back cover of the VS-880EX Owner's Manual. If you agree to the terms, press [YES] to begin writing the CD. Otherwise, press [NO] to abort the CD Write function.

11. When the write procedure is finished, "Write Another?" will be displayed. If you would like another copy of the CD, insert a blank recordable CD into the VS-CDR and press [YES]. Otherwise, press [NO].

The VS-880EX allows you to create a single VS-880EX song that contains multiple tracks for the CD, adjust the timing between the tracks, place CD Markers (track indexes) for the songs, and write the entire CD project to CD at one time. This method is sometimes referred to as the "disk-at-once" method and is usually the preferred method by professional CD duplicators.

You will need to have all the songs for the CD combined within one VS-880EX song. You can do this by recording them that way from the beginning or by mixing your songs to an external device, such as a DAT machine (page 88 of this guide), and then re-recording your mixed down songs back into a single VS-880EX song. Then, you can use the Track Cut and Track Insert functions to adjust the timing between your songs, place CD Markers for your songs, and write and finalize your songs to CD so it can be played on any CD player. Make sure that your songs are prepared for CD (page 106) and that Virtual Track A:1 is selected for tracks 7 and 8.

ACTION: Writing Multiple Songs to the CD at Once

Note *Only songs using a 44.1kHz sampling rate can be written to the CD-R.*

1. Use the Track Cut and Track Insert functions to adjust the timing between 00h00m00s00 and the start of your first song (pages 75 and 77 of this guide).

2. Use the Track Cut and Track Insert functions to adjust the timing between the remaining songs as desired (pages 75 and 77 of this guide).

3. Advance the VS-880EX to the start of the second song (use the SCRUB and PREVIEW commands if necessary).

4. Hold [SONG] and press [TAP] to set the CD Marker for your second song. The VS-880EX automatically places a CD Marker for the first song at 00h00m00s00. CD Markers are distinguished from other markers by a "+" sign after the marker (e.g., 001+).

5. Repeat steps 3-4 for the remaining songs.

6. Place a blank recordable disc into the VS-CDR (Roland recommends the Mitsui brand).

7. Press [SONG] (under EDIT CONDITION) until "SNG CD-R Write?" is displayed.

8. Press [YES]. The VS-880EX will scan the SCSI IDs looking for the VS-CDR and "SNG Write+Finalize?" will appear in the display.

9. Press [YES].

10. Press the [CH EDIT] button 7 to select track 7-1 as the source for the left side of the CD and press [YES].

11. Press the [CH EDIT] button 8 to select track 8-1 as the source for the right side of the CD. "L= 7-1 / R= 8-1" will be displayed.

12. Make sure that the top number in the display (under MEASURE/BEAT) is smaller than the bottom two numbers (under SYNC MODE/SCENE and REMAINING TIME). Then, press the [PARAMETER>>] button so that "SNG CD-R Write Sure?" is displayed.

13. Press [YES] and "SNG CD Track No. OK?" will be displayed.

14. Press [YES] and "Obey Copyrights?" will be displayed. Carefully read the License Agreement on the back cover of the VS-880EX Owner's Manual. If you agree to the terms, press [YES] to begin writing the CD. Otherwise, press [NO] to abort the CD Write function.

15. When the write procedure is finished, "Write Another?" will be displayed. If you would like another copy of the CD, insert a blank recordable CD into the VS-CDR and press [YES]. Otherwise, press [NO].

Since hard disk drives are mechanical devices, they are more subject to failure than any other part of your VS-880EX. If your hard disk develops a problem or fails for any reason, you may loose all the songs stored on that disk. It is a good idea backup your songs often.

Also, you will need to backup your songs on the internal hard drive to create room for new songs. The VS-880EX allows you to backup your song data, including all Virtual Tracks, mixer settings, and effects parameters, to inexpensive CD-R media using the VS-CDR (optional). You can also backup your songs to re-writeable CD-RW media. CD-RW media can be erased and reused, making it ideal for backing up songs in progress.

ACTION: Backing Up Your Internal Hard Drive to CD-R

1. Insert a blank recordable CD into the VS-CDR (Roland recommends the Mitsui brand).

2. Press [SONG] (under EDIT CONDITION) until "CD-R Backup?" is displayed.

3. Press [YES] and "Store Current?" will be displayed. If you have made any changes you wish to keep that have not already been saved, press [YES]. Otherwise, press [NO].

4. Use the TIME/VALUE dial to select "ALL Song" and press [YES] to begin backing up your hard drive to the CD-R. If your songs are too large to fit on a single disc, the VS-880EX will prompt you to insert as many discs as necessary to store your data. Insert the discs as requested and label them clearly. It is important that the CDs are inserted in the proper order for the backup and recover procedures to operate correctly.

Note

Songs that use a sample rate other than 44.1kHz can be backed up using the CD Backup procedure. The VS-880EX is sending data to the VS-CDR, not audio, so it is important that you don't try to play backup CDs on normal CD players. Damage to your speakers may occur if you try and do so. Backup CDs can be loaded back into the VS-880EX by using the CD Recover function (page 110 of this guide).

Loading Songs From CD-R

You can load songs stored on a CD-R disc with the CD Backup function back into the VS-880EX's internal hard drive by using the CD Recover procedure. Your songs can then be played back in their original form. You can also edit and/or record new tracks to your song as well. If you make changes to your song that you would like to keep, you will need to save them and repeat the CD Backup procedure (Application Guide page 109) for your backup to reflect the changes.

ACTION: Loading Songs From CD-R (CD Recover)

1. Insert the desired backup CD into the VS-CDR.

2. Press [SONG] (under EDIT CONDITION) until "CD Recover?" is displayed.

3. Press [YES] and "Store Current?" will be displayed. If you have made any changes you wish to keep that have not already been saved, press [YES]. Otherwise, press [NO].

4. Use the TIME/VALUE dial to select the desired song (to load all songs on the disc, select "All") and press [YES] to begin loading your song(s) from CD.

Warning !!!! *If you select "All" in step 4, "INIT IDE:0" will be displayed. The VS-880EX is prompting you to initialize your internal hard drive before loading the songs from the CD. If you would like to erase all the songs currently on your internal hard drive and replace them with the songs on the CD, press [YES]. If you would like to keep the songs on your internal hard drive and load the songs on the CD in the remaining space, press [NO].*

5. If your CD backup consists of multiple discs, you will be prompted to insert the discs as needed. After inserting the necessary disc, press [YES].

6. After the CD Recover procedure is complete, press [PLAY/DISPLAY] to return to the main play screen. You can use the Song Select procedure (from the SONG menu under EDIT/CONDITION) to select the desired song.

Tips & Features

The following section contains some tips and suggestions that should increase your speed and effectiveness when working with the VS-880EX.

Using The 'Narration' Effect

The VS-880EX contains two powerful built-in effects processors, one particular effect is very useful when recording narration or voice dialogue. If you use the NARRATION effect in the Insert mode of your incoming microphone channel, it provides all the following features from a single effect setting:

- Noise suppression - This would help with a less than acceptable recording level or to help eliminate background noise.

- Limiter/De-esser - Both are very valuable features for voice work of any kind.

- Enhancer - Works like a basic vocal exciter.

- EQ - A true 3 band parametric EQ with peak and shelving - this EQ is in addition to the normal EQ section of the VS-880.

- Pitch Change - Very effective for changing the characteristics of a voice.

- Delay - Up to 1 sec., with feedback effect available.

- Chorus - For that special effect to make the voice sound "larger" or like more than one voice.

Using the [SHIFT] Button to Speed Up Operations

- When editing effects, use [SHIFT]+[PARAMETER] buttons to jump quickly between each section or block of the effect you are editing.

- If you hold the [SHIFT] button when using the TIME/VALUE dial for selecting alphabetic characters when entering names, it will speed up the operation.

- If you hold the [SHIFT] button when using the TIME/VALUE dial for selecting measures or markers in the LCD display, it will speed up the operation.

[SHIFT] + [PLAY (DISPLAY)] Displays Waveforms in Edit Modes

- You don't have to enter Scrub mode to see the waveforms during the middle of an edit. Press [SHIFT] + [PLAY (DISPLAY)] during the edit to show the audio waveform in the LCD.

[SHIFT] + [SONG] Displays Song Information

- Press the [PLAY (DISPLAY)] button, then press [SHIFT] + [SONG] to display information about the current song (Name, Song #, Sample Rate, Recording Mode, Remaining Storage Available on Disk). Use [SHIFT] + [PREVIEW TO] to Change The Preview Length

Use [SHIFT] + [SCRUB] to Change The Scrub Length

Use [SHIFT] + [SYSTEM] to Toggle Int / Ext Sync

Use 'Archive' Copy Mode to copy to multiple ZIP disks

- If your song files are larger than 100 Mbytes, you can copy them to multiple Zip disks. The VS-880EX will prompt you to insert the next ZIP disk when it's needed.

Vari-Speed Functions in Scrub Mode

- You can use Vari-Speed while operating in the Scrub Preview mode to alter the pitch of the preview playback.

Keep Original Tracks When Bouncing

- Use Virtual Tracks to keep your original vocals or guitars after bouncing them.

- Use a Scene to store the exact levels and effects for later remixing if necessary.

Use the Correct Scrub Direction

- Scrub up TO the beginning of a transient sound or phrase.

- Scrub FROM to find the End of a phrase.

Use a Longer Scrub Preview Length.

Use a longer length Scrub Preview for some sounds.

- Sometimes it is useful to use a longer Scrub Preview length. For example, a vocal note may be easier to find using the maximum length of scrub preview - 100 ms.

Change Track Status Quickly

- Press [STOP] + [STATUS] buttons to select Play mode.

- Press [REC] + [STATUS] buttons to select Record Ready mode.

Use Locators For Editing Functions

Using the same locate numbers consistently will speed up your work.

- 1=Start

- 2=From

- 3=End

- 4=To

Use [NUMERICS] for Precise Time Code or Measure Location

Record First Using the Metronome

- Set up a tempo map first and then record with internal metronome click and/or external MIDI gear. This provides you the easiest and fastest way to edit by bars and beats.

Display Shows Scrub or Preview Type

- When you are using SCRUB or PREVIEW, a blinking horizontal bar at the bottom of the LCD screen on either side of the center "now" line indicates Preview From (right side of the "now" line) or Preview To (left side of the "now" line).

Additional Equalizers in the Built-In Effects

The VS-880EX's built-in effects processors not only contain many useful effects, they also contain a stereo 4 band fully parametric equalizer (configurable as 8 bands in mono), and a stereo 10 band graphic equalizer.

Additional Recording Time

An additional hard disk drive can be added to your VS-880EX to increase the storage capacity for additional recordings (see Appendices page 5, "About SCSI"). Some removable media drives may work with your VS-880EX. See your Roland dealer for information.

[Note] *You cannot record continuously from the internal disk to the external disk. Your entire song must fit on one disk or the other.*

Synchronizing Your VS-880EX

The VS-880EX has extensive synchronizing capabilities which are explained in the V-Xpanded Owner's Manual, Chapter 5. However, there are a few important items to remember.

Slave Mode - Master Mode

When the VS-880EX is operated in Slave mode, some external device is controlling the VS-880EX (i.e., the VS-880EX is "slaved" to an external "master"). The VS-880EX is capable of slaving to MTC (MIDI Time Code) or MMC (MIDI Machine Control).

[TECH INFO] *When the VS-880EX is operated in Slave Mode, the sample clock will "resolve" to the sync signal. This is very important to keep the VS-880EX from drifting in time.*

When the VS-880EX is operated in Master mode, it becomes the controlling device for external "slave" devices. The VS-880EX will output MTC (MIDI Time Code), MMC (MIDI Machine Control), SPP (Song Position Pointer) from the Tempo Map, or SPP (Song Position Pointer) from the alternate Sync Track.

Sync Track

The VS-880EX provides a special Sync Track. A complete tempo map including MIDI clock and Song Position Pointer can be recorded from an external sequencer, into the VS-880EX's Sync Track. The Sync Track can then be used to synchronize the sequencer and the VS-880EX (see page 103 of this guide).

Stereo Grouping / Channel Linking

When working with stereo signals, the Channel Link function allows you to link two channels together so that they respond as a stereo pair (see Owner's Manual - page 149).

Automation

- In addition to MIDI automation, there are three types of automation built into the VS-880EX: Realtime, Snapshot and Gradation. (see pages 99-101 of this guide).

SMPTE time code and the VS-880EX

The VS-880EX sends and receives MTC (MIDI Time Code). MTC is traditional SMPTE time code embedded in a MIDI signal. If you have an external device that will ONLY send or receive SMPTE Time Code, you can obtain an external SMPTE - MIDI translator. For example, the MIDIMAN 'Video Syncman' device translates MTC to SMPTE and SMPTE to MTC.

Sync multiple VS-880EX's together

Multiple VS-880EXs can be synchronized using a MIDI cable. The transport controls from the master unit can control the slave unit(s) and you can route the audio from each slave unit to the mix output of the master unit for recording a two track mix to DAT, cassette, etc. This is great if you need additional tracks, or if you want to expand the capabilities of your studio (inputs, effects, etc.).

SYNC:

You can use Digital Word Clock to synchronize the timing of multiple VS-880EXs. Make sure that the sampling rate for the current song is the same on all units and that all units, with the exception of the final VS-880EX in the chain, have their master clock set to Digital. Check that the master VS-880EX is set to transmit system exclusive messages as the MMC master and that all other VS-880EXs are set to receive system exclusive messages as MMC slaves.

AUDIO:

You can connect the Digital Out port from the slave units to the Digital In port of the next VS-880EX in the chain. Set the master Stereo In to Digital, and the master Stereo In Balance to zero for all units with the exception of the final VS-880EX in the chain. You can use the master Stereo In Level on each of the VS-880EXs to control the overall level of the unit connected to its Digital In port. The audio from all units will be present in the mix output of the master VS-880EX.

DAT Recorder

Digital Mix
and Digital Clock

MIDI Sync via MMC

Digital Mix of all audio
tracks from all VS-880EX's

Master Unit
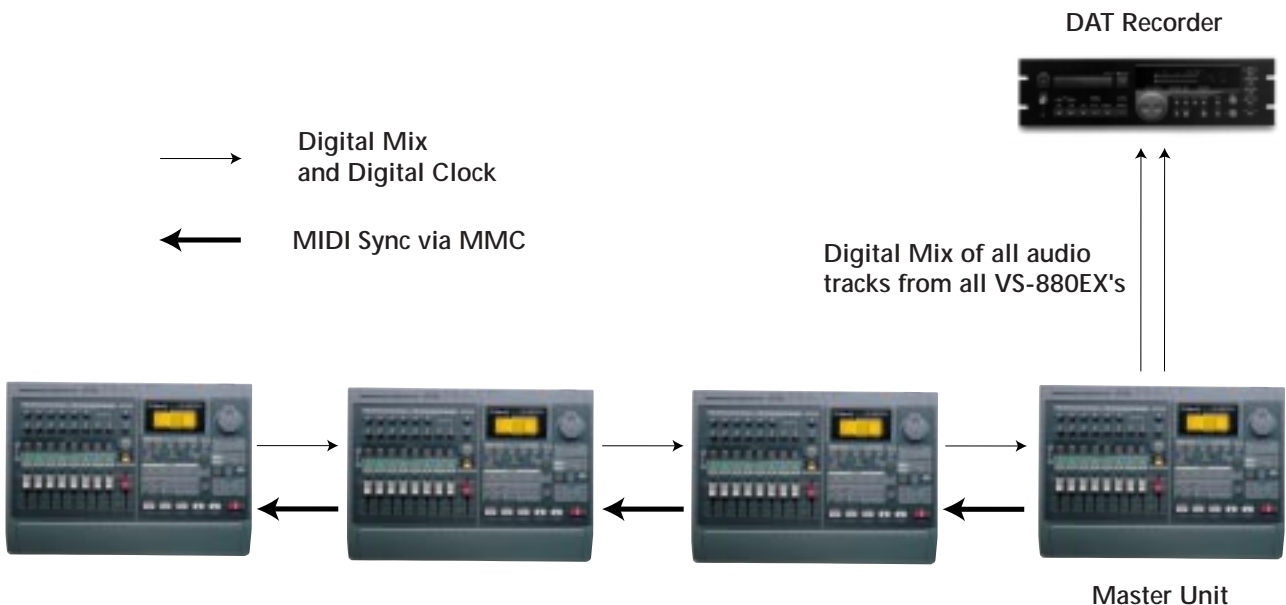
VS-880EX with a Digital Sampler

Because the VS-880EX has digital inputs, it is a natural companion for a digital sampler.

SYNC:

You can use MIDI Time Code, MIDI Machine Control, or MIDI Clock to synchronize your sequencer with the VS-880EX. If possible, set aside a port on your MIDI interface for the VS-880EX and use a different port for your sampler(s). If you are using the VS-880EX as the master device sending MIDI Time Code, make sure that you connect the MIDI OUT connector of the VS-880EX to the MIDI IN connector of the sequencer. Make sure that MIDI Thru is set to Out and that the sync source is set to internal. You will also have to set the VS-880EX to generate MTC and make sure that the frame rate matches that of your sequencer (the VS-880EX defaults to a frame rate of 30). Also, remember to set your sequencer to sync to incoming MIDI Time Code.

AUDIO:

Connect the analog and/or digital output of your sampler to the corresponding input on the VS-880EX to record or monitor your sampler on the VS-880EX. If you are using digital connections make sure that sampling rate of your sampler matches that of the current song on the VS-880EX. With this setup it is also possible to create an automated mix by recording your fader movements into your sequencer as either MIDI Control Change or System Exclusive messages.

Computer with
Serial Cable
connection

MIDI Interface

S-760 Digital Sampler

MIDI

Analog Audio   Digital Audio

MIDI Sync via
MMC, MTC

Digital Mix to DAT
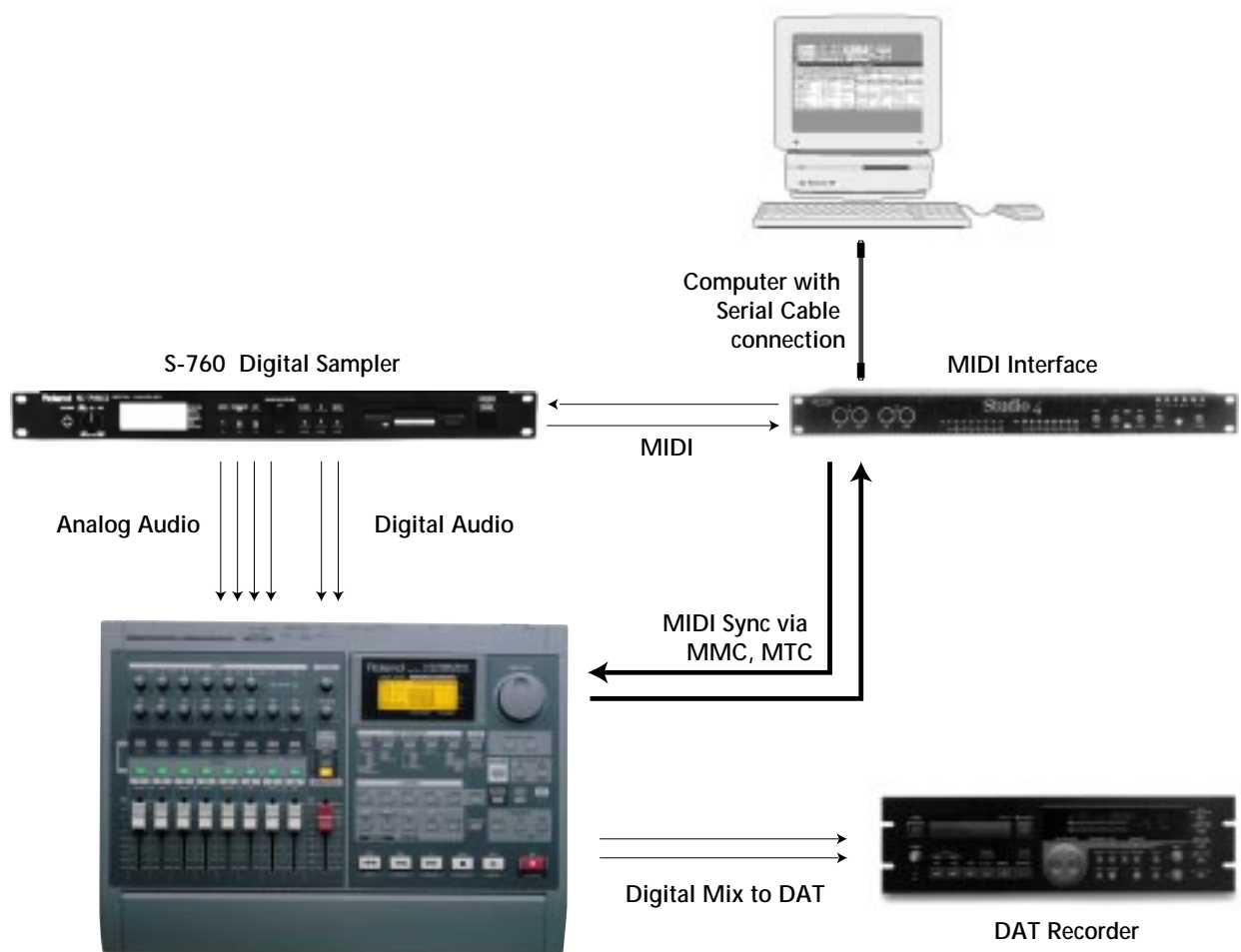
DAT Recorder

Sync VS-880EX to Analog Tape Recorder

The VS-880EX can work together with your analog recorder.

SYNC:

You can use SMPTE Time Code in conjunction with a SMPTE to MIDI Time Code converter (such as the Video Syncman by MIDIMAN) to synchronize an analog tape deck with the VS-880EX. You will need to record (stripe) SMPTE onto a track of your analog deck and connect the output of that track to the SMPTE input of the SMPTE to MTC converter. Connect the MIDI OUT connector of the converter to the MIDI IN connector of the VS-880EX and set the VS-880EX to external sync. Make sure that the SMPTE frame rate of the converter matches that of the VS-880EX (which defaults to 30).

AUDIO:

You can connect the audio outputs of the tape deck (with the exception of the track striped with SMPTE) to your mixer and then route the mixer outputs to the analog inputs of the VS-880EX. This will allow you to transfer tracks from your analog deck to the VS-880EX (up to 6 at a time) for digital editing or mastering.

SMPTE

MIDIMAN
Video Syncman

Analog
Audio

MIDI Sync Via MTC

Digital Mix to DAT

DAT Recorder
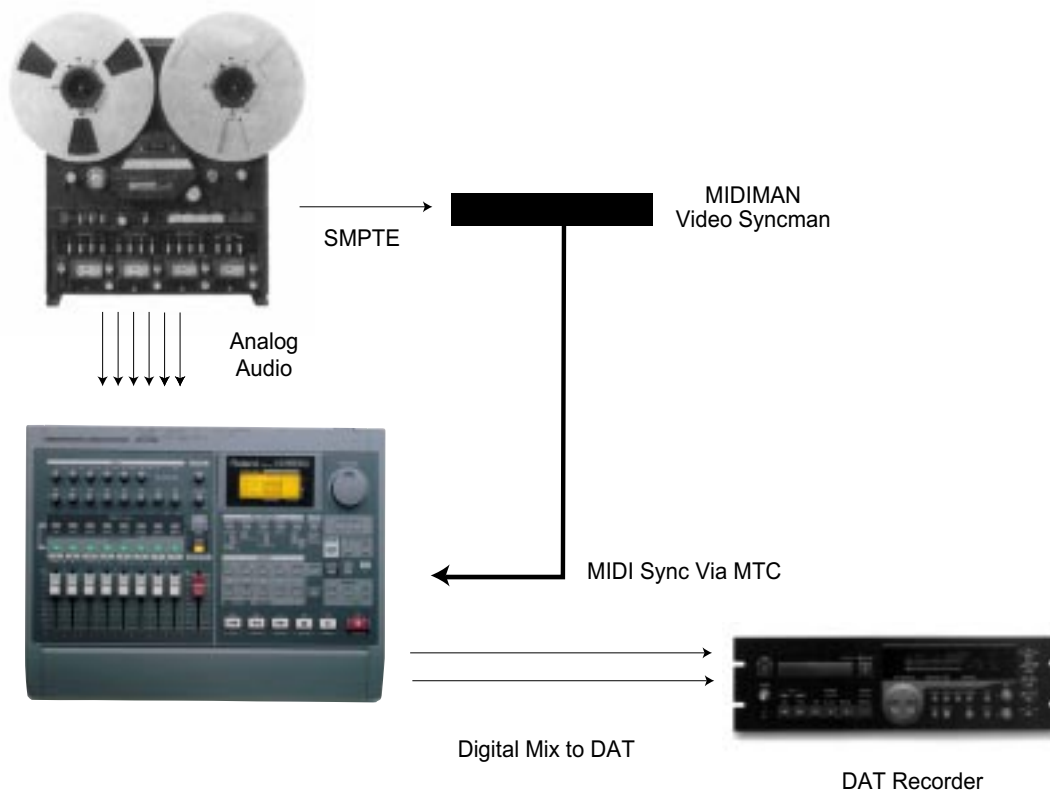
Sync VS-880EX to ADAT

SYNC:

You can synchronize the VS-880EX with an ADAT system by using MIDI Time Code and/or MIDI Machine Control messages generated from the Alesis BRC (the Alesis AI 2 or JL Cooper Datasync can be used in place of a BRC). You will need to connect the MIDI OUT connector of the BRC (or AI 2) to the MIDI IN connector on the VS-880EX and, if you are using MMC, connect the MIDI OUT connector of the VS-880EX to the MIDI IN connector of the BRC (or AI 2). Set the VS-880EX to external sync and match the frame rate of the BRC (the VS-880EX frame rate defaults to 30). If you are using MIDI Machine Control messages set the VS-880EX as the MMC slave and turn Receive System Exclusive messages on.

AUDIO:

To transfer tracks back and forth between the ADAT and the VS-880EX you can use the analog connections (up to 6 tracks at a time) or the digital connections (up to 2 tracks at a time into the VS-880EX or 4 tracks at a time into the ADAT). When using the analog connections you can connect the outputs of the ADAT to the inputs of the VS-880EX to record ADAT tracks onto the VS-880EX (reverse the connections to record VS-880EX tracks onto the ADAT). An analog mixer can be used to increase the signal routing options. When using the digital connections you will need to use the Alesis AI 1 to convert the Alesis digital signal to the coaxial S/P DIF signal used by the VS-880EX. Connect the digital out connector of the AI 1 to the digital in connector of the VS-880EX and connect the digital out connector of the VS-880EX to the digital in connector of the AI 1. You will need to make sure that the sampling rate of the AI 1 matches that of the current song in the VS-880EX.

ADAT is a registered trademark of Alesis Corporation.

Alesis AI 1   ADAT

Alesis BRC

MIDI Sync Via
MMC, MTC

Mixer (optional)

Digital Audio   Analog Audio
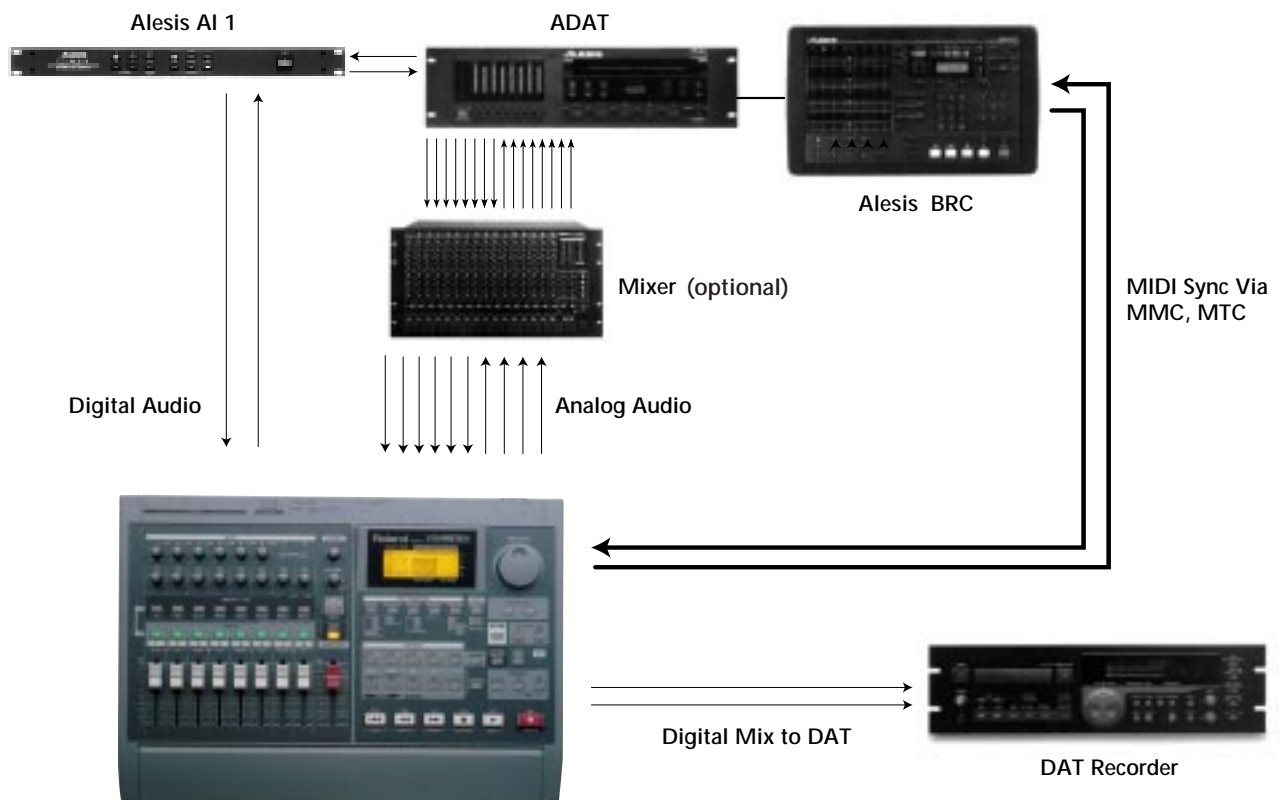
Digital Mix to DAT

DAT Recorder

Sync VS-880EX to DA-88

SYNC:

You can synchronize the VS-880EX with an DA-88 system by using MIDI Time Code and/or MIDI Machine Control messages generated from the DA-88 (equipped with an SY-88 sync card). You will need to connect the MIDI OUT connector of the DA-88 to the MIDI IN connector on the VS-880EX and, if you are using MMC, connect the MIDI OUT connector of the VS-880EX to the MIDI IN connector of the DA-88. Set the VS-880EX to external sync and match the frame rate of the DA-88 (the VS-880EX defaults to a frame rate of 30). If you are using MIDI Machine Control messages set the VS-880EX as the MMC slave and turn Receive System Exclusive messages on.

AUDIO:

To transfer tracks back and forth between the DA-88 and the VS-880EX you can use the analog connections (up to 6 tracks at a time) or the digital connections (up to 2 tracks at a time into the VS-880EX and 4 tracks at a time into the ADAT). When using the analog connections you can connect the outputs of the DA-88 to the inputs of the VS-880EX to record DA-88 tracks onto the VS-880EX (reverse the connections to record VS-880EX tracks onto the DA-88). An analog mixer can be used to increase the signal routing options. When using the digital connections you will need to use the Tascam IF-88AE to convert the Tascam digital signal to the S/P DIF signal used by the VS-880EX. Connect the IF-88AE to the DA-88. Connect the digital out connector of the IF-88AE to the digital in port of the VS-880EX and connect the digital out connector of the VS-880EX to the digital in connector of the IF-88AE. You will need to make sure that the DA-88 tape is formatted for the same sampling rate as that of the current song in the VS-880EX.

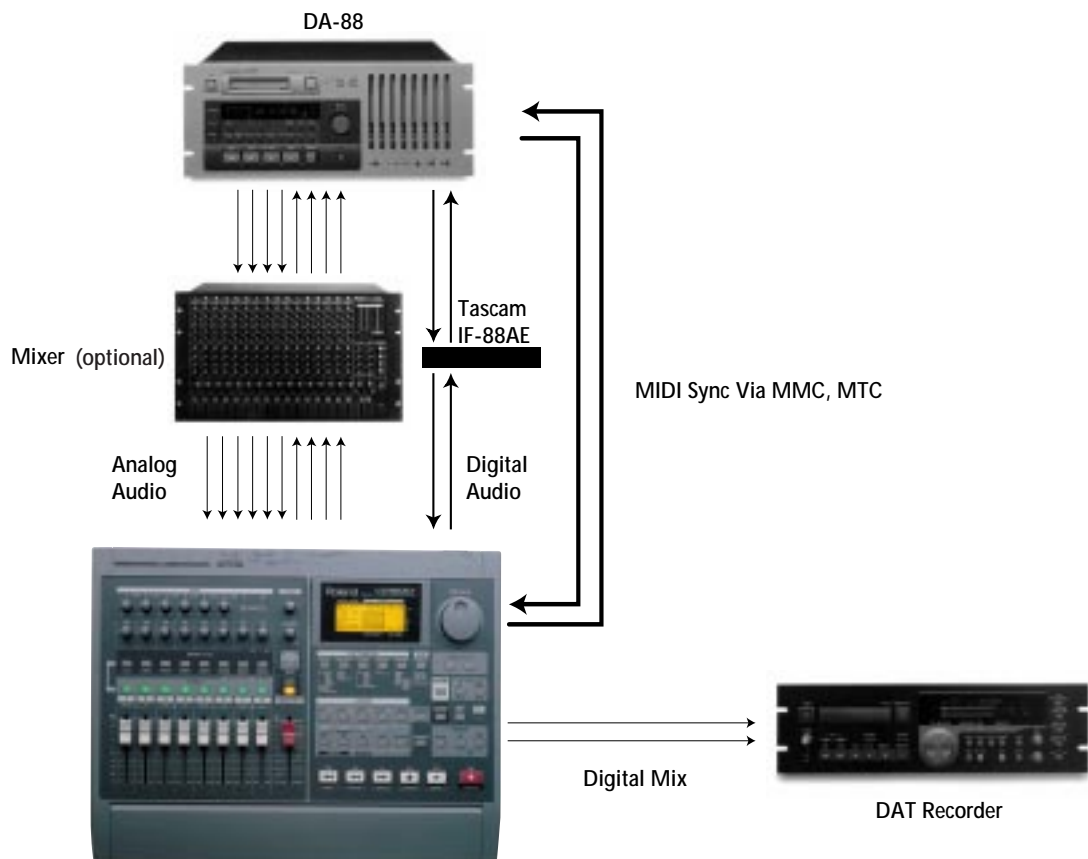Tascam is a registered trademark of TEAC Corporation.

Sync VS-880EX with Computer Sequencer

The VS-880EX is a natural partner for a sequencer. There are many ways that the two can work together.

SYNC:

You can use MIDI Time Code, MIDI Machine Control or MIDI Clock to synchronize your computer with the VS-880EX. If possible, set aside a port on your MIDI interface for the VS-880EX and use a different port for your other MIDI devices. Connect the MIDI INs and OUTs of the VS-880EX to the MIDI Interface as shown in the diagram below. In this setup, the VS-880EX can act as the master or the slave.

To use the VS-880EX as the master device sending MIDI Time Code, make sure that MIDI Thru is set to Out and that the sync source is set to internal. You will also have to set the VS-880EX to generate MTC and make sure that the frame rate matches that of your sequencer (the VS-880EX defaults to a frame rate of 30). To respond, the computer sequencer must be setup to sync to incoming MIDI Time Code.

AUDIO:

Connect the audio outputs of your keyboard to the audio inputs of the VS-880EX. You can use the [FADER/EDIT] button to determine whether the faders control the output of your keyboard or your playback tracks. You can record fader movements of the VS-880EX to the computer sequencer. For mixdown, connect the digital out of the VS-880EX to your DAT machine.
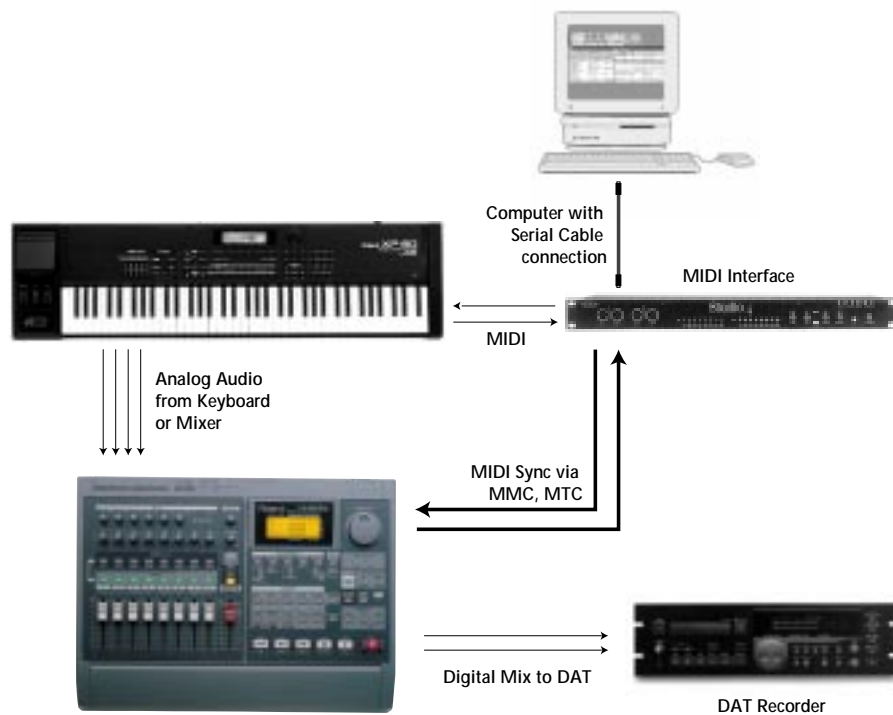
Sync VS-880EX to Drum Machine or MIDI Sequencer

The VS-880EX can easily synchronize with your drum machine or sequencer using Song Position Pointer.

SYNC:

If your sequencer does not support MIDI Time Code or MIDI Machine Control you must use MIDI Clock to synchronize it with the VS-880EX. Connect the MIDI IN and OUT ports of the VS-880EX to your MIDI sequencer (or drum machine) as shown in the diagram below. For this setup, the VS-880EX must be the master. Make sure that the VS-880EX's sync source is set to internal. The VS-880EX must be set to generate MIDI Clock and the MIDI Thr must be set to Out. To respond, the MIDI sequencer (or drum machine) must be set to MIDI Sync.

AUDIO:

Connect the audio outputs of your MIDI devices to the audio inputs of the VS-880EX. You can use the [FADER/EDIT] button to determine whether the faders control the output of your MIDI devices or your playback tracks. You can record fader movements of the VS-880EX to the MIDI sequencer. For mixdown, connect the digital out of the VS-880EX to your DAT machine.

MIDI Sequencer or Drum Machine

Analog Audio

MIDI Sync via Song Position Pointer

Digital Mix to DAT

DAT Recorder
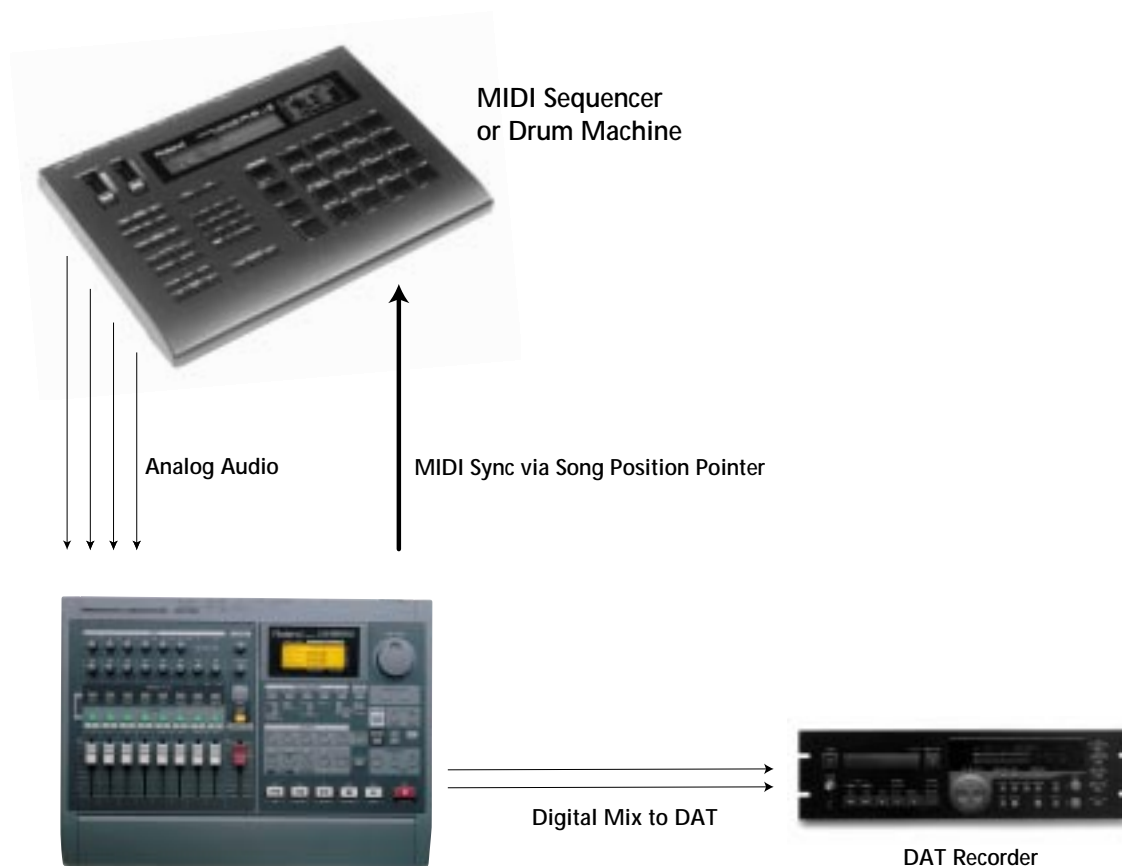
Sync VS-880EX to Video

You can do video post production with the VS-880EX.

SYNC:

You can synchronize a video deck with a VS-880EX by using a SMPTE generator/converter (such as the Video Syncman by MIDIMAN) to generate SMPTE Time Code for the video deck and convert that to MIDI Time Code for the VS-880EX. If your video tape is not already striped with SMPTE Time Code you will need to record (stripe) SMPTE to one of the audio tracks on the tape. Connect the audio output of that track to the SMPTE input on the converter. Connect the MIDI OUT connector of the converter to the MIDI IN connector of the VS-880EX. Set the VS-880EX to external sync and make sure that the SMPTE frame rate of the converter matches that of the VS-880EX (which defaults to 30).

AUDIO:

You can connect the audio output(s) of the video deck (with the exception of the SMPTE striped track) to the VS-880EX inputs for recording the audio from the video tape onto the VS-880EX for editing purposes. You can also connect the VS-880EX outputs to the inputs on the video deck to record audio from the VS-880EX (such as sound effects and/or dialog) onto the video tape (be careful not to record over the SMPTE track).

Video Deck

SMPTE

MIDIMAN
Video Syncman

MIDI Sync via MTC

Digital Mix to DAT

DAT Recorder

Chapter 8: Appendix
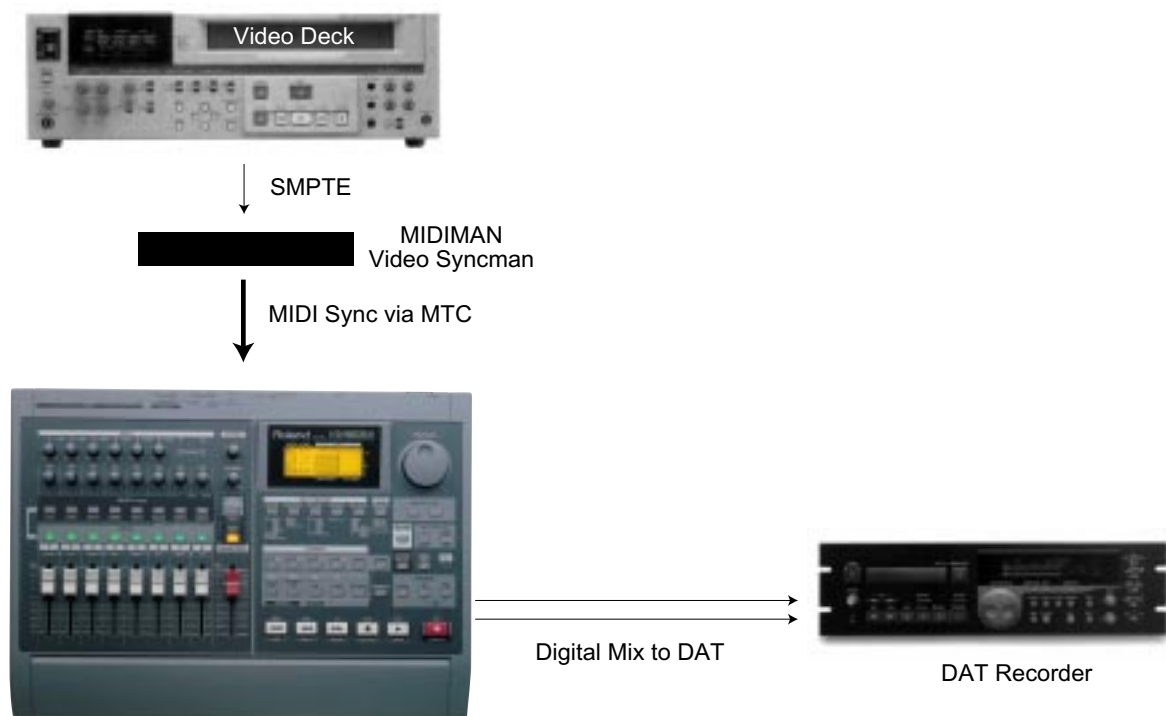
Glossary of General Audio and Recording Terms

Ambience
The distinctive acoustical characteristic of a given concert hall, recording studio, etc. It results from reverberations (multiple sound reflections) from the walls and ceiling. Rooms that are said to be "dead" lack ambience.

Amplifier, balanced
An amplifier with high (+) and low (-) signal connections and a separate shield (ground) connection. This 3-wire approach can be achieved with a transformer or with special electronics. An amplifier can have a balanced input and output, or it may have the input unbalanced and the output balanced, or vice-versa. The term "balanced" does not refer to frequency or level balance (also see "balanced").

Amplifier, unbalanced
An amplifier with only two signal input or output conductors; one being high (+), and the other being low (-) and ground. An amplifier can have an unbalanced input and output, or it may have the input unbalanced and the output balanced, or vice-versa.

Analog
An electrical signal whose frequency and level vary continuously in direct relationship to the original acoustical sound waves. "Analog" also may refer to a control or circuit which continuously changes the level of a signal in a direct relationship to the control setting.

Attenuate
To reduce the level of an electrical signal, usually with a volume or loudness control. Also, to reduce sound levels acoustically through the use of absorption materials.

Aux Send / Return
Normally refers to the output Bus of a mixer used to "send" a signal to an external processing device. The Aux Return is the return input to the mixer used for the return signal from the effects device.

Aux (Auxiliary) Input
A high level input on an amplifier, mixer, tape recorder, etc. which will accept a variety of line level signals from external devices or systems.

Balanced
An audio circuit with 3 wires; two wires carry the signal, high (+) and low (-), and the third is a shield which is connected to a chassis or system ground. The signal leads are both of equal potential difference from the ground, and are hence "balanced" with respect to ground. Sometimes improperly described as "floating" (see "amplifier, balanced" and also "floating").

Bass
The low audio frequency range, normally considered to be below 500 Hz.

Bridging
A method of deriving signal from an audio circuit without loading or taking appreciable power from that circuit. (The input impedance of the "bridging" device is at least 10 times the output impedance of the signal source.)

Also, a technique for using a stereo power amplifier as a higher powered mono power amplifier whereby the inputs are driven with the same signal, but reversed in polarity, and the output is derived from the high (+) side of each channel's output: this may cause damage to some amplifiers - consult manufacturer.

Bus
A signal path to which a number of inputs may be connected for feed to one or more outputs. In a mixing console a Bus is usually a long piece of wire to which any input channel may be connected by means of a switch or control. The end of the wire goes into a combining amplifier or summing amplifier which then feeds one of the console outputs.

Bypass
An alternate signal path that goes around a given circuit. A "hard wire" bypass uses a switch and a piece of wire to route the signal from the input to the output of a device. A "bypass" switch is sometimes called an "In-Out" switch.

Click Track
In motion picture or television sound recording, an electronic metronome is applied to the audio recording so that musicians can synchronize the musical tempo with the visual action or frame rate. The channel carrying the metronome signal is known as the click track.

Clipping
Occurs when the capabilities of an amplifier are exceeded. The result is very audible distortion, also visible on an oscilloscope.

Comping

The process of creating a single recording from multiple takes. i.e.: In many cases a single vocal recording on one track may not have the best version of a singer's performance. Engineers cut and paste sections of multiple tracks together to get one complete useful recording. This process in known as "comping" and the final outcome is called a "comp."

Compressor

A compressor is an amplifier that decreases its gain as the level of the input signal increases to reduce the dynamic range of the program (see "compression"). A compressor may operate over the range of input levels, or it may operate only on signals above or below a given level (the threshold level).

Condenser Microphone

A microphone utilizing a capacitor (condenser) as a pickup element. Electronics are usually contained in the microphone body and a polarizing voltage is necessary, so external or battery power is required, and output levels are usually higher than other types of microphones. Condenser microphones are commonly used for high quality audio applications.

COSM (Composite Object Sound Modeling)

COSM was first introduced with Roland's VG-8 V-Guitar System. The VG-8 used COSM processing to electronically reproduce all of the stages of a guitar signal chain, including the placement of the pickup, the type and body of the guitar, the amp processor, the speakers and cabinets, and the microphone and placement of the microphone at the speaker.

These models are extremely accurate and allow great control over the sound of any guitar. The built-in effects in the VS-880EX include some of the COSM preamplifier and speaker models, plus new Microphone Simulators.

Cue Bus

In a mixing console, the Bus or channel which is used to feed a program to performers' headphones. Also known as the foldback Bus. See "cue circuit, performer headphone cue."

Cue Circuit (Foldback Circuit)

Channel Cue

A circuit which enables one to monitor an input position with the fader down (no program feed); for program identification or troubleshooting.

Communications Cue

An intercom system made up of amplifiers, headphones, microphones and signaling lights or tones; for coordination of sound, lighting, stage and other personnel. Not for the actual audio program.

Performer Headphones Cue

In recording studio work, a mono or stereo mix which is fed to performers so they can hear other performers and themselves, or can monitor a previously recorded program (tracks) for overdubbing.

D Connector

A common term for the interface connector used for many computer signals, printers, monitors, etc. Named because it has a shape similar to a capital D.

DAC

Digital-to-Analog Converter. An electronic device used at the output of digital audio equipment to convert digital numbers representing level and frequency information back to a continuously varying analog electrical signal.

DAT (Digital Audio Tape)

A recording medium that records audio signals to tape digitally, via a hardware recording device called a DAT Recorder.

dB

The "dB" (decibel) is a unit of measurement for ratios of sound level, power, voltage, and other quantities. The dB is only meaningful when referenced to some actual value. See "dBm", "dBV", "dB SPL."

dBm

dBm is an electrical measurement of power. 0 dBm is equal to 1 milliwatt, which is the same as 0.775 volts across a 600-ohm impedance (+30 dBm is 1 watt, +50 dBm is 100 watts).

dBV

dBV is an electrical measurement of voltage. 0 dBV is equal to 1 volt (+10 dBV is 20 volts).

dB SPL

SPL is Sound Pressure Level (i.e., an acoustical measurement). One dB SPL is the smallest audible difference in sound level. 0 dB SPL is 0.0002 dynes/square centimeter or 20 micro-Pascals. It is also the threshold of human hearing at 1 kHz (the threshold of pain is between 120 and 130 dB SPL).

Decoder

The second part of a 2-part system which also has a complementary encoder. Generally, the decoder of a given system is not compatible with the encoder of another system.

De-esser

An audio signal processing device that is used to remove excess sibilance (the lispy "sss" sound) from certain vocal tracks. Generally, a de-esser is a specialized form of compressor with an equalizer in its level detection circuit that causes it to be more sensitive to high frequencies, thus restricting high-level high-frequency sounds. Unlike a simple filter or equalizer, moderate level high frequency sounds are not affected.

Delay Line

A device which delays an entire audio program signal by a certain length of time, usually from 0 to 500 milliseconds. Commonly used in recording and sound reinforcement (for echo or special effects).

Analog Delay

Describes the electronic process by which the signal is delayed; stores actual signal voltages (analog signal).

Digital Delay

Describes the electronic process by which the signal is delayed; stores binary numbers (digital processing) that represent the analog signal voltage levels.

Tape Delay

Uses magnetic recording and immediate playback to delay the signal; delay comes from time required for tape to move from record head to playback head(s).

Digital

A numerical representation of the actual analog frequency and level of and audio signal. " Digital" also may refer to a control or circuit which changes the level or the assignment of a signal in discrete mathematical steps rather than continuously variable amounts.

DIN connector

Deutsche Industrie Normen. German Industrial Standards. In audio, the German set of standards for audio connectors, etc. Widely used throughout Europe.

Distortion

Distortion is an unwanted change that occurs to and audio signal, causing frequencies to appear at the output that were not present at the input of the audio device. There are several types of distortion.

Dynamic Microphone

A type of microphone which converts acoustical to electrical energy by means of a permanent magnet and a moving coil. Dynamic microphones do not require external power. Some dynamic microphones have very high quality and are commonly used in recording and sound reinforcement.

Echo

One or more discretely discernible sound images.

Echo Return

A mixing console input that receives the signal from a reverberation chamber or device. Many mixing consoles have a level control to adjust the amount of reverberation signal returned to the program mix; this is called the echo return control.

Echo Send

A mixing console output that sends a signal to the input of a reverberation chamber or device. Most mixing consoles have an echo send level control for each input position (channel) so the musical mix sent to the reverb unit can be adjusted; many consoles also have a master echo send control for the echo send Bus.

Effects Bus

In a mixing console, the Bus or channel which is used to feed a program to special signal processing equipment or effects devices. Also known as the effects send Bus. Typical effects devices include delay lines, phasers, and flangers, as well as echo/reverb units.

Effects Return

A mixing console input that receives the signal from an effects device. Many mixing consoles have a level control to adjust the amount of effects signal returned to the program mix; this control is called the effects return control.

Effects Send

A mixing console output that sends a signal to the input of an effects device. Most mixing consoles have an effects send level control for each input position (channel) so the musical mix sent to the device can be adjusted; many consoles also have a master effects send control for the effects send Bus.

Encode

Refers to the act of processing a signal by adding or subtracting signal components. Encoded audio signals are usually intended to be Decoded before listening to them.

Equalizer

An electronic device that will amplify (boost) and/or attenuate (cut) certain portions of the audio frequency spectrum. There are many different types of equalizers.

Fixed Frequency

An equalizer which operates at one or more specific frequencies which can be boosted or attenuated.

Graphic

An equalizer which operates simultaneously at a number of preset frequencies, any of which may be boosted or cut independently of the others. Often done at standard 1, 1/2, 1/3, or 1/6 octave center frequencies. Graphic equalizers are usually peaking-type equalizers.

Paragraphic

A graphic equalizer where the center frequency of each band is adjustable. May also have adjustable "Q." A combination of "parametric" and "graphic."

Parametric

An equalizer where the center frequency is continuously variable over a given frequency range, and where the "Q" (slope rate) is adjustable. If "Q" is nonadjustable, the EQ is "Quasi-parametric," "Tunable" or "Sweepable."

Peaking

A boost or cut characteristic which has a bell-shaped response (the shape of the "bell" determines the "Q" of the equalizer). Maximum boost or cut occurs at the center frequency, and there is less effect at frequencies farther away, above or below the center frequency.

Shelving

A boost or cut characteristic which has a response curve resembling a shelf. Maximum boost or cut occurs at the indicated frequency and remains constant at all points beyond that frequency.

Sweepable

An equalizer where the center frequency is continuously variable over a given frequency range, but the "Q" is not variable.

Three Band

An equalizer where three separate frequency ranges can be boosted or cut simultaneously; usually divided into high, mid, and low frequency ranges. Also called "3-knob EQ."

Two Band

An equalizer where two separate frequency ranges can be boosted or cut simultaneously; usually divided into high and low frequency ranges. Also called "2-knob EQ."

Fade In

An inverse fade where the signal is increased from zero to the desired level.

Fade Out

A fade that starts with full signal level and goes to inaudibility.

Fader

A potentiometer that controls the signal level for a console input position or output channel. May be a rotary or linear (straight line) control.

Filter

A device which attenuates certain portions of the audio frequency spectrum.

Anti-Aliasing

A low pass (high-cut) filter used in digital audio equipment to prevent aliasing. Usually has a very steep cut-off rate such as 36 dB or 48 dB per octave.

Band Pass

A filter which has high frequency and low frequency cut-off points, and which only passes signals between these two points.

High Pass

A filter which will only pass frequencies above a certain cut-off frequency point (also known as low-cut filter).

Low Pass

A filter which will only pass frequencies below a certain cut-off frequency point (also known as high-cut filter).

Notch

A filter which attenuates a very narrow portion of the frequency spectrum, but will pass signals on either side.

Flanger

A special effects device used to create "flanging." Flanging is an effect originally created by careful manipulation of two tape machines that recorded and played the same signal, relying on phase errors to create a comb filter (a series of harmonically related notches in the response). Hence the term "reel flanging." Today flanging is commonly done with electronic signal processing devices that do not require tape and can operate in real time.

Foldback
A term, usually on European mixers, used interchangeably with "cue" in recording work or "monitor send" in sound reinforcement work.

Gain
The amount an amplifier increases the power of a signal, usually specified in dB.

Gain Control (fader)
A device which adjusts the gain of an amplifier, commonly by changing the amount of negative feedback. Not to be confused with an "attenuator" or "volume" control.

Ground Loop
A condition when two or more paths to ground exist and a voltage is induced unequally in these paths causing hum, buzz, or noise.

Grouping
A mixing process where the signal level from two or more inputs can be adjusted simultaneously using a single control. A typical application would be the grouping of several microphones inputs for related instruments (i.e., a drum set), where individual mics are balanced in relation to the others using the input faders, and then an overall level adjustment is done using a group fader. Grouping of this nature simplifies mixing.

Headroom
"Headroom" refers to the difference between the nominal operating level and the maximum level at any point in an audio system or device, usually expressed in dB.

Hertz
Abbreviated "Hz," the unit of measurement for frequency; 1 Hz is equal to one cycle per second (cps).

Hum
A low frequency tone, usually a multiple of the 50 Hz or 60 Hz power mains frequency (e.g., 120 Hz, 180 Hz, etc.).

ID Strip
An area, above or below the faders on a mixing console, reserved so the engineer can identify the signal being fed to the various faders. ID strips on many mixers are white so they can be marked with grease pencils and easily wiped clean, although masking tape and permanent marking pens are a common alternative.

Impedance
The total opposition to the flow of alternating current in an electrical circuit. Impedance is measured in ohms.

Input Level
Refers to the level in dB, dBm or volts that is acceptable for an input signal to a particular connector in any given piece of electronic equipment. Such input levels are rated either as maximum (i.e., the level above which overdrive distortion occurs) or as nominal (i.e., the average level which would be fed to the input under normal operating conditions).

Insert
When a track is routed to a Bus such as an effects Bus using an INSERT path, the audio goes to the effect Bus and then directly back to the channel in the mixer. Therefore, there is no "dry" sound of the original without the effect because the only audio path is through the effect and then to the mixer. INSERTS are used when you don't want to hear the original sound without the processing, i.e.: when you use a compressor on a voice.

kHz
Abbreviation for kiloHertz, or one thousand cycles per second. Formerly called kilocycles (kc).

LCD
Liquid Crystal Display. An electronically driven display with black characters or graphic elements on a light background. LCD displays depend on ambient light rather than generating light of their own, so they use very little power compared to LED (Light Emitting Diode) displays. The principal is based on a special crystal which changes its light polarization axis when a voltage is applied, thereby blocking the light and creating a black area.

LED
Light Emitting Diode. A solid state device that emits infrared or visible light when a current flows through it. Usually red, green or amber, LEDs are available in other colors.

Level
A term loosely used to describe the amplitude of a signal or a sound. More precisely, it is the value of that signal or sound relative to a given reference, expressed in dBm, dB SPL, etc.

Limiter
A type of compressor with approximately a 10:1 or greater compression ratio. Used primarily to prevent the signal level from exceeding a certain pre-set level (see also "compressor").

Linear

Having an output that varies in direct proportion to the input. May refer to low distortion.

Line Input

An input designed to operate at line levels (see below), as opposed to microphone or speaker levels.

Line Level

Line level refers to the nominal (average) operating level of an audio system, and generally corresponds to a "0 VU" meter reading. There are several widely-used standard line levels:

a) +8 dBm (1.95 volts RMS), for broadcast

b) +4 dBm (1.23 volts RMS), for professional recording & sound reinforcement

c) -10 dBv (310 millivolts RMS), an alternate for professional recording

Line Output

Any output which delivers a signal at the nominal line level (see above), not microphone or speaker level.

Loss

The opposite of gain in a circuit; describing signal attenuation.

Mic Level

The signal level in dBv, dBV, dBm or voltage that would approximate the nominal level of a microphone. While the nominal levels of microphones vary tremendously as a function of the sound level present and the type of mic involved, mic level is generally considered to be somewhere around 0.001 to 0.003 volts (about -60 dBv to -50 dBv). It is not unusual, however, for a mic to generate +4 dBv in the presence of a very loud sound.

Mic Proximity

A change in the bass frequency response of a microphone in relation to the distance from the sound source.

Microphone

A device for converting sound waves into corresponding electrical signals. Microphones can be categorized in several ways: their sensitivity patterns, the method by which they convert sound to electrical energy, or other characteristics.

MIDI

Musical Instrument Digital Interface. A digital communications language that allows musical instruments and related equipment to 'talk' to each other.

MIDI Clock

MIDI Clock is a stream of digital timing pulses that provides information about the current tempo of a song or sequence. It is used commonly with hardware sequencers and drum machines. While it is commonly used by many devices today, it does not provide enough informaiton to control a hard disk recorder like the VS-880EX. However, MIDI clock can be used to control other devices. MIDI Clock works in conjunction with other MIDI messages including Start, Stop, Continue, and Song Position Pointer.

Mix

The procedure whereby two or more signals from live and/or recorded sources are combined to achieve a desired balance. Mixing consoles provide separate level controls for each source, as well as overall controls for the mixed (combined) signal. Consoles may also provide equalization and auxiliary signal processing such as echo and reverberation.

Mixdown

The process whereby signals from a multi-track tape recorder are routed to a mixing console and recombined to make a stereo or monaural master tape. The 4, 8, 16 or 24 tracks of the multi-track master are positioned anywhere from full left, through center, to full right of the stereo perspective, and the individual track levels and equalization are adjusted to achieve the desired balance. Echo, reverberation and other special effects may be added during the mixdown.

Mixer

A device or system in which two or more signal sources (mic or line level) can be combined and fed to another device or part of the audio system. Larger mixers are often called "mixing consoles," especially if they include a built-in mounting pedestal or are designed for mixing many inputs or feeding many outputs. The term "mixer" is generally reserved for units with a smaller number of inputs and outputs, and for rack-mounted mixing equipment.

Mono Bus

In a mixing console, the Bus or channel which is used to feed a program to a monaural tape recorder, broadcast transmission point, or other mono device. Many mixing consoles have the ability to obtain the mono mix utilizing the mono Bus at the same time a stereo mix is being provided.

MMC (MIDI Machine Control)

MIDI controller messages sent from one device to another via MIDI to start recording, playing, and to arm tracks for recording. This communication data does not contain any timing or location information.

MTC (MIDI Time Code)
MIDI Time Code is a synchronization signal that is digitally sent through MIDI for synchronization of absolute time between audio devices. Similar to SMPTE, MTC can have different frame rates for synchronization. See SMPTE for more details.

Mute
Reducing an audio signal to off (full attenuation).

Noise Gate
An electronic device that turns off or greatly attenuates an audio signal when the level falls below a user-adjustable threshold. Thus, program material will pass through, but low-level hiss, noise or leakage will not be heard when the program is below the threshold. When the program is above threshold, the noise gate has no effect on the signal.

Omni-Directional
Equal sensitivity in all directions. Usually refers to non-directional microphones.

Out of Phase
When two related signals (or a single signal which has been split) are offset in time acoustically or electronically, they may be said to be out of phase (larger offsets that enable two signals to be audibly differentiated from each other are considered to be time delays). Depending on the actual phase difference, the out of phase signals may cancel or reinforce one another when combined.

Out of Polarity
When two circuits are reversed in polarity with respect to one another, sometimes they are mistakenly considered to be 180 degrees out of phase. Even though there is no real offset in signal arrival time here, the result is similar to a true 180 degree phase difference - the singles will cancel one another if combined. An example would be reversing the speaker wires of one stereo speaker but not the other. The reversed speaker is said to be "out of polarity."

Out Take
A recording or segment of a recording that originally was considered usable, but later was not used or was discarded in favor of another recording of the same program. Records are often made by recording a given musical selection two or more times and then selecting the best performance. The unused recordings (takes) are considered to be out takes.

Outboard
Refers to electronic equipment or signal processors that are not incorporated in the mixing console. External equipment. Outboard equipment includes special equalizers, delay lines, reverbs, compressors, etc.

Output Assign
The routing of a signal from a given input position (channel) to a particular output Bus or Buses.

Output Bus
A signal path to which a number of inputs may be connected for feed to one or more outputs. In a mixing console a Bus is usually a long piece of wire to which any input channel may be connected by means of a switch. The end of the wire goes into a combining amplifier or summing amplifier which then feeds one of the console outputs via an output or line amplifier.

Output Channel
The final output of any multi-channel audio device. In a mixing console, individual inputs can be routed to different output channels via the output Buses In a multi-channel tape recorder, each track of the tape feeds its own tape recorder output channel.

Overdubbing
A recording procedure utilized in multi-track tape recording. A performer (or performers) listens to previously recorded musical tracks, typically with headphones, while recording one or more additional tracks on the same tape.

Overload
What occurs when a device is "asked" to supply more power than it is capable of delivering; usually caused by connection of too low an impedance to the device's output. May cause distortion and/or damage.

Pad
A passive resistor network which reduces the power level of a signal. In some cases a pad is utilized to match unequal input and output impedances for proper interface.

Pan Pot
The control that places a signal in stereo perspective to appear acoustically between the left and right speakers.

PCM
Pulse Code Modulation. A process of digital encoding of audio signals. PCM recordings are synonymous with digital audio recordings (not to be confused with PWM, pulse width modulation).

Phantom Power

A method of remotely powering the preamplifier or impedance converter which is built into many condenser microphones by sending voltage along the audio cable. Phantom power is usually from 6 to 48 volts DC and is run along the same conductors that carry the mic signal. The DC is separated from the audio by using capacitors and special transformers. Many professional recording mixing consoles supply phantom power. In the cases where phantom power is required, but not available from a mixer, you can use an external power supply for the microphone.

Phone Plug (1/4")

Describes any of several varieties of 2-conductor or 3-conductor audio connectors having a 1/4" shaft diameter. The term phone plug is derived from the original use of these connectors in early telephone switchboard equipment. The male connector is the plug and the female is the jack.

Tip-Sleeve (TS) phone plug

A 2-conductor phone plug (or jack) commonly used for unbalanced audio connections.

Tip-Ring-Sleeve (TRS) phone plug

A 3-conductor phone plug commonly used for balanced audio connections. Also used in some systems' unbalanced patch points so that a single cable assembly can handle the input and output instead of separate cables; crosstalk can be a problem in this application.

Phono Plug (RCA)

A 2-conductor connector commonly used for unbalanced audio signal connections. Also known as a "pin plug" or "RCA plug."

Ping Pong

A multi-channel recording procedure whereby several recorded tracks are played back in "sync" mode, mixed into one track, and re-recorded on any open (unrecorded) track. This procedure is done to make additional tracks available, and may be repeated.

Also refers to a recording technique utilized in the early days of stereo recording whereby a sound source appears to move from one speaker to the other.

Pointer Based Editing

When you record sounds into the VS-880EX, they are stored on the hard drive. Once on the drive, the original recording is never changed. All of the editing, copying and moving of the sound is actually just moving and copying "pointers" to the original sound. These pointers indicate when to start and stop playing all or part of the original recording. The advantage to this way of working is that copying or moving or erasing part of a track is only changing these pointers. Pointers take up virtually no disk space, and the VS-880EX can write or change pointers instantly. That allows you to copy all 8 tracks of a song instantly to another location without using additional disk space. The fact that the VS-880EX's editing is Pointer Based is also why it can have 999 levels of UNDO. The original audio is never touched, just the pointers that tell the VS-880EX when to play and stop playing the original audio.

Polarity

Refers to the relative position of the high (+) and low (-) signal leads in an audio system. When two channels are reversed in polarity relative to each other, and are either mixed together or fed to a stereo speaker system, signal cancellations will occur. This is usually not desirable.

Also refers to the positive and negative (or ground) terminals of a battery or power supply.

Pop Filter

A cloth, foam, or similar shield placed over a microphone to avoid "popping" sounds from sudden bursts of breath. Also, an electronic filter that attenuates low frequencies where the "popping" sounds exist (a high pass filter with its cutoff at approximately 70 Hz to 100 Hz).

Post

Refers to a signal input, output or routing point that comes after something. Usually used in conjunction with another term, such as post fader, post EQ, etc.; if unstated, one may assume the term means post fader.

Pre

Refers to a signal output, input or routing point that comes before (precedes) something. Usually used in conjunction with another term, such as pre fader, pre EQ, etc.; if unstated, one may assume the term means pre fader.

Pre-Fader / Post-Fader

Audio signals from an external source or a recorded track come into a mixer and are then routed to a Bus such as the Mix Output. If the audio signal is routed to the Mix Output Bus PRE-Fader, then the faders won't have any effect on the level of the sound in the mix.

(Continued)
If the source or track is routed POST-Fader, then the fader will control the level to the Mix Output Bus. Generally, tracks will be routed to the Mix Output Bus or the Aux Bus POST-Fader. You might route a track POST-Fader to the Mix Output and PRE-Fader to the Effects Bus if you are adding reverb to a sound and you want to fade out the "dry" original sound and leave the reverb sound playing. This technique could be used at the end of a song or possibly for a sound effect like somebody yelling as they fall off a cliff.

Punch In
A procedure in multi-track recording that is essentially an overdub, but instead of recording the new part on an adjacent track to already recorded material, the new part is recorded by erasing a previous part from a given track. The punch in is initiated, while tape is playing, by entering record mode at some precise instant, i.e., a punch in at bar XX, or a punch in after a given word. (Punch out refers to either stopping the recording or switching from record back to play mode for the track or tracks involved.)

Random Access
(See Pointer Based Editing.)

As the VS-880EX's play structure is pointer based, it is possible to instantly jump from one location in the song to another. There is no "tape" or material to move through, there are only pointers to reposition (which happens very quickly). This is makes locating and moving or copying material in the VS-880EX instant.

Reverberation
Multiple, blended sound images caused by reflections from walls, floor and ceiling. It also can be created artificially by electronic or mechanical devices.

RSS (Roland Sound Space)
Roland Sound Space is a 3-Dimensional processor that allows you to move sound towards and around the listener from playback on only two speakers. In a mono system, sound comes from one source. The only controls are volume and EQ. Stereo allows the sound to be moved from left to right. Adding reverb allows depth to be added to a mix by moving sounds away from the listener. RSS is the next level of processing. It allows sound to be moved towards the listener, to the side of the listener or even above, below and behind the listener. It is used for adding great dimension to a mix, for special effects (a percussion part or vocal hook) or for sound effects for film and video.

Sample Rate
The rate at which samples are taken in the analog to digital conversion process, usually specified in Hertz (Hz).

Sampling
Refers to the first step in the process which converts an analog waveform to a digital format.

Scrubbing
The VS-880EX's Scrub mode will playback a very short loop of audio selected from a track on the hard drive. This is similar to the skip or cue mode on a DAT or CD player. With this short loop of audio, you can "scrub" across the audio using the Time/Value dial to find where the initial attack of a sound begins, allowing you to search for minute edit points on a track.

The VS-880EX's scrubbing feature makes it very easy to find your edit points because you can always hear them at their original pitch. The editing resolution for finding edits on the VS-880EX is 1/3000th of a second, allowing you to do very precise edits.

SCSI (Small Computer System Interface)
SCSI is a protocol for high-speed recording and data transfer between computer devices (for more information, see page 134 of this guide).

Shielding
There are two types of shielding, electrical and magnetic. Electrical shielding may be copper screen, a wire braid, or any conducting material which surrounds a circuit or cable conductors to exclude electrostatic or radio frequency noises. Magnetic shielding may be iron, steel, nickel, mu-metal or other magnetic material and is used to exclude unwanted electromagnetic fields from circuitry, transformers or conductors.

Slapback
An echo effect where the original signal re-appears as distinct echoes that decay in level each time they appear. A common technique for creating slapback is to feed the output signal from the play head back into the record head, at a slightly lower level. If the sound "ta" is originally fed to the recorder, the sound "ta-ta-ta-ta-...ta" will be heard, with each "ta" somewhat lower in level as the signal fades away.

Slate

A voice or talkback signal which is applied to the output Buses of a mixing console so the engineer can identify each take of a tape (by "slating" an announcement onto the tape) prior to actually recording the program. The term may have been derived from the motion picture industry practice of identifying scenes with a slate board and chalk just prior to the shooting.

Slider

Another term for a straight-line fader (see "fader"). Also may refer to any straight-line control, as opposed to a rotary control.

SMPTE

Society of Motion Picture and Television Engineers (formerly, SMPTE, Society of Motion Picture Engineers). Also refers to a common standard for measurement of intermodulation distortion (IM), and for a standard reference code for identification of frames of film or videotape; SMPTE code is also used for synchronization of two or more audio tape recorders.

SMPTE Time Code

A synchronization code developed for video designed for frame edge lockup of multiple video and audio devices. SMPTE is calculated in Hours:Minutes:Second:Frames. There are several different types of SMPTE frame rates, ie: 30 frames per second, 29.97 fps non-drop, 29.97 fps drop, 25 fps (European standard) and 24 fps (used for film). The VS-880EX supports all types of MTC which corresponds to all types of SMPTE. You only need to use the MIDIMAN 'Video Syncman' unit to interface between a SMPTE source and the VS-880EX. The VS-880EX also will resolve (exactly lock to) the frame edge of the SMPTE or MTC. This means that the lock will not drift or go out of sync even if the song or project is very long.

Solo

A feature of many mixing consoles that allows one input signal, one Bus, or a combination of "soloed" signals to be monitored exclusive of all other signals - without disturbing the main output mix. For example, in the middle of a show with an 18 in x 2 out console, an engineer might listen to one microphone (perhaps to check for a problem, to see what it is picking up, or adjust the input position's EQ). He merely engages that input position's solo button - the sound reinforcement and/or tape recorder feeds are not affected.

SPP (Song Position Pointer)

Song Position Pointer works in conjuction with MIDI Clock to provide the current measure and beat information of the song or sequence. This message allows the user to rewind and fast forward the 'master' device and still synchronize with the "slave."

S/PDIF (Sony/Philips Digital Interface Format)

A digital recording format that conforms to the AES/EBU consumer standard for the high-speed transfer of two channels of digital audio data. The VS-880EX has a coaxial S/PDIF connector that allows you to connect digitally to a consumer or professional DAT recorder or CD player.

Stereo Bus

In a mixing console, the Bus or channel which is used to feed a program to a stereo tape recorder, 2-channel sound system or other stereo equipment. A stereo Bus actually consists of two Buses, the left and right Buses.

Stereo Master

A 2-gang fader which simultaneously controls the overall level of the left and right outputs (i.e., the stereo Bus output).

Sub-Master

A level control or fader which adjusts the signal level on a given output channel, prior to the master fader (which is normally a multi-channel fader). For example, there might be a Left Channel Submaster, a Right Channel Submaster and a Stereo Master.

Sync

In multi-track tape recorders, a technique where channels on the record head can be used for tape play back while other channels are being recorded. This permits performers to listen to previously recorded tracks and to record additional tracks in perfect Synchronization.

Sync Track

The VS-880EX has a SYNC TRACK that is independent from the 8 recording tracks. You can record a TEMPO MAP from a drum machine or sequencer and then use this map to synchronize the VS-880EX to the sequencer. In this case, the VS-880EX would be the Master and the sequencer would be the Slave.

Synchronizer

A device which "reads" a time code recorded on two or more tape machines and synchronizes the units (via servo control of their motors) to move in the desired relationship to one another. Also known as "time code synchronizers," such devices are available to sync any combination of audio tape recorders, video tape recorders, or film recorders and projectors.

Tempo Map

A TEMPO MAP includes bar and beat, tempo and time signature information for part or all of a song. This information can be used to make editing easier. You can edit or locate to an exact bar and beat rather than an absolute time reference. Tempo Maps can also be used to synchronize external drum machines or sequencers. The tempo map generates MIDI Clock information and Song Position Pointer information that will start and stop a sequencer at an exact location and keep it playing in perfect sync.

In the VS-880EX, you can create a tempo map from scratch before you start recording a song. There are MIDI and Click metronome outputs to allow the recording process to be in time with the tempo map. You can also create a Tempo Map after you have recorded part or all of a song. See SYNC TRACK for another way to use MIDI sync information.

Time Compression

An operation that allows you to expand or compress the playback time of recorded material to a specified time length. Usually when playback time is compressed or expanded, the playback pitch is affected. On the VS-880EX, you can select whether the playback pitch will change in correlation to the compression / expression ratio, or whether the original playback pitch will be preserved. The time compression feature of the VS-880EX can therefore be used to change the tempo of a drum loop without changing the pitch. It can also be used to correct the pitch of a vocal note that is sung out of tune.

Track

The path on magnetic tape along which a single channel of sound is recorded.

Tracking

Refers to the original recording of live music when the first tracks (usually rhythm instruments) are recorded.

Treble

The high audio frequency range, normally considered to be above 5000 Hz.

Unbalanced

An audio circuit with 2 wires; one wire carries the signal, high (+) and the second carries the low (-) and also is connected to chassis or system ground. Since the signal leads are not of equal potential difference from the ground, they are considered to be "unbalanced" with respect to ground.

Vari-pitch

Vari-pitch allows you to speed up or slow down the playback of the VS-880EX in order to match the tuning of instruments that are difficult or impossible to tune to your existing recorded tracks. A typical instrument that Vari-pitch would be useful for would be an out of tune acoustic piano.

Virtual Tracks

Virtual tracks are additional areas to record you takes and ideas. Each track on the VS-880EX has 8 virtual tracks. You can play one of these at a time per track, using the others to hold earlier performances or different edits. You can edit several virtual tracks together for a composite edit. You can even bounce several virtual tracks to another virtual track to make a mix of these tracks.

For example: If you need to bounce some background vocals together to make room for some guitar parts, you can use the virtual tracks to store the original vocal parts that you have bounced. Unlike a tape based system, you can then add new material on the tracks you have bounced from and still keep the originals in case you want to re-mix the bounce later.

Voltage Control

A method of adjusting a special type of circuit which responds to an external control voltage. Almost all musical synthesizer operations are done using voltage control, and many automated mixing functions utilize voltage controlled circuitry.

Volume

A loosely used term which describes the level of an audio signal or the intensity of a sound.

Waveform

The characteristic shape of a wave when graphed or displayed by test equipment.

XLR

Describes any of several varieties of audio connectors having 3 or more conductors plus an outer shell which shields the connection and locks the mating connectors. 3-pin XL-type connectors are commonly used to make balanced mic and line level connections in professional audio systems.

More About SCSI

SCSI is a high-speed data transmission bus that is often taken for granted thanks to its common use on personal computers. However, insufficient attention to SCSI connections have turned out to be the major cause of "mysterious" or intermittent performance problems users have experienced. Although SCSI has received a reputation for being voodoo or black magic, most problems may be cured 100% by following the suggestions outlined below.

The SCSI "Chain"

The SCSI specification allows for up to eight devices (computers, disk drives, etc.) to be "chained" together on a single SCSI circuit. Cables are connected from one to the next and then the next, etc.; just like making a chain.

VS-880EX   Disk drive 0   Disk drive 1   Disk drive 2
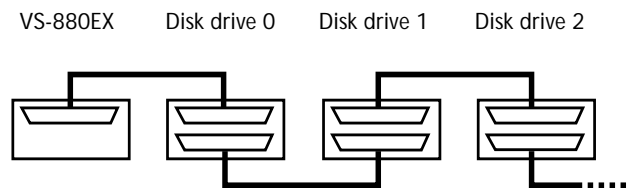
The two physical ends of a SCSI chain must be terminated correctly. This also helps reduce reflection on the bus. Incorrect termination will result in extra "ghost reflections" appearing on the SCSI bus, which can also corrupt SCSI communications. One end of the SCSI chain is the VS-880EX. It is internally terminated already. You must provide proper termination on the other end of your SCSI chain.

Warning !!!! *Remember: You only add termination to the LAST drive of the external SCSI chain.*

SCSI ID Numbers

Each disk or device in a single SCSI chain is identified by its SCSI ID number. This number from 0-7 (eight devices total) is usually set by a switch on the rear panel of the device.

Warning !!!! *Each device must be set to a unique SCSI ID number. No two devices can have the same number. The VS-880EX internal computer is set to SCSI ID # 7. Use SCSI # 1-6 for your external devices. (If you have an internal SCSI hard disk drive installed inside your VS-880EX, it will most likely be set to SCSI # 0.)*

If you cannot find the SCSI ID selector switch, contact your device supplier for instructions to "set the SCSI ID number."

SCSI & IDE

The VS-880EX actually contains two internal buses for communicating to disk devices - SCSI and IDE. However, only the SCSI bus is available externally. If you purchased your VS-880EX with an internal disk drive installed, it is most likely an IDE device and is connected to the internal IDE communication bus. It is simple to identify your internal device.

1. Press the [SYSTEM] button repeatedly until the LCD displays "SYS Drive Select ? "

2. Press [YES].

3. The LCD will display "SYS Select DRV=IDE:0" if your internal device is connected to the IDE bus.

The VS-880EX allows you to copy songs from the Internal IDE drive to any of your external SCSI drives. The communications between the IDE bus and the SCSI bus are all handled by the VS-880EX internally.

Warning !!!! *There are two main causes of SCSI problems with any computer device including the VS-880EX: Cables and Termination.*

SCSI Cables

Don't be fooled by disk drive suppliers that tell you, "our cables work just fine on a PC computer." An unstable SCSI bus may require the host computer (VS-880EX) to try over and over to communicate with the drive. This is fine for a PC since the user doesn't really notice that the PC has to make a number of attempts at communication before actually writing the computer data to disk. However, the large amount of data transfer for digital audio requires a very stable SCSI bus with solid communications at all times.

Since the SCSI bus is actually a form of transmission line, impedance matching is very important. If the impedance is not properly matched, "ghost reflections" will occur within the cable which will alter or corrupt the data on the line.

SCSI specifies a cable impedance of 100 Ω ±10%. Unfortunately, the vast majority of SCSI cables sold today have an impedance closer to 50 Ω. This results in up to 50% of the signal being reflected back to the VS-880EX. Another problem in cable construction is the amount of shielding used and the quality of the cables themselves. Some users have assumed that "molded connectors" are automatically equal to "high quality" - this is not the case.

The SCSI specification calls for the internal cable wiring to consist of 25 twisted pairs (each pair consists of one signal and one ground). However, many cables only contain a total of 26 wires - 25 signals plus one overall ground.

"Double shielding" - where each twisted pair has its own shield in addition to the overall cable's shield - is required by the SCSI specification to eliminate crosstalk and RFI.

At low data speeds and for short cable runs (less than 1 foot), the above shortcomings may not be too much of a problem. With longer cable runs (3-6 feet) and higher data rates (such as those common in the VS-880EX), cable reflections do become a factor, resulting in random data errors which in turn cause problems ranging from noise in the audio to the VS-880EX ceasing to operate. Because these errors are indeed random, the resulting symptoms are also random and may not be completely repeatable (adding to confusion and frustration when trying to debug them).

SCSI Termination

Since the VS-880EX end of the SCSI chain is internally terminated, the other physical end of the external SCSI chain must be terminated as well. i.e. If you add one 1 Gigabyte external drive to the SCSI connector of the VS-880EX, it must also be terminated since it is the last device on the other end of the SCSI chain.

TECH INFO *For Reference Only: Most disk drives can be terminated internally or exter-nally. Internal termination is usually provided by small in-line resistor packs called "SIPs." They plug directly into sockets on the main controller circuit board of the physical drive unit.*

Warning !!!! *CAUTION: DO NOT INSTALL SIPs terminators backwards. Pin # 1 is designated with a dot. Socket # 1 of the circuit board will be designated with a 1, a dot, a square, or some other designation for Pin # 1. Match Pin # 1 to Socket # 1.*

External terminators are usually rectangular boxes which can be attached to a separate 50 Pin Amphenol connector on the rear of the drive. Other external terminators have a 50 pin connector on both sides so the terminator can be plugged onto the drive and the cable from the VS-880EX can be plugged into the terminator.

Warning !!!! *Do not change terminators on any SCSI device with the power turned on.*

"ACTIVE" Terminators

"Active" terminators are your best and first choice. These have a voltage regulator inside to make sure the precise reference voltage is available to minimize cable reflections. Unless external terminators are marked as "active", they will be "passive" devices. Some new drives have active termination built into the drive with a rear panel switch that can turn it on or off.

Roland recommends that you purchase drives from a supplier who has exhaustively tested their drives specifically for hard disk recording or other digital audio and video applications.

Terminator Power

Warning !!!! *All external terminators (active or passive) require a power source to operate correctly. This is known as 'terminator power' or 'term power." Since the VS-880EX does not provide this power, your external hard disk drive must provide its own terminator power. Check with your drive supplier.*

If you have a volt meter, you can measure two pins on the 25 pin male end of the SCSI cable attached to the last device in your SCSI chain. If you measure + 5 VDC between pins 14 and 25, the device is providing the correct terminator power.

25 Pin SCSI Cable End Connector (male)   GND   +5VDC
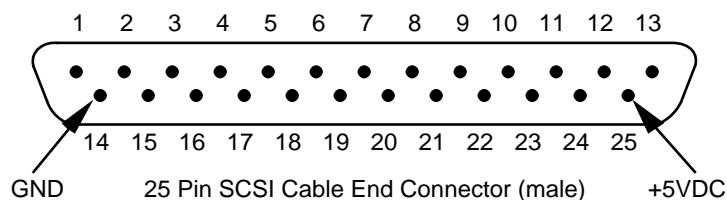
Test For Internal Termination

If you are not sure if your external drive is internally terminated, you can measure this. With the drive turned on and not connected to any other SCSI device, measure the voltage between one of the data lines (such as pin 26 on a 50-pin connector, or pin 6 on a 25-pin connector) and the ground (GND) pin listed above. If the drive is internally terminated, you should measure approximately 3 VDC. If the drive is not internally terminated, this pin will be "floating" and you may measure something close to 0 or 5 VDC (your meter may even fluctuate between these two extremes).

Double Termination

Be sure that the last drive in the SCSI chain is not double terminated. That means that it has internal terminator resistors installed as well as an external 50 Pin terminator. You must remove either the internal SIPs or the external terminator package. Remember, only the last drive in the chain is terminated.

SCSI Summary

- Keep SCSI cables as short as possible.

- Do not allow the total length of the SCSI chain to exceed 6 meters.

- Use only high quality SCSI cables of correct impedance and shielding.

- Do not connect or disconnect SCSI cables or terminators with power on.

- Check your SCSI ID numbers.

- Be sure only the last external drive in the chain is correctly terminated. No other drives in the chain should be terminated.

Erasing the Demo Songs

The VS-880EX contains demo songs for you to listen to and experiment with in order to become familiar with various functions. These songs are recorded on the VS-880EX just like the songs you record and, as such, occupy space on your internal hard drive. Use the following procedure to erase the demo songs and restore the recording time to your hard drive.

Erasing the Demo Songs

Warning !!!! *This procedure permanently erases the demo songs from your internal hard drive. If you would like to access these songs at a later time, make sure you back them up before continuing with this procedure.*

1. Press [SONG] until "Song Select?" is displayed and press [YES].

2. Use the TIME/VALUE dial to select the demo song you wish to erase.

3. Press [YES] and "Select Song Sure?" will be displayed.

4. Press [YES] and "Store Current?" will be displayed. If you have made any changes to the current song that have not been saved, press [YES]. Otherwise, press [NO].

5. Press [SONG] until "Song Name/Prtct?" is displayed. Then, press [YES].

6. Press the right [CURSOR] button so that "ChangePrtct-> Off?" is displayed. (If "ChangePrtct-> On?" is displayed, skip to step 8.)

7. Press [YES] and "Now Working" will be displayed.

8. Press [SONG] until "Song Erase?" is displayed and press [YES].

9. Make sure that the demo song you want to erase is selected (if it is not, use the TIME/VALUE dial to select it) and press [YES]. "Erase Song Sure?" will be displayed.

10. Press [YES] and "Erase Really Sure" will be displayed.

11. Press [YES] to execute the Song Erase procedure (press [NO] to cancel the procedure). "Store Current?" will be displayed.

12. Press [NO] and "Now Working" will be displayed. The VS-880EX will return to the main play screen when the Song Erase procedure is finished. You can repeat these steps to erase any remaining demo songs as desired.

Updating the System Software

From time to time Roland will issue updates to the operating system for the VS-880EX. These updates are provided for a variety of reasons such as providing compatibility with external SCSI devices, software programs, and/or adding additional features that make your VS-880EX even more valuable and useful than it already is. These updates come in one of two formats: as Standard MIDI Files or on a Zip disk. You can order the updates from the Roland Customer Service department (323-890-3700, x2289) or, in most cases, you can download them directly from the Roland U.S. Website (www.rolandus.com).

Updating the VS-880EX with Standard MIDI Files

System updates for the VS-880EX are divided into 16 separate MIDI files (Mac or PC format). You will need the following tools to update the VS-880EX with MIDI files:

- MIDI sequencer (software or hardware) that can load Standard MIDI Files
- MIDI cable
- VS-880EX
- VS-880EX System Software update disk(s)

Update Procedure

1. Connect the MIDI OUT port of the sequencer to the MIDI IN port of the VS-880EX.

2. Hold the channel 7 [CH EDIT] and [STATUS] buttons while powering on the VS-880EX. "System Update?" will be displayed.

3. Press [YES] and "Waiting MIDI EX" will be displayed.

4. Load the Standard MIDI Files into your sequencer. If your sequencer can only load one song at a time, load "880EX_01.MID" first.

5. Play all 16 MIDI files in order, starting with "880EX_01.MID" and ending with "880EX_16.MID." After all the MIDI files have been played into the VS-880EX, "Update SysPRG?" will be displayed.

6. Press [YES] and "Please Reboot OK" will be displayed. The system software of the VS-880EX has now been updated.

7. Restart the VS-880EX by turning the power off and then on again. The new system version will be displayed as the VS-880EX is booting up.

Note *Only the first three digits of the system software are displayed during the bootup procedure. To see the full system version, hold the channel 8 [CH EDIT] and [STATUS] buttons while powering on the VS-880EX. Then, when you are finished, turn the power off and then on again to return to the normal operating mode.*

(continued)

Updating the System Software (continued)

Updating the VS-880EX From a Zip® Disk

The VS-880EX operating system can also be updated by using a Zip® disk. You can order a Zip® disk with the latest operating system from the Roland Customer Service department at (323) 890-3700, x2289. You can also download the update file for Zip® disks directly from the Roland U.S. Website (www.rolandus.com) and copy it onto a VS-880EX formatted Zip® disk. You will need the following tools to update the VS-880EX from a Zip® disk:

- SCSI Zip® drive

- VS-880EX

- Zip® disk containing VS-880EX operating system

Update Procedure

Warning !!!! *You must use a SCSI Zip® drive to install the update in the VS-880EX. Connecting a parallel port Zip® drive, even though it has similar connectors, can cause damage to the VS-880EX.*

1. Make sure that the power is turned off for the VS-880EX and the Zip® drive.

2. Connect the SCSI port on the Zip® drive to the SCSI port on the VS-880EX (it does not matter which SCSI port on the Zip® drive you use). Make sure that the termination switch on the back of the Zip® drive is set to "ON."

3. Insert the Zip® disk containing the system update into the Zip® drive and turn the Zip® drive on.

4. Turn the VS-880EX on. After the VS-880EX boots up, "Update SysPrg?" will be displayed.

5. Press [YES]. The update procedure will begin. When it is finished, "Please Reboot OK?" will be displayed. Turn the power for the VS-880EX off and then on again. The new system version will be displayed during as the VS-880EX is booting up.

Note *Only the first three digits of the system software are displayed during the bootup procedure. To see the full system version, hold the channel 8 [CH EDIT] and [STATUS] buttons while powering on the VS-880EX. Then, when you are finished, turn the power off and then on again to return to the normal operating mode.*

Blank Track Sheet

Roland® VS-880EX
Track Sheet V-Track Bank (A -or- B)

Project _____ Artist _____ Client _____
Song Name _____ Date _____
☐ Internal ☐ Removable Backing up to _____

Tracks

	1	2	3	4	5	6	7	8
1								
2								
3								
4								
5								
6								
7								
8								

V-Tracks

LOCATOR

SCENE

NOTES

VS-880EX APPLICATION GUIDE 1.0

2394US