Echoplex *Digital Pro*

User's Guide

Oberheim®

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Echoplex Digital Pro

USER'S GUIDE

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TYPEFACE CONVENTIONS

Button and Knob names are shown in bold, since references to them are usually about actions that you might take.

Function and Operation names are shown in a plain typeface.

Buttons generally either represent parameters or initiate actions, which we usually call *functions* or *operations*.

We use different versions of the same typeface for the button (bold) and the function (regular); e.g. "the **Record** button starts and ends Record operations."

Parameter Names and Values will be shown as italics.

EXAMPLES:

- "Press the **Overdub** button."
- "You can end the Record operation several ways:"
- "When *MuteMode=Continuous*, the loop runs in the background even when it's silent."

TERMINOLOGY

There are a few key terms that are used frequently in this manual. Here's a summary:

PLAY MODE

This is the condition of the *Echoplex Digital Pro* when you're not editing parameters or performing an operation like recording, overdubbing, inserting, etc. None of the Row Indicator Lights are lit in this condition, and the current loop simply plays back over and over.

OTHER MODES

These are the states that the *Echoplex Digital Pro* is in after you've pressed a button to initiate an action, but before you've ended the action. The mode is the name of the button that you've pressed; e.g. Record mode, Mute mode, Insert mode, etc.

LOOP, LOOP LENGTH, CURRENT LOOP, CYCLE

A *loop* is the entire program that plays when the *Echoplex* is in Play mode. The *length* of the loop is the number that is in the time display while in Play mode (the length of the recorded material), which will be less than the total length available for recording.

If the *MoreLoops* parameter is greater than one (see *MoreLoops* in the Reference chapter), then the *Echoplex* will hold several different loops. In this case, one loop will be active at any given time, and we'll call this the *current loop.* The leftmost digit in the display. is the number of the current loop.

When you use Multiply or Insert, a new loop is built from a number of blocks of material with identical lengths. We'll call each of these

component blocks a *cycle* or, less commonly, a *Beat*, and continue to refer to the entire groups of cycles as a *loop*.

RESETTING LOOPS, EMPTY LOOPS

When you *reset* a loop by holding down the **Record** button for a couple of seconds (or reset all loops with a long press of the **Multiply** button, if you've already reset the current loop), you completely empty it. The time display will show just a decimal point. This creates an *empty* loop. If *AutoRecord=On*, entering an empty loop (with the **NextLoop** button) will cause recording to start immediately.

LONG PRESS

In many situations, a *long press* of a button will have a different effect than simply pressing the button and releasing it immediately (resetting a loop through a long press of the **Record** button is the most obvious example). Although there are situations where you may want to press a button for quite a long while, any press longer than two seconds or so will count as a long press.

IMMEDIATE ACTION

This is a term used in the Reference chapter to describe buttons that initiate an operation as soon as you press them, in contrast to buttons that set parameters.

CHAPTER 1

Quick Start

Congratulations! You're in for more fun than you can possibly imagine, playing music with the *Echoplex Digital Pro*. This is the spiritual successor to the original *Echoplex*, a device made by Maestro in the 1960s that relied on tape loops to create effects. It was used extensively by the Jimi Hendrix, the Doors, and many others. Now, the temperamental tape technology that terminated the triumph of the original *Echoplex* has been replaced by high-fidelity, utterly consistent digital technology. Not only does this result in increased sound quality, but the flexibility afforded by programmable digital control also makes possible a much wider range of performance options.

INSTANT GRATIFICATION AND DEPTH

One of the great things about the *Echoplex Digital Pro* is that it offers both instant gratification and depth. Once you hook it up, it will probably take you about 10 minutes to learn how to work the basic functions and start making music. After that, you may be intoxicated with power for an hour or two before you're ready to come back and learn more. The *Echoplex Digital Pro* will reward further study, because there are layers of refinements that will allow you to create more complex pieces with interesting variations. But, because you start making cool music from day 1, you can learn to use these refinements at your own pace, gradually adding to your bag of *Echoplex* tricks when you have the time and energy. We've tried to make that process as efficient for you as possible by providing you with a carefully-planned front panel, footpedal, and manual.

In the next few paragraphs, you'll learn the basics of using your *Echoplex Digital Pro*. After you've recovered from the shocking joy of your first loops, browse through this manual at your leisure. You'll discover lots of new ideas that will keep you coming back time after time.

▶ *Make the connections*

The basic connections for using the *Echoplex Digital Pro* are quite simple: power, audio in and out, and the optional footpedal. Follow along with the steps below, and refer to *Figures 2.1* and *2.3* in Chapter 2 for more information.

1. Check that the **Power Selector Switch** on the back of the unit is set properly for your power source—115V for US- and Japanese-style power outlets, or 230V for European-style. If it is set incorrectly, change it to the correct setting with a screwdriver.
2. Plug the *Echoplex Digital Pro* into a power source using the supplied power cord.
3. If you own the optional *EFC-7* footpedal, connect it to the **Footpedal jack** on the back panel using a standard guitar cord with 1/4" phone plugs on each end.
4. Connect an audio source to the *Echoplex*'s back-panel **Audio Input jack** with a standard guitar cord, or plug a high-impedance microphone directly into the jack. The *Echoplex Digital Pro* can accept microphone-level, instrument-level, and line-level inputs (along with anything in-between).
5. Connect the *Echoplex*'s **Audio Output jack** to an amplifier, mixer, or preamp to let you hear what's happening!

   These are all the basic connections. See Chapter 2 for information on additional possibilities.

▶ *Turn it On*

Use the power switch at the right of the *Echoplex Digital Pro* to turn it on. The display will briefly show the software version number and then switch to the standard display (see the section titled "The Display" in Chapter 2).

▶ *Set the Levels*

1. Turn the **Output** knob all the way off.
2. Turn the **Feedback Knob** all the way up. This is the best setting for most uses of the *Echoplex Digital Pro*. See *Feedback Knob* in the Reference chapter for more information.
3. The **Mix** knob lets you balance the volumes of your playing and loop playback. Set it to the half-way point (straight up) to start with.
4. Set the **Input** knob so that the LED light labeled "Input" is dark when you're not playing anything, green when you play at normal levels, and orange when you play at your loudest levels. This light will turn red if you overload the *Echoplex*, causing ugly digital distortion in your loops. If this happens, turn down the **Input** level.
5. Play your instrument and adjust the **Output** knob until you reach a pleasant listening volume.

▶ *Record*

It's easy to record your first loop.

1. Press the **Record** button.
2. Play a few notes.
3. Press the **Record** button.

Now you should be hearing your notes loop over and over again. If you don't like what you recorded, simply repeat the steps above once again.

The **Record** function starts instantaneously when you press the **Record** button. You'll probably find that you get the best timing results if you press **Record** simultaneously with the first note or chord of your loop (as opposed to trying to press it an instant before). To end recording, press it exactly at the time when you want the loop to restart (right on the downbeat, if you're recording rhythmically). A few minutes of practice will be all that you need to create great loops with no audio or rhythmic glitches.

As you record, you'll see the length of the current recording in the display. Keep an eye on this, especially if you don't have much memory installed in your unit (see Appendix A, *Memory* for more details). Your maximum recording time is displayed when you first power on the *Echoplex Digital Pro*. If you exceed this time during recording, your loop

won't be kept (with the default settings. See *Overflow* in the Reference chapter for other options).

If your loop seems surprisingly loud or soft in relation to what you played, adjust the Mix level and make a new recording (repeating steps 1-3 aove). Keep doing this until you find the right balance.

If you want to record a new loop, simply repeat steps 1-3 above. If you want to reset (completely clear) the loop, simply press and hold the **Record** button for a couple of seconds.

For more information on recording, see *Record* in the Reference chapter.

▶ Mute

If you get sick of listening to your loop, you can silence it without erasing it by pressing the **Mute** button. The light under the **Mute** button on the front panel will turn red. Press the **Mute** button a second time to hear your loop again.

For more information, see *MuteMode* in the Reference chapter.

▶ Overdub

Now that you have a loop running, let's start to have some fun by overdubbing some additional sounds. It's incredibly easy.

1. Press **Overdub**. The **Overdub** light turns red.
2. Play. Each time the loop restarts, you'll hear whatever you played during the last pass added to the mix.
3. When you're done overdubbing, press **Overdub** again to stop (it's a good idea to not leave the Overdub function on when you're not actually playing).

   For more information, see *Overdub* in the Reference chapter.

▶ Undo

If you don't like what you've just overdubbed, you can press **Undo** to erase it. If your loop length is short compared to the amount of memory in your *Echoplex*, **Undo** can erase the layers of overdubs one by one. However, this capability is limited by the amount of memory that you

have installed. If your loop length is longer than half your memory capacity, for instance, you won't be able to **Undo** at all.

Undo also cancels a function that you may have started by accident. After you press **Record** without meaning to, for instance, you can recover your loop simply by pressing **Undo** instead of **Record** to end the Record operation.

For more information, see *Undo* in the Reference chapter.

▶ *Multiply*

Multiply is like **Overdub**, except that **Multiply** lets you record longer passages. For instance, you can use **Multiply** to overlay a 4-bar bass riff over two repetitions of a 2-bar chord pattern. Or, if you have enough memory, you can use **Multiply** to record a long solo over a repetitive backing track. It's a powerful function that adds a lot to your expressive capabilities using the *Echoplex Digital Pro*.

Here's a quick introduction to **Multiply**:

1. Record a simple, short loop.
2. Press **Multiply** and play over several repetitions of the loop.
3. Press **Multiply** again to end the recording.

Multiply doesn't restart the loop the instant you press it the second time—it always "rounds up" so that the original loop isn't cut-off in the middle.

Notice that the right-hand digit of the display counts the repetitions of your first loop as the entire loop is played back. There are a number of situations where we'll need to distinguish between these, so we'll introduce some terminology:

KEY POINT: The first loop, the "atom" that you started with, is called a *cycle.* We'll reserve the term *loop* to refer to the full loop, which can consist of several full cycles (never a fractional number of cycles, like 2-1/2). If you've just recorded a single loop and not used **Multiply** or **Insert**, then your loop will be exactly one cycle long.

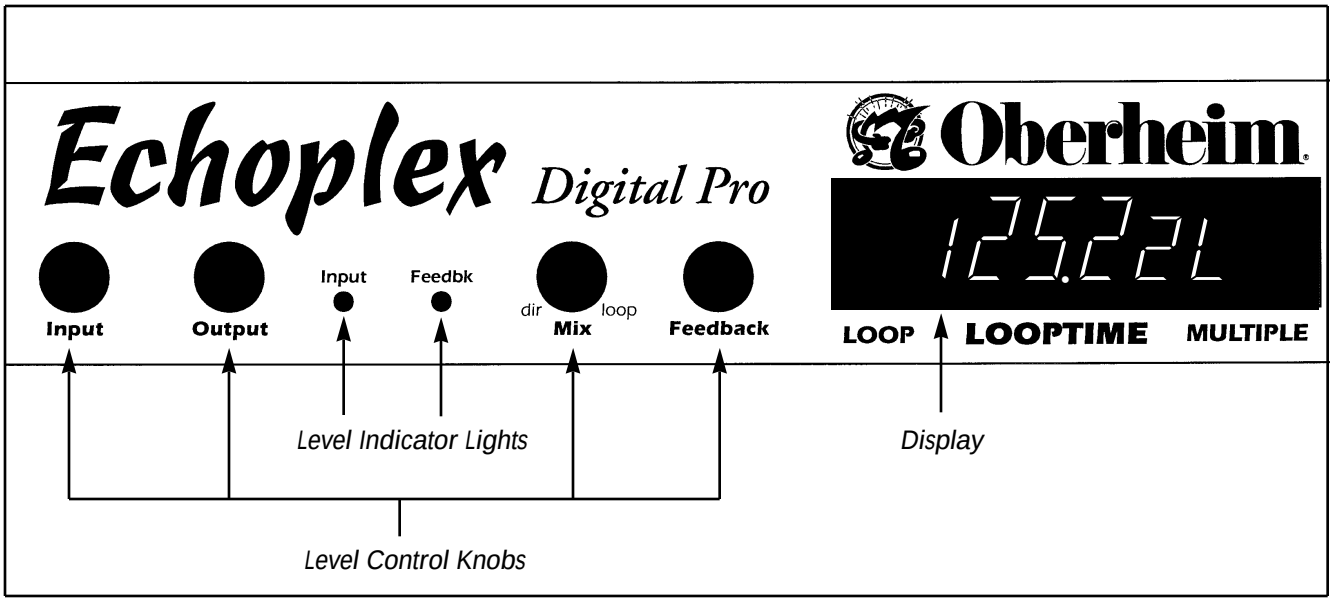


FIGURE 2.1A: *The Echoplex Digital Pro front panel, left half*

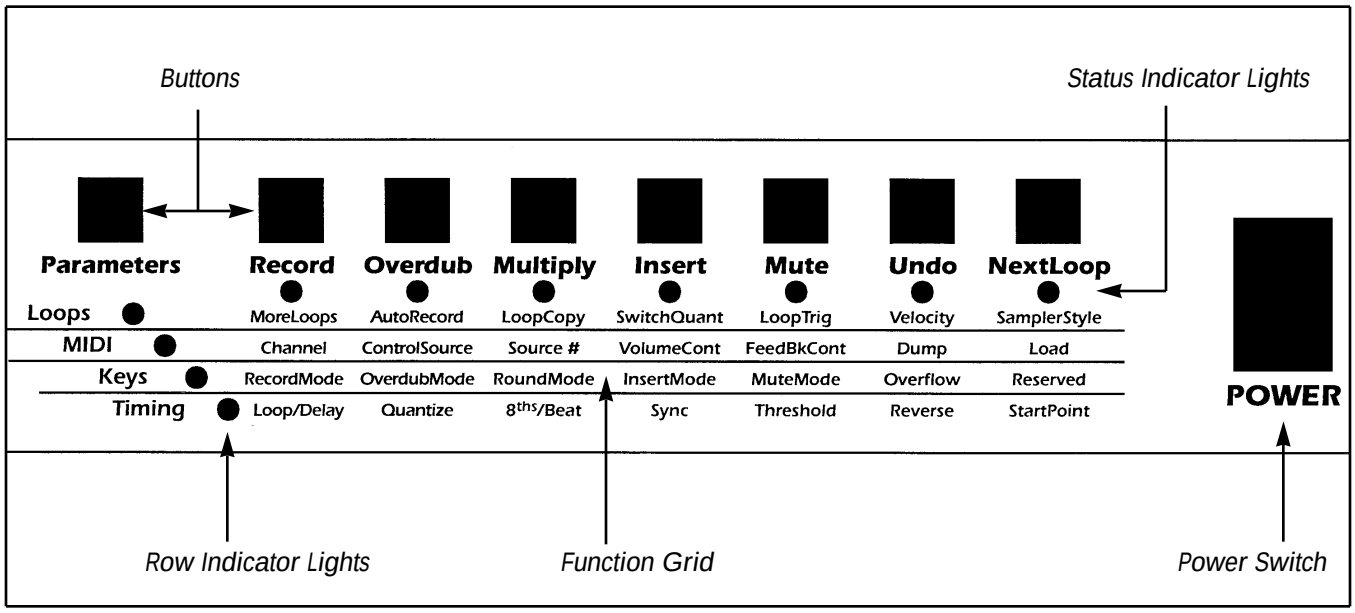


FIGURE 2.1B: *The Echoplex Digital Pro front panel, right half*

CHAPTER 2

Front, Back and Underfoot

In this chapter we'll discuss the physical elements of the interface: the front panel, optional *EFC-7* footpedal, and back panel.

THE FRONT PANEL

The front panel of the *Echoplex Digital Pro* contains a **Power Switch**, **Knobs** that set critical levels, two multicolored **Level Indicator Lights** to monitor levels, a 6-character **Display** that shows timing and other information, and a row of eight multi-function **Buttons** for setting parameters and operating the unit. It also contains four **Row Indicator Lights,** controlled by the **Parameter** button, that determine which set of functions or parameters correspond to the buttons. Each button has a multi-colored **Status Indicator Light**.

▶ *Level Control Knobs*

The four *Level Control Knobs* control the input and output levels, the mix between the input signal and the looped or delayed signal, and the feedback level. The *Quick Start* in Chapter 1 describes how to set these levels, and you'll find more information in the entries for **Input Knob, Output Knob, Mix Knob**, and **Feedback Knob** in the Reference chapter.

▶ Level Indicator Lights

These multicolored lights monitor audio levels. The **Input Indicator** monitors the levels that are received at the audio input jack on the back panel, while the **Feedbk Indicator** monitors the volume of the material that is recorded in the current loop.

When one of these lights is dark, it is measuring very little (or no) signal. When it is green, the signal is healthy. Orange indicators are fine too, with the signal at a good level. The orange color indicates that caution should be displayed, however, because the levels are approaching the red zone. Levels that cause the indicator lights to glow red will cause distortion.

You can't do much about controlling the level already in the loop, except to lower the feedback, to **Undo** recent actions, or to reset the loop. However, you can and should control the input level as follows:

KEY POINT: Set the **Input Knob** so that the loudest signals make the **Input Indicator Light** turn orange. It should *never* turn red.

▶ Display

The *Echoplex* display conveys some critical information in a compact manner, as the following illustration shows:

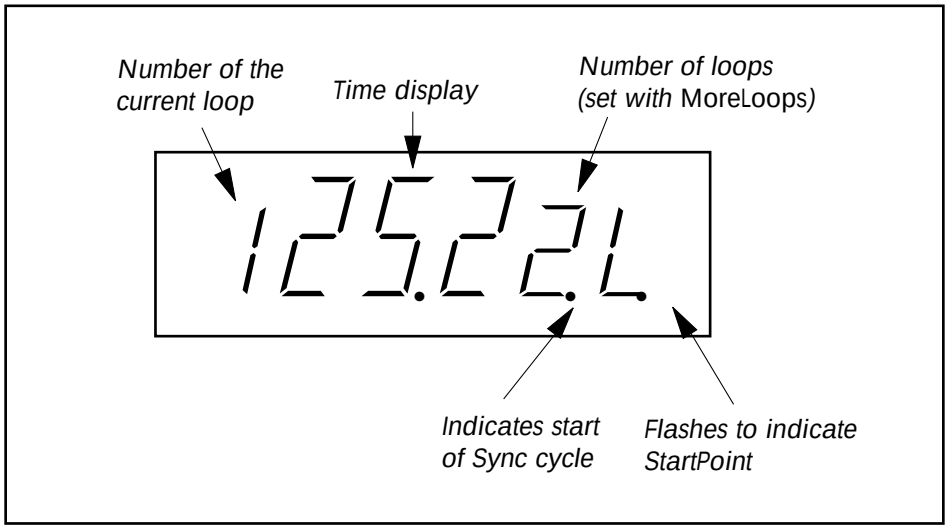


FIGURE 2.2 *The display provides important information about current operations and status*

The time display takes on different roles according to the context. When you first power on the *Echoplex,* it will show the amount of time

available in the current loop (if *MoreLoops=1*, it will show the total time available, reflecting the amount of memory installed in the unit). When you're in Record, Multiply, or Insert operations, the time display will keep track of how much time you've recorded so far. Once something has been recorded into a loop, the time display will show the length of the current loop. And, once you've reset a loop, the time display will be blank until you record some material in the loop.

The rightmost dot flashes at the beginning of each loop. See *StartPoint* in the Reference chapter for a discussion of its significance and how to reposition the loop beginning. The dot next to it flashes during sync operations when *Sync* is on. See the discussion of *Sync* in the Reference chapter for more information.

▶ *Buttons and Row Indicator Lights*

PLAY MODE AND THE ROW INDICATOR LIGHTS

The row of 8 buttons on the right side of the *Echoplex Digital Pro* control most operations. The leftmost button, labeled **Parameters** alters the meaning of the other buttons. When none of the *Row Indicator Lights* to the left of the *function grid* (the printed names of all the functions, arranged in a 4x8 grid under the buttons) are lit, then all buttons perform their primary functions: **Record, Overdub, Multiply,** etc. This state is what we call Play Mode, and is probably where you'll spend the most time while performing. Pressing the **Parameter** button several times selects each row in turn, lighting the corresponding indicator light.

When a row indicator light is lit, then the buttons (other than **Parameters**) take on the meanings written in that row of the grid. For instance, when the **Loops** light is on, the **Record** button no longer performs the Record function; instead, it finds a convenient phone booth and changes into the **MoreLoops** button, able to increase the number of loops with a single push. When we refer to this in the text, we'll utilize both button names; for example, "Press the **Record (MoreLoops)** button."

THE PERSISTENCE OF MEMORY

All changes to parameters are active as soon as you make them, and they're stored into permanent memory when you choose a different parameter or press the **Parameter** button.

KEY POINT: If you shut off the *Echoplex Digital Pro* and restart it, all your saved parameters will remain the same (although you will lose any music that you have in your loops).

You can reset all parameters to their factory defaults by holding down the **Parameters** button when you power up.

▶ *Status Indicator Lights*

As you take the *Echoplex* through its paces, you'll discover that the lights directly under the front-panel buttons change. Here are the meanings of these lights, valid whenever you're in Play mode (none of the Row Indicator Lights lit):

Unlit: the function is unavailable.

Green: the button is ready to perform its usual function.

Orange: the button is available, but will perform a function other than its usual one—one that's especially appropriate to the current activity or state of the instrument.

Red: the button was the last pressed and is the most likely candidate to end the function that it started.

THE *EFC-7* FOOTPEDAL

The buttons on the optional *EFC-7* footpedal perform exactly the same function as the buttons on the *Echoplex Digital Pro's* front panel. Anytime that this manual refers to "the **Record** button," either the front-panel button or the footswitch can be used.

The only button missing on the footcontroller is the **Parameters** button, which takes you out of Play mode and lets you edit parameters. We felt that it would be inappropriate to put this button on the footcontroller, as it might take you to an unexpected place if pressed

accidentally during a performance. If you are electro-mechanically adept and wish to build a footpedal incorporating this button, you can obtain instructions in how to do so by contacting Oberheim technical support at the number in the front of this manual.

THE BACK PANEL

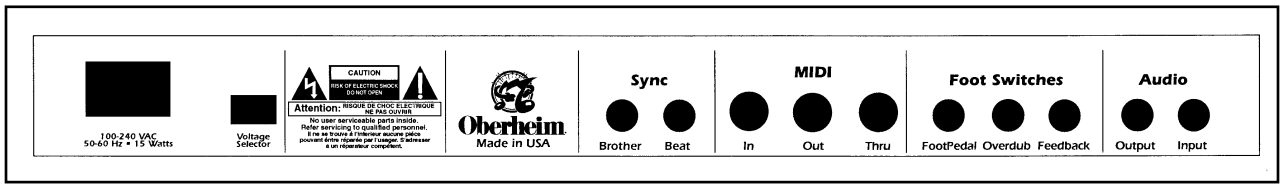


FIGURE 2.3: *The Echoplex Digital Pro back panel*

The back panel contains all the jacks for connecting the *Echoplex Digital Pro* to the rest of the world.

▶ *Audio Connections*

The *Echoplex Digital Pro* can accept a wide range of audio signals as input, and it outputs a line-level signal that can be attenuated by the Output knob (or MIDI Control Change messages). This makes it fit easily into a number of audio configurations, such as:

- Plug a guitar, keyboard, or high-impedance microphone directly into the *Echoplex* and plug the output into any amplifier or preamplifier.
- Put the *Echoplex* in the effects loop of your favorite amplifier or effects device.
- Plug the final output of your favorite effects device directly into the *Echoplex* and plug the *Echoplex* output into any amplifier or preamplifier.
- Connect the *Echoplex* to the Effects (Aux) Send and Return of your mixer.

- Connect a pair of *Echoplexes* to loop stereo signals. Refer to the "Stereo" section later in this chapter.

▶ MIDI Connections

The standard MIDI In, Out and Thru ports are described in detail under the *MIDI Ports* heading in the Reference chapter. A wide range of MIDI functions are available to you. These are summarized at the start of Chapter 3.

▶ Footswitch Jacks

FEEDBACK

1/4" jack that connects to the output of a passive volume pedal (one that doesn't require power) with a standard guitar cord. This connector doesn't work with all pedals, but it will work with many, including the popular Boss FV-50. Call Oberheim if you are in doubt about whether a particular pedal will work (or test it, if it's convenient).

OVERDUB

A 1/4" mono phone jack for attaching a momentary switch. This is useful if you don't own the *EFC-7* footpedal or if you prefer to use a different style of footswitch (one with a different feel, like a sustain pedal modeled after a piano pedal). This would be especially appropriate for if you like to play with *OverdubMode=On*

FOOTPEDAL

A 1/4" mono phone jack that connects to the optional *EFC-7* footpedal with a standard guitar cord. This jack also accepts a momentary switch to execute the Record function.

▶ *Sync Jacks*

These jacks are used to synchronize to external sync pulses or to synchronize multiple *Echoplexes*. The **BeatSync** jack takes 1/4 mono cord, while **Brother Sync** uses a 1/4" stereo cable. See the Reference chapter entries for *BeatSync* and *BrotherSync* for more information.

▶ *Voltage Selector Switch*

The *Echoplex Digital Pro* can operate on US-style 115V power, Japanese-style 100V power, and on European-style 230V power. All that's required is that the **Voltage Selector Switch** be set properly and the proper power cord be attached to the **Power Input Jack**.

▶ *Power Input Jack*

Use a power cord to connect this to a wall socket after checking that the **Voltage Selector Switch** is set properly.

STEREO OPERATION

You can use a pair of *Echoplex Digital Pros* to loop stereo signals. A BrotherSync connection will ensure that the two halves of the signal maintain their phase relationships through loops of any length. A MIDI connection provides simultaneous control over the process. *Figure 2.4* shows the way to create a seamless connection. The values of all parameters in the MIDI row of the function grid should be set identically in both units.

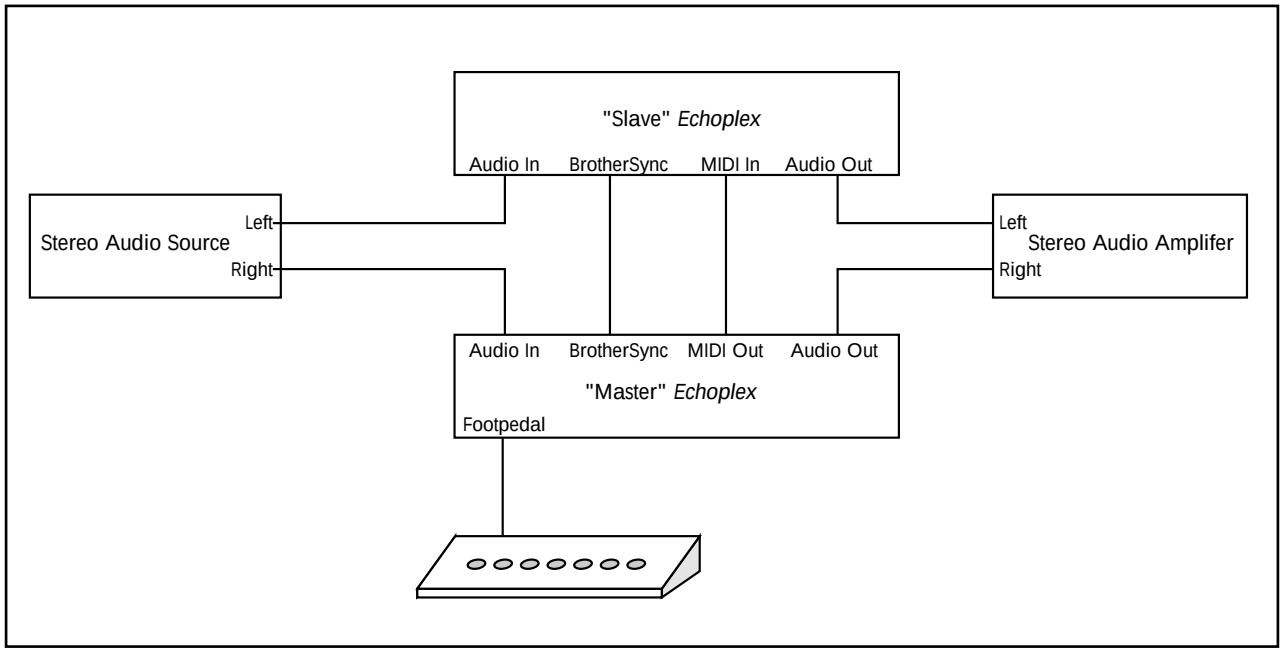


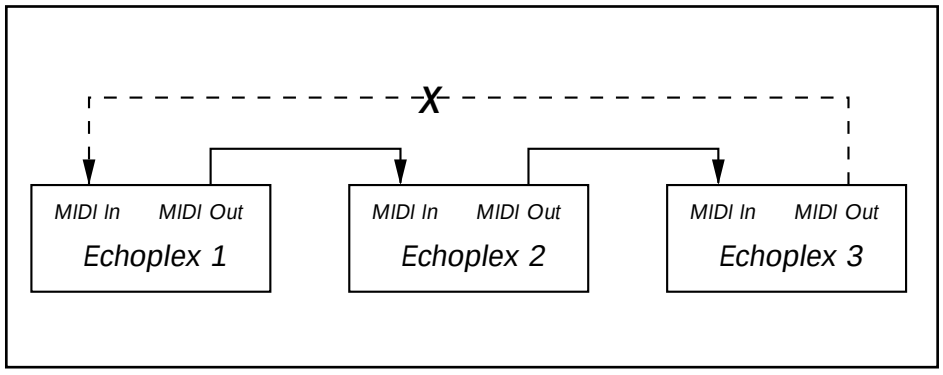
FIGURE 2.4: *Using a pair of Echoplexes to loop or delay stereo signals*

CHAPTER 3

MIDI

There are a number of different ways that MIDI interacts with the *Echoplex Digital Pro*. These are:

- Loops can be dumped to sequencers and samplers, and loaded from these devices, without any loss of sound quality (see the *Dump* and *Load* entries in the Reference chapter).
- MIDI Note On messages can be used to trigger loops (see the *LoopTrig* and *SamplerStyle* entries in the Reference chapter).
- MIDI clocks can be used to synchronize the cycle time with drum machines and sequencers (see the *Sync* entry in the Reference chapter).
- MIDI Continuous Controllers can be used to control Volume and Feedback levels (see the *VolumeCont* and *FeedBkCont* entries in the Reference chapter).
- You can control all front-panel operations with Note On or Control Change messages (see the *ControlSource* entry in the Reference chapter).
- One *Echoplex* can control numerous others by connecting the MIDI Out port of each one to the MIDI In port of the next, as in the figure below. Be careful not to complete the circle and make a closed loop.



CHAPTER 4

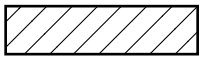
Reference

This chapter is a comprehensive reference for the *Echoplex Digital Pro*. You can find any function or button name, any knob, and any jack by looking for its name in the upper outside corners of these pages.

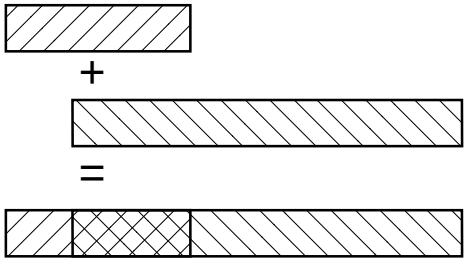
KEY TO THE DIAGRAMS

Some of the entries in this section contain diagrams portraying the way various *Echoplex* functions behave. Here are some tips that will help you to interpret them:

- Musical material is represented as boxes filled with patterns, like this:



- When musical material is mixed together, the patterns are shown overlapping, like this:



- Button pushes are indicated by vertical lines with arrowheads at the ends, labeled by the first letter of the button. The button abbreviations are:

  R **Record** button
  O **Overdub** button
  M **Multiply** button
  I **Insert** button
  Me **Mute** button
  U **Undo** button
  N **NextLoop** button

The arrows have the following meanings:

Press and release the button in one motion.

Press the button and hold it down

Release the button

Synchronization parameter.

Values: 1-20

When synchronizing with MIDI, this determines the number of 8th-notes that make up each cycle (or beat). In order to use this feature, you must have a device that generates or syncs to MIDI Clock messages. This device will usually be a sequencer or drum machine. In this discussion, we'll refer to a device that generates MIDI clocks as a *clock source*.

Example 4.1: Syncing to an external MIDI clock

1. Set *8ths/Beat=8*. This means that each beat (cycle) will be eight eighth-notes (one measure) long.
2. Set *Sync=In*.
3. Connect the **MIDI Out** port of a clock source to the *Echoplex Digital Pro's* **MIDI In** port using a standard MIDI cable.
4. Make sure that your clock source is set to transmit MIDI Clocks (this setting is usually found under a "MIDI" or "Sync" menu or function key).
5. Reset the current loop by holding down the **Record** button for several seconds.
6. Load a rhythm pattern or sequence into your clock source, set it up to loop indefinitely, and hit Play. At the beginning of each measure, you will see the sync LED flash on the *Echoplex* display.
7. The next time you hit **Record,** the *Echoplex* will wait for the beginning of the next measure before starting the Record process. You end the Record operation by pressing the **Record** button a second time. Instead of ending immediately, recording will continue until the next measure boundary, as determined by the incoming MIDI clocks.
8. Once you've recorded your first cycle this way, the *Echoplex* continues to monitor the clock source and maintain synchronization. However, once the basic loop is recorded, the *Echoplex* will not change the timing or

playback speed of the loop to respond to changes in your clock rate. Sequences with tempo changes in them, therefore, are not good choices for sync sources for the *Echoplex*.

Another useful variation on the above theme is to reset the current loop and briefly send MIDI clock to the *Echoplex* from your clock source. You can easily do this by playing a single empty measure from a sequencer. Once the Echoplex has received MIDI clock while in reset, it will know to expect more. Press **Record** before restarting your clock source. Then, the *Echoplex* will wait for the first clock pulse before recording, displaying "ooo" in the display while it does so. This is a good way to get the Echoplex and a sequencer to start simultaneously. Some sequencers make this approach difficult, however, because they send out MIDI clocks even when they're not actively playing.

Example 4.2: Syncing a drum machine or sequencer to the Echoplex

1. Set *8ths/Beat=8.* This means that each beat (cycle) will be eight eighth-notes (one measure) long.
2. Set *Sync=Out.*
3. Connect the **MIDI In** port of a sequencer or drum machine to the *Echoplex Digital Pro*'s **MIDI Out** port using a standard MIDI cable.
4. Load a pattern or sequence into your drum machine or sequencer. Set the clock parameter to *Internal* and play back the material to verify that your MIDI and audio connections are working. Stop the device.
5. Set your drum machine or sequencer to sync to incoming MIDI Clocks.
6. Press Play on your drum machine or sequencer. It will wait for incoming clocks before taking off.
7. Record a loop one measure long (in 4/4 time) in the *Echoplex*. As soon as you press **Record** the second time, MIDI clocks will be transmitted. Your drum machine or sequencer should play back in perfect sync.

   If you want to sync to loops that have different lengths, set *8ths/Beat* appropriately. For instance, set 8ths/Beat=6 to sync to a 3/4 time measure, or set *8ths/Beat=16* to sync to 2 4-beat measures.

8ths/Beat

Continued

There's a limit to how fast the *Echoplex* will transmit MIDI clocks—the equivalent of about 310 beats per minute. If you create a loop that's 1/2 a second long with *8ths/Beat=16*, then that 1/2 second will represent 2 measures, or 8 beats. Since there are 120 1/2 seconds in a minute, each with 8 beats, the effective timing would be 960 beats per second, which isn't very common in musical usage, and won't be transmitted by the *Echoplex*. The moral: short loops and high values of *8ths/Beat* don't mix.

AutoRecord

Default: Off

Parameter Row: Loops

Starts recording whenever you enter an empty loop.

Values: Off, On

When this is on, the *Echoplex Digital Pro* will start recording every time you enter an empty loop. This only applies when the number of loops is more than one.

Example 4.3: AutoRecord

1. Set the number of loops to 2 with *MoreLoops*
2. Record a short loop in loop 1
3. Press the **NextLoop** button
4. Start playing right away—you'll be recording
5. Press **Record** or **NextLoop** to end recording in Loop 2

See Also: MoreLoops, SwitchQuant, LoopTrig, NextLoop

BeatSync

Back Panel

Accepts and transmits a pulse that can synchronize several Echoplexes or trigger loop playback. Good for producing stuttering effects.

The **BeatSync** jack accepts a 1/4" mono phone plug. When *Sync=Out*, an audible pulse that is the equivalent of a switch closure will be sent out this jack at the start of every cycle. When *Sync=In* and no incoming MIDI clocks are present, record operations will be quantized to incoming pulses. The incoming pulses can be generated by another *Echoplex*, an ordinary footswitch, or a line-level audio signal.

Applications of **BeatSync** include rhythmically-relating the cycle times of two or more *Echoplexes*, letting a trigger or footswitch other than the **Record** button on the footpedal control recording, and creating stuttering playback effects. If you want to use a pair of *Echoplexes* to loop recordings from a stereo source, you'd be best off using **BrotherSync** instead of **BeatSync**.

Example 4.4: Synchronizing Two Echoplexes

1. Connect a 1/4" mono cable between two *Echoplexes*.
2. Set *Sync=Out* on one *Echoplex*. This will be the master.
3. Set *Sync=In* on the other *Echoplex*. This will be the slave. Put its current loop into reset.
4. Record a loop in the master *Echoplex*.
5. Somewhere in the middle of the master loop, press **Record** on the slave. The display will show "ooo," indicating that the *Echoplex* is waiting for a sync pulse before recording.
6. When the loop on the master reaches its start point, the slave will start recording.
7. Press **Record** again to stop recording. The display will show "ooo," and recording will continue until the next pulse comes in.

BeatSync

Continued

Example 4.5: Foot-Controlled Stuttering (Mute/Multiply)

1. Connect a footswitch to the **BeatSync** jack.
2. Record a loop.
3. Press **Mute,** then **Multiply**.
4. Press the footswitch. The loop you've just recorded will start playing back. Every time you press the footswitch, the loop will restart from its beginning.

See also: BrotherSync

BrotherSync

Back Panel

Synchronizes multiple Echoplexes at the sample level, while allowing any one of them to define the basic cycle length for the group. Especially useful for stereo recording, multi-track looping, and jamming with multiple Echoplex users.

The **BrotherSync** jack accepts a 1/4" stereo phone plug.

BrotherSync provides the tightest possible synchronization among multiple *Echoplexes*. It maintains synchronization at the sample level. Among other things, this enables you to use two *Echoplexes* to record the separate halves of a stereo signal. When locked together with BrotherSync, the units will remain in lockstep, without even shifting phases between them over 198-second loops. *Figure 2.4* on page 2-8 is a diagram of exactly how best to accomplish this.

You can use stereo Y-cords to connect the BrotherSync jacks of many *Echoplexes*. On each unit, set Sync=out and reset the current loop. From then on, any unit can define the basic cycle time just by recording a loop. The other units can then be synchronized to that loop time. Have an *Echoplex* jam session! If you think that the *Echoplex* opens up a lot of possibilities for a single player, imagine the possibilities for multiple performers.

Comparison of BeatSync and BrotherSync

When connecting *Echoplexes* to each other, BrotherSync syncs loop times and start points just like BeatSync. BrotherSync has an advantage for this use, in that the sample-level sync is even tighter and any of the units can define the loop time. The reason that both forms are provided is that BeatSync still has one advantage: the **BrotherSync** jack will not accept input from a footswitch.

See also: BeatSync

Channel

Default: 1

Parameter Row: MIDI

Determines the MIDI channel for all MIDI functions.

Values: 1-16

This sets the MIDI channel for automating *Echoplex* operations and transferring loops with MIDI Sample Dump messages. See the entries for ControlSource, Source #, Dump and Load for more information.

Sets up MIDI control of Echoplex Digital Pro operations.

Values: Notes (not), Controllers (Ctr), Off (OFF)

This parameter controls how (and if) *Echoplex Digital Pro* operations are transmitted and received over MIDI. It is useful primarily if you have an interest in controlling the *Echoplex Digital Pro* from a sequencer or from a programmable footcontroller. If you are controlling one or more "slave" *Echoplexes* from a single "master," all the values for *ControlSource* among the various units should be identical (and not *Off*).

Every button on the *Echoplex Digital Pro* front panel (and the corresponding buttons on the footpedal) can generate either a Note On or a Continuous Controller (with value 64) when it is pressed. When it is released, the corresponding Note Off or Continuous Controller with value 0 is sent. This allows a sequencer to capture and later recreate almost any sequence of *Echoplex* moves, no matter how complex. The fact that each button push and release pair generates a pair of MIDI messages allows you to duplicate long presses of buttons that either initiate special functions or reset parameters to their default values.

When *ControlSource=Notes,* each button press will send out a pair of notes (exactly which notes is controlled by the *Source #* parameter). When *ControlSource* is set to *Controllers,* each button press will send out a pair of Continuous Controllers. Each of these methods works equally well—the only reason that you might be compelled to set this to *Controllers* is if you want to embed a track of *Echoplex* control commands into a sequence that is playing notes on all 16 MIDI channels. You can usually choose a starting controller number (with Source #) so that the *Echoplex* commands will be able to share a channel with a stream of notes destined for a sound module without affecting their sound.

You generally won't know what state the *Echoplex Digital Pro* will be in when you play back your control sequence. Because of this, there are many cases where it's not enough to simply record your button pushes. Suppose, for instance, that you want to create a short sequence to change the *SamplerStyle* to *One.* If you start from the normal playing

state, and also have *SamplerStyle* set to its default value of *Run*, it takes 4 pushes of the **Parameters** button and two pushes of the **NextLoop (SamplerStyle)** button to accomplish this. So you record exactly those button pushes into a sequence. Fine. Then you play it back—Whoops! You didn't start from the same state as when you recorded the sequence, and the sequence starts a Load operation, wiping out your current loop. Ouch!

The moral of the story is that, when recording a control sequence, each button that you press should start with a long press to reset it to its default state.

Example 4.6: Creating a Sequence to Set SamplerStyle to One

1. Connect the MIDI Out from the *Echoplex Digital Pro* to the MIDI In of your sequencer.
2. Hit **Record** on your sequencer.
3. Hold down the **Parameter** button for a second or two. The *Echoplex Digital Pro* will shift into Play mode if it didn't start out there.
4. Press **Parameter** 4 times
5. Hold down the **NextLoop** button for a second or two. The *SamplerStyle* will change to *Run* if it didn't start out there.
6. Press the **NextLoop** button once.
7. Press the Stop button on your sequencer to end recording.

See also: Source #

Sends the contents of the current loop, in MIDI Sample Dump format.

The dump travels out the **MIDI Out** port. It's a good way to save your best loops to a sampler or sequencer. Later, you can use the Load function to load the loop back into the *Echoplex Digital Pro*. Dump and Load are digital data transfers that will not degrade the audio quality of your loops at all.

There are subtle differences about the way MIDI sample dump operations work with different instruments and sequencers. You always need a MIDI cable connecting the dumping instrument and the receiving (loading) instrument. A cable in the other direction, which allows both instruments to send "handshaking messages" that communicate instrument status and confirmations, are sometimes required by samplers and sometimes not. Even in those cases when a second cable is optional, adding one can speed up the dump and load processes.

Example 4.7: Dumping the Current Loop to a Sequencer

1. Record a loop.
2. Connect a MIDI cable from the **MIDI Out** port on the *Echoplex Digital Pro* to the MIDI In port on your sequencer.
3. If your sequencer has a special area for System Exclusive dumps, enter that area and press the "Receive" button. Otherwise, select a track to receive the dump and press the Record button on your sequencer.
4. Press the **Parameter** button on the *Echoplex Digital Pro* until the light next to the word "MIDI" is lit, and then press the **Undo (Dump)** button to start the dump. As the dump progresses, the numbers in the display on the *Echoplex Digital Pro* will change to reflect the percent of the dump already transmitted.. This type of exchange over MIDI is never fast, unfortunately. Transmission time will be 10 to 15 times the length of the current loop.
5. You can cancel the dump at any time by pressing any button.

Example 4.8: Responding to a Sample Dump Request

1. Record a loop.
2. Connect a MIDI cable from the **MIDI Out** port on the *Echoplex Digital Pro* to the **MIDI In** port on your sequencer, and connect a second cable from the **MIDI In** port on the *Echoplex Digital Pro* to the **MIDI Out** port on your sampler.
3. Press the **Parameter** button on the *Echoplex Digital Pro* until the light next to the word "MIDI" is lit, and then press the **NextLoop (Load)** button to start the dump. The Echoplex will go into a waiting state where it is ready to respond to Sample Dump Requests.
4. Send a Sample Dump Request from your sampler. The current loop will be sent to the sampler. As the dump progresses, the numbers in the display on the *Echoplex Digital Pro* will change to reflect the percent of the dump already transmitted.. This type of exchange over MIDI is never fast, unfortunately. Transmission time will be 10 to 15 times the length of the current loop.
5. You can cancel the dump at any time by pressing any button.

Feedbk Indicator

Front Panel

Displays the volume of the material in the loop.

When this light is dark, it is measuring very little (or no) signal. When it is green, the signal is healthy. Orange indicators are fine too, with the signal at a good level. Levels that cause the indicator lights to glow red will cause distortion.

Feedback Jack

Back Panel

Plug a volume pedal into this jack to control feedback levels with your foot.

This jack lets you use a passive volume pedal (one with no power supply or battery) to control the *Feedback* parameter. Use a standard guitar cord to connect a volume control's "Amplifier" output to this jack in order to use the pedal as a feedback controller.

This jack has been calibrated to work well with most passive volume pedals. If your pedal has a significantly-different resistance, it may not be able to span the full range of feedback levels.

The feedback value can be controlled by MIDI, by the **Feedback Knob** on the front panel, or by a volume pedal connected to the **Feedback Jack**.

See the explanation of the **Feedback Knob** in this chapter for the most detailed explanation of feedback.

THE EFFECT OF LOOP/DELAY

- When *Loop/Delay=Delay*, the pedal plugged into the **Feedback Jack** controls the input volume to the delay.
- When *Loop/Delay=Out*, the pedal plugged into the **Feedback Jack** controls the output volume of the loop.

See also: Channel, Feedback Knob, Feedback Jack, Loop/Delay

Feedback Knob

Front Panel

Sets the feedback level.

The feedback level is the amount of signal that is fed from one pass through the loop (or delay) to the next. For most looping operations, feedback is set to 100%, meaning that the loop will go on forever. While you're overdubbing or multiplying, the feedback level is scaled back to about 95% to prevent overloading the *Echoplex* with the combination of the old signal and the new.

Because feedback occurs at the end of a loop, you won't generally hear the effects of changing the feedback level immediately. If you set the feedback to 0, for instance, the current loop will play out to its end before you hear the volume drop to 0.

Setting the feedback to an intermediate level is a good way to create a smooth fadeout.

FeedBkCont

Default: 1

Parameter Row: MIDI

Choose a MIDI Controller for Feedback

Values: 0-99

This function lets you pick which MIDI Continuous Controller will control feedback. The feedback value can be controlled by MIDI, by the **Feedback Knob** on the front panel, or by a volume pedal connected to the **Feedback Jack** on the back panel.

See the explanation of the **Feedback Knob** in this chapter for the most detailed explanation of feedback.

See also: Channel, Feedback Knob, Feedback Jack

Footpedal Jack

Back Panel

A place to plug in a cord to connect to the EFC-7 footpedal.

Use a standard guitar cord, with 1/4" mono phone plugs on each end, to connect this jack to the optional *EFC-7* footpedal.

You can also attach an ordinary momentary footswitch to this jack, and it will function just like the **Record** button.

See Chapter 2 for information on the footpedal.

Input Indicator

Front Panel

Displays the level of the input.

When this light is dark, it is measuring very little (or no) signal. When it is green, the signal is healthy. Orange indicators are fine too, with the signal at a good level. Levels that cause the indicator lights to glow red will cause distortion.

Set the **Input Level Knob** so that the loudest levels cause the **Input Indicator Light** to turn orange, but never red.

See also: Quick Start, Input Knob, Input Jack

Input Jack

Back Panel

Plug in your instrument, mixer send, or microphone.

This back-panel jack accepts 1/4” phone plugs carrying the audio signal to be recorded or delayed. It is designed to accept a wide range of audio levels, including high-impedance microphone outputs, signals from electric guitars (with either passive or active electronics), and line-level signals from electronic instruments and mixers.

Input Knob

Front Panel

Controls the input level.

Set this so that the loudest levels cause the **Input Indicator Light** to turn orange, but never red.

See also: Input Indicator Light

Insert

Immediate Action

Play Mode

Inserts cycles, replaces sections, reverses playback, and lets you rehearse.

This is a redefinable button, capable of inserting sound into a loop in several different ways, and also capable of reversing the current loop. The behavior is set with the *InsertMode* parameter.

INSERTMODE=INSERT OR REHEARSE

When *InsertMode=Insert*, the **Insert** button performs its basic function of inserting segments into an existing loop. When *InsertMode=Rehearse*, all the functions in this section work the same—the only difference is in the way that Insert behaves as an alternate ending button for the Record operation. That behavior is described in detail under the "Alternate Endings" section of the *Record* entry.

There are a number of variations to examine here.

Example 4.9: Basic Behavior: InsertMode=Insert, Quantize Off

The Insert function is started by pressing the **Insert** button. There are several ways to end the function, but the most natural and common is to press the **Insert** button a second time. When you do this, you will always insert an exact number of cycles; in other words, you'll change the loop length but not the underlying cycle length. *Figure 4.1* demonstrates this behavior when *Quantize=Off*.

When you examine *Figure 4.1*, you'll see that there are two possible results shown, depending on the *RoundMode*. If *RoundMode=Round*, then the timing of your second press of the **Insert** button isn't critical—everything in the current cycle (measured from the first press of Insert)

is recorded. In contrast, if *RoundMode=Off,* then a section of silence (marked "A" in the figure) is inserted to fill out the time from the Insert press to the end of the insertion cycle.

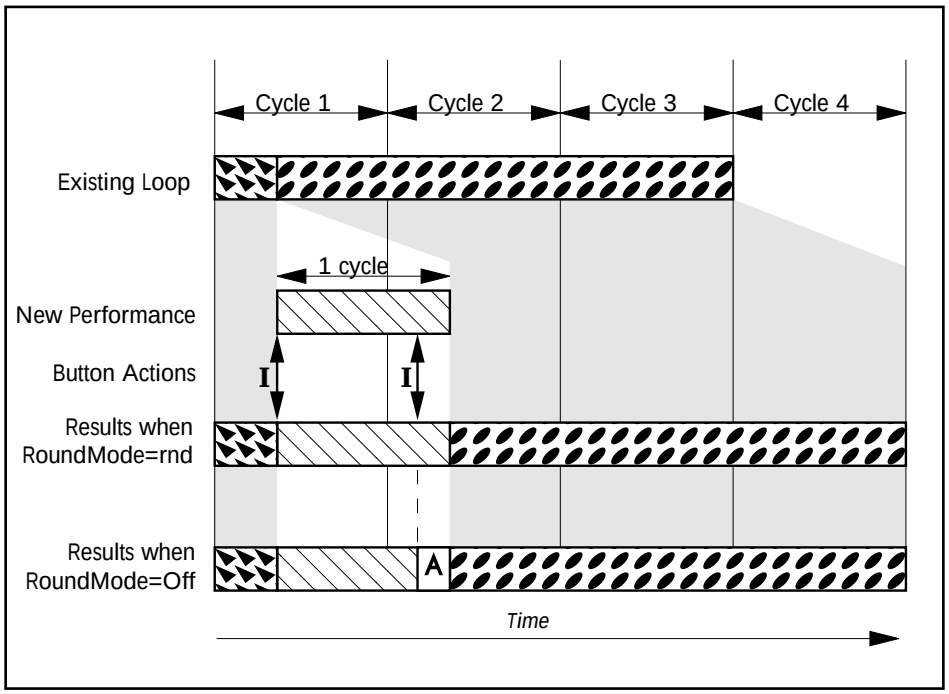


FIGURE 4.1
Basic operation of the ***Insert*** *button. InsertMode=Insert or Rehearse Quantize=Off*

Example 4.10: The Effect of Quantization

When *Quantize=On,* a press of the **Insert** button will cause insertion to start at the beginning of the next cycle. As in the previous example, ending the insertion with a second press of Insert will cause an exact number of cycles to be inserted—the insertion will end at the end of the current cycle (see *Figure 4.2*).

As in Example 4.9, the setting of *RoundMode* will determine whether music played after the second press of the Insert button is recorded or not.

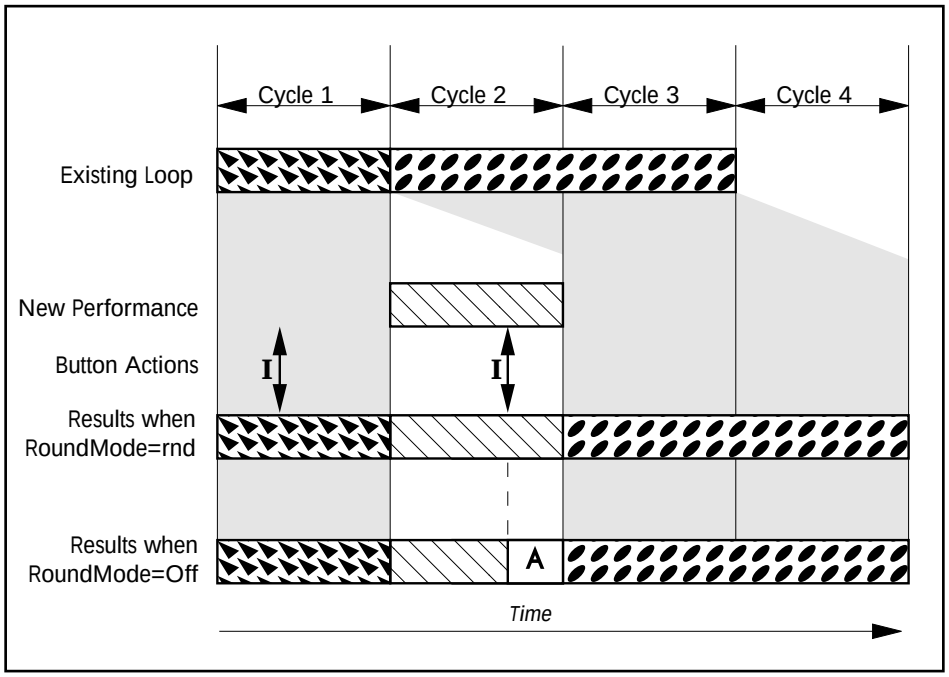


FIGURE 4.2
Quantized operation of the ***Insert*** *button. InsertMode=Insert or Rehearse Quantize=On*

Alternate Endings

The simplest way to end an Insert operation is to press the **Insert** button a second time. You'll get the results illustrated in examples above. However, you can also end the Insert by pressing any of the buttons whose front-panel lights are on during the Insert. You'll get some interesting results, as illustrated in the next few examples.

UNDO

If you end an Insert operation by pressing **Undo,** the loop will be returned to its state before you pressed **Insert**, if there is sufficient memory. See the *Undo* heading in this chapter for more information.

Insert

Continued

RECORD

Ending an Insert operation with the **Record** button causes the insert to end immediately, without waiting for the end of the current insertion cycle. Since the loop can't contain fractional cycles, the entire new loop will be considered a single cycle. *Figure 4.3* illustrates this behavior.

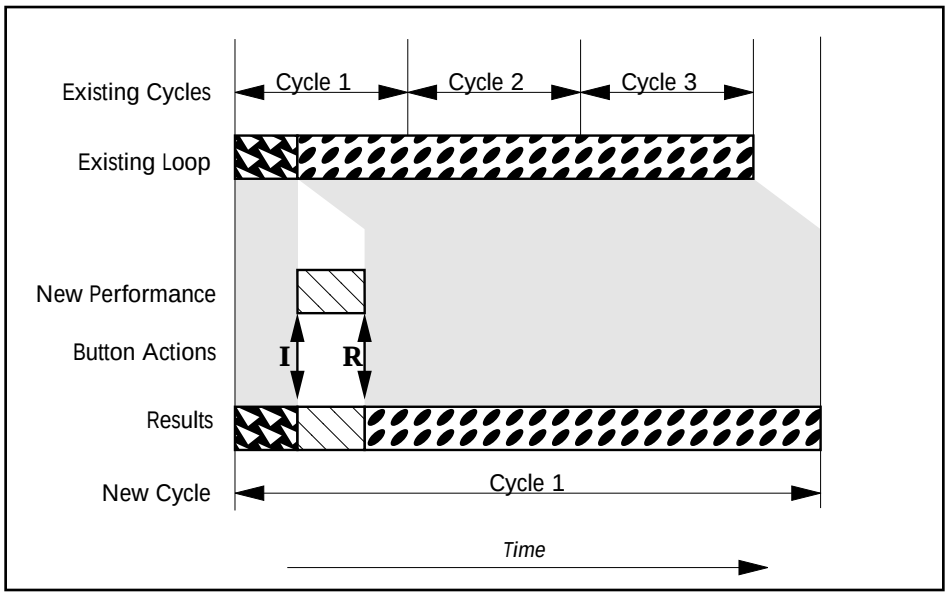


FIGURE 4.3
*Ending **Insert** with Record changes the cycle length. InsertMode=Insert or Rehearse Quantize=Off*

OVERDUB

Ending an Insert with **Overdub** is exactly like ending it with Insert, except that you are immediately put into **Overdub** mode. It's the equivalent of ending the insertion by pressing **Insert** a second time, and then pressing **Overdub** immediately.

MULTIPLY

Ending an Insert with **Multiply** is exactly like ending it with **Insert,** except that you are immediately put into Multiply mode. It's the equivalent of ending the insertion by pressing **Insert** a second time, and then pressing **Multiply** immediately.

MUTE

Ending an insertion with **Mute** is exactly like ending it with **Insert,** except that the audible sound will shut off as soon as you press the Mute button. Once you're in Mute mode, you can restart the sound with the mute button or with the Alternate Endings listed for the **Mute** entry later in this chapter.

REPLACING

The **Insert** button can also be used to replace material that is in the loop. This is accomplished by holding down **Insert** as you play the new material, instead of pressing and releasing it, as shown in *Figure 4-4.* This technique only works when *Quantize=Off.*

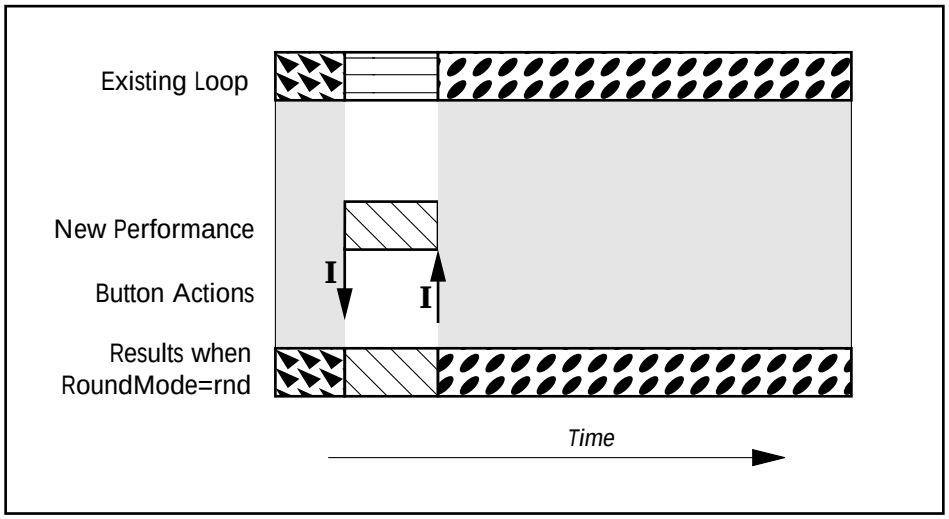


FIGURE 4.4
*Replacing with a long press of the **Insert** button. InsertMode=Insert Quantize=Off*

INSERT MODE=REHEARSE

When *InsertMode=Rehearse*, the behavior of the **Insert** button as a way to end recording changes. See the "Alternate Endings" section under the **Record** heading in this chapter for more information.

INSERT MODE=REPLACE

When *InsertMode=Replace*, each press and release of the Insert button will replace exactly one cycle in the loop with new material. If *Quantize=On*, this will happen at the end of the current cycle; if *Quantize=Off*, it will happen immediately.

INSERTMODE=REVERSE

When *InsertMode=Reverse*, the **Insert** button performs the same function as the **Reverse** button on the front panel, but more conveniently. See the discussion under the **Reverse** heading in this chapter for more details.

See Also: InsertMode, Reverse, Record, Undo

InsertMode

Default: Rehearse

Parameter Row: Keys

Affects the behavior of the Insert button

Values: Rehearse (rhr), Replace (rPL), Reverse (rEV), Insert (InS)

This can redefine the function of the Insert button. Among the options, the *Reverse* choice is the most radically distinctive—the other three choices are variations on the "Insertion" theme.

REHEARSE: When used in Play mode, this has the same meaning as if *InsertMode=Insert*, described fully under the *Insert* heading. The effect of *InsertMode=Rehearse* is felt when you end a Record with the **Insert** button. The cycle that you've just recorded will be played back exactly once, regardless of the *Feedback* setting. The underlying timing of the cycle will continue. If you play something that you really like and want to keep for more repetitions, press **Insert** again immediately after you've played it (before the cycle ends).

INSERT: When used in Play mode, this causes you to go into Insert mode, fully described under the *Insert* heading in this chapter. If *InsertMode=Insert*, pressing **Insert** at the end of a recording ends the recording and immediately inserts a second cycle (as it continues recording); in other words, it puts you into Insert mode. The insertion continues until memory runs out or you end it with **Insert** or an alternate ending for the Insert operation.

REPLACE: When used in Play mode, each press and release of the **Insert** button will insert a cycle in the loop and start recording (the timing of this is affected by *Quantize*). When *InsertMode=Replace* and **Insert** is used as an alternate ending during a Record, the Record ends as if you'd pressed the **Record** button.

REVERSE: When used in Play mode, this causes the current loop to be played backwards. When *InsertMode=Reverse* and **Insert** is used as an alternate ending during a Record, the Record ends and reversed playback starts immediately.

See also: Insert, Record

Loads the current loop from a MIDI Sample Dump

This replaces the current loop with the contents of a dump received at the **MIDI In** port. It's a good way to restore your best loops from a sampler or sequencer. Dump and Load are digital data transfers that will not degrade the audio quality of your loops at all.

Pressing **Load** puts you in a mode where there are several possibilities for transferring samples. Any samples that are received will be put in the current loop, erasing anything that was there.

Even though MIDI Sample Dump is a standard, many manufacturers have implemented it with slight variations. The *Echoplex* was designed to handle a wide range of difference.

When you're in Load mode, the *Echoplex* will respond to MIDI Sample Dump Requests. See *Example 4.8* under the **Dump** heading for more information.

Example 4.11: Loading the Current Loop from a Sequencer or Sampler without Handshaking

1. Load the contents of a previous dump into your sequencer, or load a sample into your sampler.
2. Connect a MIDI cable from the **MIDI Out** port on your sampler or sequencer to the **MIDI In** port on the *Echoplex Digital Pro*. If you also connect the **MIDI Out** of the *Echoplex* to the **MIDI In** of the sampler, then a faster dump can occur (provided that your sampler supports handshaking protocols).
3. Press the **Parameter** button on the *Echoplex Digital Pro* until the light next to the word "MIDI" is lit, and then press the **NextLoop (Load)** button to wait for the dump. The display will show moving dashes to indicate a wait state, along with the numbers 00 that indicate that no bytes have been received.

4. Start a dump on your sequencer or sampler. As the dump progresses, the numbers in the display on the *Echoplex Digital Pro* will change.
5. You can cancel the Load at any time by pressing any button.

Example 4.12: Loading a Sample with Handshaking, Echoplex Initiates

Handshaking allows the transmission to occur faster and more reliably. It is possible with a 2-way MIDI connection, if your sampler supports it.

1. Load the contents of a previous dump into your sequencer, or load a sample into your sampler.
2. Connect a MIDI cable from the **MIDI Out** port on your sampler or sequencer to the **MIDI In** port on the *Echoplex*, and connect another one from the **MIDI In** port on your sampler or sequencer to the **MIDI Out** port on the *Echoplex*.
3. Press the **Parameter** button on the *Echoplex* until the light next to the word "MIDI" is lit, and then press the **NextLoop (Load)** button to wait for the dump. The display will show moving dashes to indicate a wait state, along with the numbers 00 that indicate that no bytes have been received.
4. If your sampler recognizes MIDI Sample Dump Requests, then a second press of the **Load** button will initiate a dump. As the dump progresses, the numbers in the display on the *Echoplex* will change.
5. You can cancel the Load at any time by pressing any button.

See also: Channel, Dump

Switch between loop and digital delay applications.

Values: Loop (LOP), Delay (dEL), Output Volume (Out)

This parameter determines whether the *Echoplex Digital Pro* will act in its usual manner or as a versatile digital delay. The two outstanding features of the *Echoplex's* delay mode are that the delay time is controlled by tapping your toe on the **Record** button (making it simple to get in sync with songs at any tempo) and the really long delay times that are available. When the device is in delay mode, you set (and reset) the delay time by a pair of presses on the **Record** button. You'll probably want to keep the **Feedback** control set fairly low when you use the delay function.

DELAY MODE

In Delay mode, some actions have different effects than in Loop mode.

- The **Overdub** button performs a Hold function. While you keep the **Overdub** button held down, whatever was in the delay when you first pressed the button stays there, as if *Feedback* were 100%. At the same time, no new material is recorded into the delay.
- Any pedal attached to the **Feedback jack** will control the input volume to the delay rather than *feedback*.
- *Feedback* will only be controllable with the front-panel **Feedback Knob**.

OUT MODE

This *Out* choice for the *Loop/Delay* parameter is only available when a pedal is plugged into the **Feedback jack**. This state is identical to normal loop mode, except that the pedal will now control the output volume of the loop, and *feedback* will be controllable only front the front panel.

See also: Feedback Knob

LoopCopy

Parameter Row: Loops

Copies the current loop into the next, in several ways

Values: Off, Timing, Sound

When *LoopCopy* is not *Off*, it will cause the contents (if *LoopCopy=Sound*) or timing (if *LoopCopy=Timing*) of the current loop to be automatically copied into every empty (reset) loop that you enter.

If *AutoRecord=On* and *LoopCopy* is not *Off*, *LoopCopy* will take precedence, and the *Echoplex* will behave as if *AutoRecord=Off.*

When used as an alternate ending to a **NextLoop** press (when *SwitchQuant=On*), **Multiply (LoopCopy)** will copy the current loop into the next one.. See the discussion under the *SwitchQuant* heading in this chapter for a full explanation and examples.

See also: NextLoop, SwitchQuant, AutoRecord

LoopTrig

Default: 48

Parameter Row: Loops

Determines which MIDI note numbers will trigger loops.

Values: 0-127

Incoming MIDI Note On messages can trigger any loop's playback. This parameter sets the value of the note number that will trigger Loop 1. The other loops are triggered by successive note numbers; i.e., if Loop 1 is triggered by note 48, then Loop 2 will be triggered by note 49, Loop 3 will be triggered by note 50, etc.

This is especially useful when you've recorded a number of loops and want "random access"—the ability to jump directly from any loop to any other without passing through the intervening loops. You can, of course, accomplish this without MIDI (see *SwitchQuant*), but MIDI provides an additional way to accomplish this, even when *SwitchQuant=Off.* You can send the Note On messages from a keyboard, sequencer, MIDI footcontroller, guitar controller, or any other MIDI controller.

Note: The default value of 48 will be displayed in your sequencer either as C2 or C3.

See also: Channel, SamplerStyle, Velocity

MIDI Ports

Back Panel

Enable communication with other MIDI devices.

The **MIDI In, Out**, and **Thru** ports are standard equipment on most MIDI-capable devices. These ports are connected to other devices with standard MIDI cables available at any music store.

The **MIDI Out** port is used to send messages originating at the *Echoplex Digital Pro*. These include the messages generated by button pushes (if *ControlSource* is not *Off;* see *ControlSource* for more information), sample dumps (see *Dump*) and a single Note On message sent at the start of each loop (see *Sync*).

The **MIDI In** port is used to received messages from other MIDI instruments. These include the messages to remotely control button pushes (see *ControlSource*), sample dumps (see *Load*) and a MIDI clocks (see *8ths/Beat*).

The **MIDI Thru** port echoes incoming information for the benefit of additional MIDI devices that may be "daisy-chained" with the *Echoplex Digital Pro*. Messages originating at the *Echoplex* are sent out the **MIDI Out** port only, and are not transmitted out the **MIDI Thru** port.

One variation worth noting is the situation when several *Echoplexes* are daisy-chained, with the **MIDI Out** of each connected to the **MIDI In** of the next. In this case, it may appear that incoming MIDI messages are relayed out the **MIDI Out** port in addition to the **MIDI Thru** port, which may seem puzzling. The logic behind this is not inconsistent, however. Incoming MIDI messages from the master *Echoplex* are causing actions to occur in each slave. Each of these actions generates a new MIDI message, which is transmitted out the **MIDI Out** port of the slave.

See Chapter 3 for a summary of the many MIDI functions of the *Echoplex Digital Pro*.

Mix Knob

Front Panel

Controls the mix between the input and the loop.

This controls the mix between the input signal and the loop. If you are using the *Echoplex Digital Pro* in an effects loop, then you will probably want to set this so that the input and loop are evenly balanced, or so that the input is a little louder than the loop (this will facilitate soloing over the loop). If you are using the *Echoplex Digital Pro* in conjunction with a mixer, so that you can hear the input signal whether or not the *Echoplex* is on, then set the **Mix** control all the way clockwise to "Loop."

Default: 1

MoreLoops

Parameter Row: Loops

Divides memory into multiple loops.

This function lets you divide the *Echoplex Digital Pro's* memory into up to 9 separate loops. You can switch among them with the **NextLoop** button or with incoming MIDI messages.

The *Echoplex Digital Pro's* memory will be divided evenly among the loops; for instance, if you have 100 seconds of memory installed, then setting the number of loops to 4 will give you 4 loops of 25 seconds each. Changing the number of loops will reset all existing loops.

When you first turn on the *Echoplex Digital Pro*, the rightmost two characters of the display (above the word "Multiple") tell you how many loops are set up. If the number of loops is more than one, than the leftmost digit in the display (above the word "Loop") tells you which loop is current. All recording and overdubbing operations affect the current loop only.

You can reset all the loops at once by a long press of **Record** (to reset the current loop) followed by a long press of **Multiply**.

See Also: LoopCopy, NextLoop, AutoRecord, LoopTrig, SamplerStyle, Velocity, Multiply, SwitchQuant

Multiply

Immediate Action

Play Mode

Lets you overdub passages that are longer than the existing cycle.

This makes it easy to layer a 4-measure melody over a repeating 1-measure rhythm pattern, for instance. It's called "Multiply" because the original cycle is "multiplied"—copied multiple times—and added to the new material. The result is a loop whose length is an integer multiple of the length of the original cycle (unless you use the **Record** button to end the multiplication—see "Alternate Endings" below).

UNQUANTIZED MULTIPLICATION

The Multiply function is started by pressing the **Multiply** button. There are several ways to end the function, but the most natural and common is to press the **Multiply** button a second time. When you do this, you will always create a loop that consists of an integer (1, 2, 3, etc.) number of cycles. The existing cycle is repeated and mixed with the new playing, which may be several cycles long. Figure 1 demonstrates this behavior when *Quantize* is *Off.*

When you examine *Figure 4.5*, you'll see that there are two possible results shown, depending on the value of the *RoundMode* parameter. If *RoundMode* is set to *Round,* then the timing of your second press of the **Multiply** button isn't critical—everything in the current cycle (measured from the first press of **Multiply**) is recorded. In contrast, if *RoundMode* is *Off,* then the overdubbing of the new performance stops as immediately, although the entire copy of the original cycle is included in the loop.

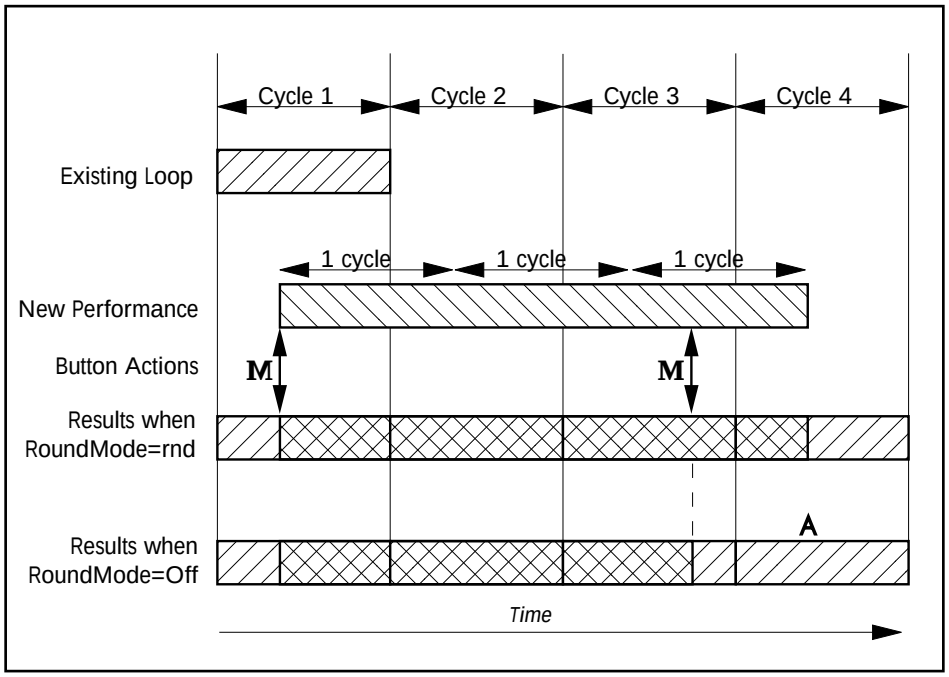


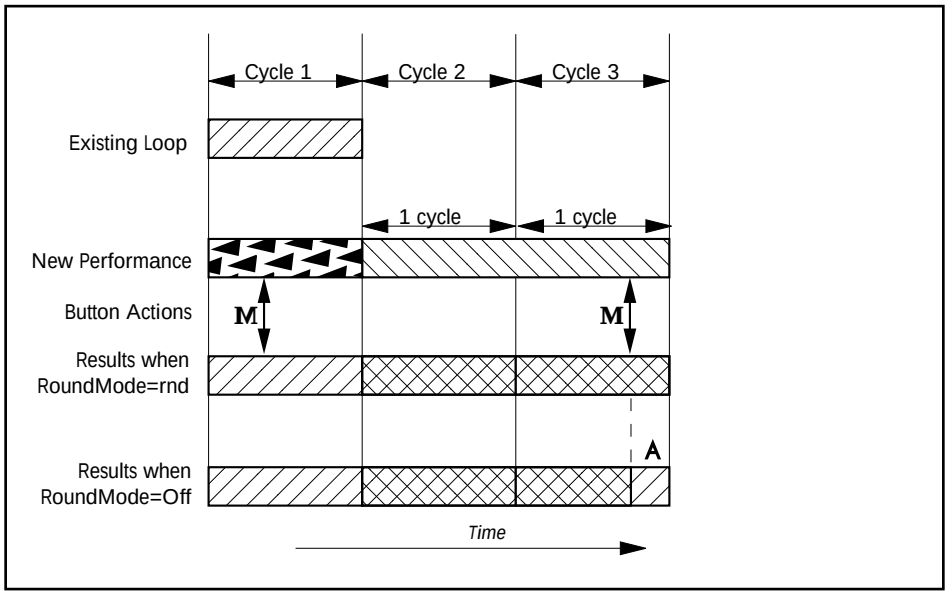
FIGURE 4.5
Basic operation of the Multiply button. Quantize=Off

QUANTIZED MULTIPLICATION

When *Quantize=On,* a press of the **Multiply** button will cause multiplication to start at the beginning of the next cycle. As in the previous example, ending the multiplication with a second press of **Multiply** will cause an exact number of cycles to be mixed with copies of the existing cycle—the loop will end at the end of the current cycle (*see Figure 4.6*).

As before, the setting of *RoundMode* will determine whether music played after the second press of the **Multiply** button is recorded or not.

FIGURE 4.6
Quantized operation of the Multiply button.



OVERFLOW HANDLING

Watch the time counter when you're doing a multiply that might extend longer than your unit's memory capacity. If you exceed this capacity, the multiply operation will be undone and three dashes will appear in the display. The *Overflow* parameter has no effect during Multiply—it is only relevant when you Record your first cycle.

ALTERNATE ENDINGS

The simplest way to end a Multiply operation is to press the **Multiply** button a second time. You'll get the results illustrated in the examples above. However, you can also end the Multiply by pressing any of the buttons whose front-panel lights are on during the Multiply. You'll get some interesting results, as illustrated in the next few examples.

UNDO

If you end a Multiply operation by pressing **Undo,** the loop will be returned to its state before you pressed **Multiply.**

OVERDUB

Ending a multiplication with **Overdub** is exactly like ending it with **Multiply,** except that you are immediately put into Overdub mode. It's the equivalent of ending the multiplication by pressing **Multiply** a second time, and then pressing **Overdub** immediately.

INSERT

Ending a multiplication with **Insert** is exactly like ending it with **Multiply,** except that you are immediately put into Insert mode. It's the equivalent of ending the multiplication by pressing **Multiply** a second time, and then pressing **Insert** immediately.

MUTE

Ending a multiplication with **Mute** is exactly like ending it with **Multiply,** except that the audible sound will shut off as soon as you press the **Mute** button. Once you're in Mute mode, you can restart the sound with the **Mute** button or with the Alternate Endings listed for the *Mute* entry later in this chapter.

RECORD

Ending a Multiply operation with the **Record** button causes the operation to end immediately, terminating the loop at the exact time of the button press. Since the loop can't contain fractional cycles, the entire new loop will be considered a single cycle. *Figure 4.7* illustrates this behavior.

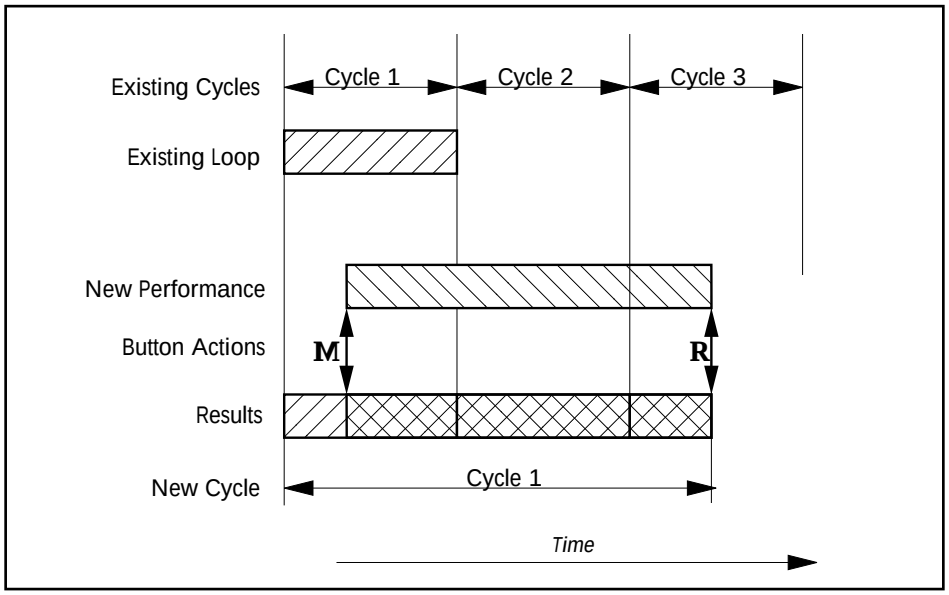


FIGURE 4.7
Ending Multiply with Record changes the cycle length. Quantize=Off

CHANGING THE NUMBER OF CYCLES IN AN EXISTING LOOP

Do you want to change the number of cycles in a loop? In particular, would you like to keep a couple of the cycles and throw away the others? Do you want to add 1 cycle to make your repetition structure appealingly asymetrical? You can do this by initiating a Multiply operation on a loop that's already been multiplied.

Example 4.13: Dropping Cycles

Here's an example that illustrates one way to use **Multiply** to alter an existing loop. If you connect a microphone to the *Echoplex's* **Audio Input**, you can use it to illuminate the effects of this procedure, as you'll see. Whether you have a microphone or not, it can be instructive to follow along with this example, referring to *Figure 4.8* to see the effects of each step.

1. Record a single tap or note into a short loop to provide a pulse. Make it slow enough so that you can carry out the following steps without the need for practice.
2. Set *Quantize=On*.
3. Press **Multiply** right after you hear a pulse. Count "One-Two-Three_Four" together with the pulses, and hit **Multiply** again, immediately after the word "Four."
4. Now you have a loop that counts from 1 to 4, as shown in the figure. Press **Multiply** right after the word "One," and again after the word "Three." Note that the loop now consists of the words "Two" and "Three."

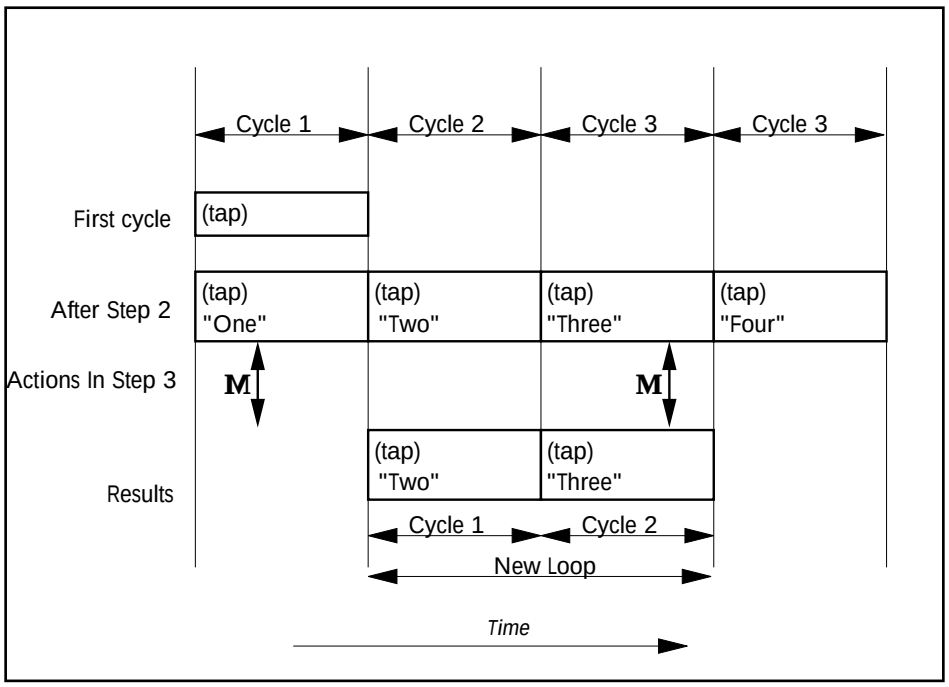


FIGURE 4.8
This diagram accompanies Example 4.13. It illustrates how you can use Multiply to change the number of cycles in an existing loop.

Example 4.14: Adding Cycles

Here's an example that shows how to use **Multiply** to change a 2-cycle loop to a 3-cycle loop. Follow along in *Figure 4.9*.

1. Record a single tap or note into a short loop to provide a pulse. Make it slow enough so that you can carry out the following steps without the need for practice.
2. Set *Quantize=On.*
3. Press **Multiply** right after you hear a pulse. Count "One-Two" together with the pulses, and hit **Multiply** again immediately after the word "Two."
4. Now you have a loop that counts from 1 to 2, as shown in the figure. Press **Multiply** right after the word "One," and again after the 1st *repetition* of the word "Two," as illustrated. Note that the loop now consists of the words "Two-One-Two."

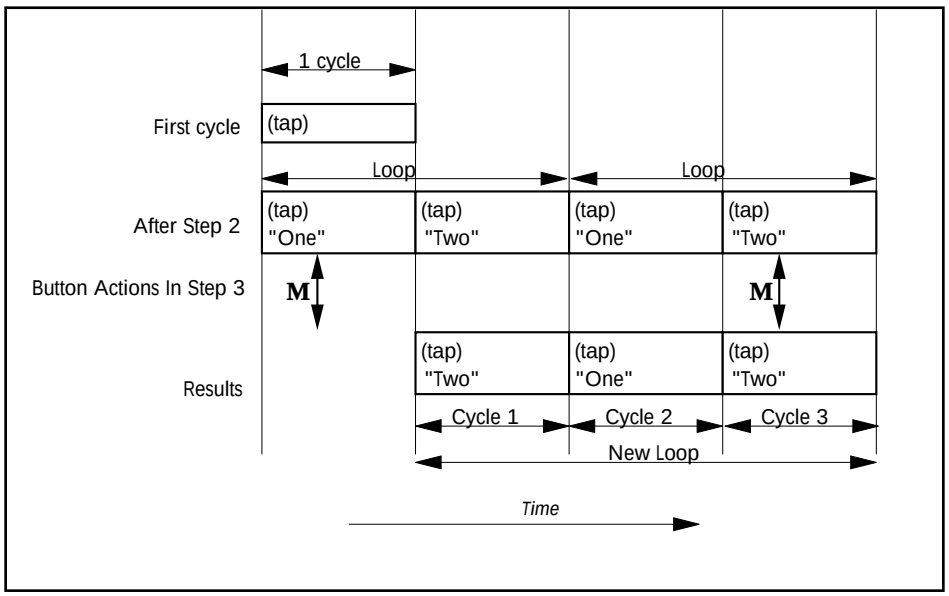


FIGURE 4.9
This diagram accompanies Example 4.14. It illustrates how you can use Multiply to increase the number of cycles in an existing loop.

RESETTING ALL LOOPS

When the number of loops (the value of *MoreLoops*) is more than one, the **Multiply** button can be used to reset all the loops at once. First, however, you must reset the current loop. The following example illustrates that.

Example 4.15: Resetting All Loops

1. Set the number of loops to be more than 1 (see *MoreLoops*)
2. Record something in the first two loops.
3. Use **NextLoop** to move to Loop 1. Note that the light under the **Multiply** button is green.
4. Press and hold the **Record** button to reset the current loop. The **Multiply** light turns orange.
5. Press and hold the **Multiply** button to reset all loops.

THE LONG PRESS

Pressing and holding down the ***Multiply*** button has the same effect as a pair of press-and-releases, regardless of the state of *Quantize.*

See Also: Record, Insert, Quantize, Overflow

Mute

Immediate Action

Play Mode

Silences the loop output.

This mutes (silences) and unmutes the output of the *Echoplex Digital Pro*. Mute works very simply—it always silences the output immediately. However, there are a number of options for restarting the output.

THE EFFECT OF MUTEMODE

MuteMode determines where loop playback starts the second time you press the **Mute** button. As you'll see under "Alternate Endings" below, whichever approach you choose, the **Undo** button takes the opposite viewpoint, so you'll always have both ways to end a Mute readily available.

MuteMode=Start

When *MuteMode=Start*, a second press of the **Mute** button will always restart the current loop at the beginning. This is probably the most useful setting for everyday playing.

When *MuteMode=Start*, the end of the Mute is affected by the setting of *Quantize.* If *Quantize=On*, then sound won't restart until the end of the current cycle.

MuteMode=Continuous

When the *MuteMode=Continuous,* the loop continues counting even when it is silenced by pressing **Mute.** Then, when you press **Mute** a second time to allow audio output again, the loop will become audible wherever it happens to be at that time. This is probably most useful if you want to silence the loop for just a beat or two to play a fill, or if you want to perform an avant-garde "slice and dice" composition.

ALTERNATE ENDINGS

You can also end Mute with a number of other buttons, as follows:

UNDO

Acts like the second press of the **Mute** button, except that it uses the opposite value of *MuteMode.* In other words, if *MuteMode=Start*, then the **Undo** ending behaves like the **Mute** button would if *MuteMode* were *Continuous*. Similarly, if *MuteMode=Continuous*, then the **Undo** ending behaves like the **Mute** button would if *MuteMode* were *Start*.

INSERT

Plays the loop once and then goes back into Mute state. If you press it again it will retrigger. Useful for stuttering effects.

This ending is affected by *Quantize*. If *Quantize=On*, the loop will be played once, starting at the end of the current cycle.

MULTIPLY

Waits for a sync pulse and then plays the loop from the start. See the discussion of *BeatSync* for an example.

THE LONG PRESS

When you press and hold the **Mute** button, the loop output will be silenced until you release the button, at which time it will restart.

Mute

Continued

During this operation, the loop will continue running even when silenced, regardless of the setting of *MuteMode*—releasing the button will not start the loop at the beginning, except by coincidence.

See Also: MuteMode

Determines how sound is restarted after it is muted.

Values: Continuous (Cnt), Start (StA)

See the discussion under the *Mute* heading in this chapter for a full explanation.

NextLoop

Immediate Action

Play Mode

Moves to the next loop.

Active only when multiple loops are set up (see *MoreLoops*). When you're not recording, pressing **NextLoop** will move you to the next loop. The setting of *SwitchQuant* will affect when this happens—see the discussion of *SwitchQuant* for a detailed explanation.

If you're recording, **NextLoop** will terminate recording but will not advance you to the next loop. This behavior was designed because of its natural feel when *AutoRecord* is *On;* when you enter an empty loop (using **NextLoop**) with *AutoRecord=On*, recording will start immediately. It's very natural to end the recording of that loop with the same button that started it—the **NextLoop** button (pressing **Record** in this situation would also terminate recording).

See also: MoreLoops, SwitchQuant, AutoRecord, LoopTrig

Output Jack

Back Panel

Audio output. Connect it to your amplifier or preamp.

This line-level output jack accepts standard 1/4” mono phone plugs. The output is a mix of the input and the current loop, with relative volumes determined by the position of the **Mix** knob, and overall volume determined by the **Output** knob.

See also: Mix Knob, Output Knob.

Output Knob

Front Panel

Controls the overall output volume.

Lets you add layers of sound.

Overdub is the basic magic wand of the *Echoplex Digital Pro*. It allows you to add layer after layer of sound to any existing loop. As you play, the level of the sound in the existing loop is subtly lowered to prevent a gradual accumulation of signal that would overload the system. You can leave Overdub on for extended periods of time, but we recommend that you turn it off if you aren't adding new sonic material to the mix.

See the Quick Start, page 1-1, for the fastest introduction to overdubbing.

Overdub is related to the Insert and Multiply functions, but its behavior is simpler. Unlike those operations, Overdub never changes the length of the cycle or loop. Overdub is also not affected by the settings of *Quantize* or *RoundMode*—overdubbing starts when you press down the **Overdub** button, and ends either when you press it a second time or when you release it (see "The Long Press" below). Overdub is, however, affected by the setting of *OverdubMode* (also discussed under "The Long Press" below).

BASIC OVERDUBBING

The Overdub function is started by pressing the **Overdub** button. The existing cycle is mixed with the new playing. Every time the cycle reaches its start point, you'll be adding another layer over that which you've just recorded. *Figure 4.10* demonstrates this behavior when *Quantize=Off.*

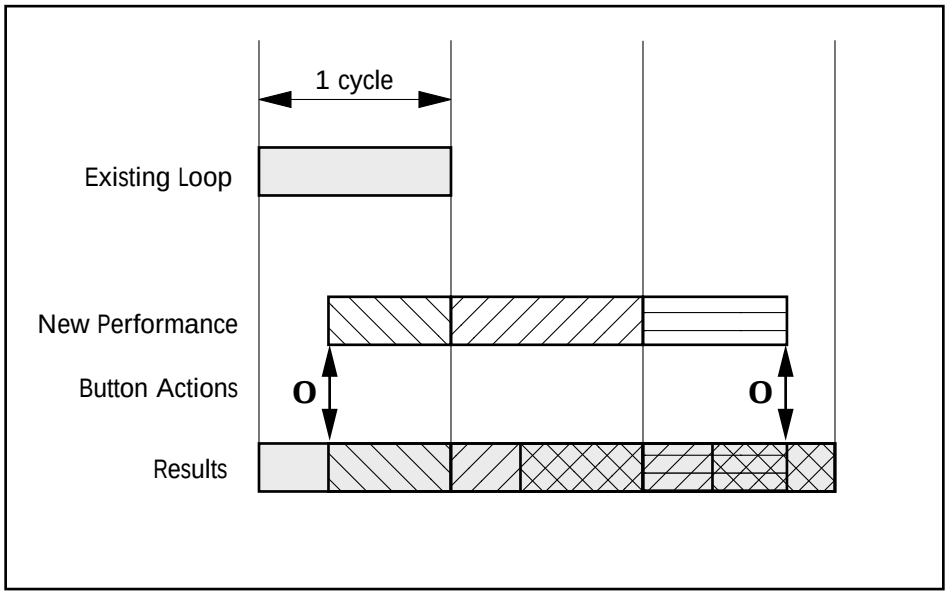


FIGURE 4.10
Basic operation of the Overdub button. In the Results row, each cycle is the result of mixing the contents of the previous measure with the current measures' new performance.

ALTERNATE ENDINGS

The simplest way to end an overdub operation is to press the **Overdub** button a second time. You'll get the results illustrated in the example above. However, you can also end the Overdub by pressing any of the buttons whose front-panel lights are on during the Overdub. Nothing particularly unusual happens when you do this, but these alternate endings will save you a step in moving to the next function.

UNDO

If you end an Overdub operation by pressing **Undo,** the loop will be returned to its state before you pressed **Overdub.**

INSERT

Ending an Overdub with **Insert** is exactly like ending it with **Overdub,** except that you are immediately put into Insert mode. It's the equivalent of ending the overdubbing by pressing **Overdub** a second time, and then pressing **Insert** immediately.

MUTE

Ending an overdub with **Mute** is exactly like ending it with **Overdub,** except that the audible sound will shut off as soon as you press the **Mute** button. Once you're in Mute mode, you can restart the sound with the **Mute** button or with the Alternate Endings under the "Mute" heading in this chapter.

RECORD

Ending an Overdub operation with the **Record** button erases the current loop and causes recording to begin immediately. When you end the Record, you'll be in Overdub mode.

THE LONG PRESS

Pressing and holding down the **Overdub** button has the same effect as a pair of unquantized press-and-releases. In other words, overdubbing will start when you press and hold the button and end when you release it.

THE EFFECT OF OVERDUB MODE

When *OverdubMode* is set to *Toggle*, the **Overdub** button works as described above. However, when *OverdubMode* is set to *Sustain*, you can only layer sounds while you hold down the button—as soon as you release it, the overdubbing stops. Since you can use long presses of the **Overdub** button to obtain this behavior regardless of the setting of *OverdubMode*, there are only two situations (neither very common) when you're likely to want to set *OverdubMode* to *Sustain*, as follows:

- You want to overdub extremely short excerpts from a sound source. If *OverdubMode=Toggle* and your press is shorter than the time it takes for a press to be regarded as "long," then you'll be left in an Overdub state, perhaps unintentionally.
- You want to guard against inadvertently putting yourself into an extended Overdub, so you decide to overdub only when your foot is holding down the button.

See Also: Record, Insert, Quantize, Overflow

Overdub Jack

Back Panel

A normally-open footswitch plugged into this jack can trigger Overdub operations.

This jack is provided for those who want to use their own footswitches to control Overdub operations. Some may prefer piano-style pedals to the **Overdub** button on the supplied footpedal.

OverdubMode

Default: Toggle

Parameter Row: Keys

Affects the behavior of the Overdub button

Values: Toggle (tog), Sustain (SUS)

Discussed under the *Overdub* heading in this chapter.

Determines how Record handles memory overflows.

Values: Stop(StP), Play (PLY)

An *overflow* occurs when you attempt to use more memory than you have during Record operations.

When *Overflow=Stop*, exceeding the memory capacity of your unit will cause the Record operation to be immediately cancelled, and will reset (erase) the current loop.

When *Overflow=Play*, exceeding the memory capacity of your unit will cause the cycle length to be set to the full time available to the current loop. Everything that you've played from the start of the Record to the instant just before the overflow will be looped, and everything that you've played after that instant will be ignored.

If you're trying to create rhythmic loops, neither of these options will produce very satisfactory results: you're best off avoiding overflows in the first place.

Quantize

Default: Off

Parameter Row: Timing

Defines whether certain functions are executed at the end of the current cycle or immediately.

Values: Off (OFF), On (On)

See the entries for the functions affected for detailed explanations and examples.

Functions affected: Multiply, Insert, Reverse, Mute (restarting audio)

Records a new cycle.

This is where it all starts. This button lets you record your first layer in a loop or erase (reset) the current loop. You press it once to start recording, and press it a second time to end recording. A step-by-step example is given in the Quick Start.

If you go over the amount of memory available for the current loop while recording, one of two actions can occur depending on the setting of the *Overflow* parameter. See the description of that parameter for more information.

ALTERNATE ENDINGS

The simplest way to stop recording is to press the **Record** button a second time. However, you can also end the recording by pressing any of the buttons whose front-panel lights are on during the recording.

UNDO

If you end a Record operation by pressing **Undo,** the loop will be returned to its state before you pressed **Record.** This is particularly useful if you accidentally press **Record** and don't want to lose the existing loop.

If the *Echoplex* doesn't have enough memory to hold both the existing loop and the new loop, you won't be able to Undo the Record. See the discussion under the *Undo* heading in this chapter for a full explanation.

Record

Continued

INSERT

The effect of ending a recording with **Insert** depends on the setting of *InsertMode.*

If *InsertMode=Insert,* then pressing **Insert** at the end of a recording ends the recording and immediately inserts a second cycle (as it continues recording); in other words, it puts you into Insert mode. The insertion continues until memory runs out or you end it with **Insert** or an alternate ending for the Insert operation.

If *InsertMode=Replace,* then pressing **Insert** at the end of a recording has the same effect as pressing **Record**.

If *InsertMode=Rehearse,* then pressing **Insert** at the end of a recording puts you in Rehearse mode. The cycle that you've just recorded will be played back exactly once, regardless of the *Feedback* setting. The underlying timing of the cycle will continue. If you play something that you really like and want to keep for more repetitions, press **Insert** again immediately after you've played it (before the cycle ends).

If *InsertMode=Reverse,* then pressing **Insert** at the end of a recording will end the Record and immediately start playing the loop backwards.

MUTE

Ending a recording with **Mute** is exactly like ending it with **Record,** except that the audible sound will shut off as soon as you press the **Mute** button. Once you're in Mute mode, you can restart the sound with the mute button or with the Alternate Endings under the "Mute" heading in this chapter.

OVERDUB

Ending a recording with the **Overdub** button ends the recording immediately and starts overdubbing.

THE LONG PRESS

Pressing and holding down the **Record** button erases the entire current loop.

THE EFFECT OF RECORDMODE

When *RecordMode=Toggle*, the **Record** button works as described above. However, when *RecordMode=Sustain*, you can only record sounds while you hold down the button—as soon as you release it, the recording stops.

When *RecordMode=Sustain*, you lose the ability to reset a loop, normally accomplished by a long press of the **Record** button. This may not be a great loss for you, since a short press of **Record** while you play nothing will create a short loop with no contents. However, there are two consequences of this approach:

- A loop that is pseudo-cleared this way will not go into *AutoRecord* if you enter it with **NextLoop.**
- There is no way to reset all loops in this situation, except to enter a loop (with *AutoRecord=Off*) that has not been recorded since power-up. The orange light under the **Multiply** button, signifying that a long press of that button will reset all loops, does not go on unless the current loop is completely empty.

See Also: RecordMode, Overflow

RecordMode

Default: Toggle

Parameter Row: Keys

Affects the behavior of the Record button.

Values: Toggle (tog), Sustain (SUS)

Discussed under the *Record* heading in this chapter.

No Function At This Time

Reserved

Parameter Row: Keys

A software update will do something cool with this someday.
Send in your registration card to stay on top of the latest news.

Reverse

Immediate Action

Parameter Row: Timing

Reverses the direction of the current loop.

This reverses the playback direction of the current loop, enabling you to play backwards guitar solos (provided that you can play forwards guitar solos to begin with) and sing in tongues.

If you Overdub while a reversed loop is playing and then press the **Reverse** button a second time, you'll hear your original loop play back forwards and your overdubbed part play backwards. It's great for backwards guitar solos or secret messages (and can be used to decode backwards messages in songs, too).

You can bring this function down to the footpedal, where it will take the place of the Insert function, by setting *InsertMode=Reverse.*

Reversal is affected by the setting of *Quantize.* If *Quantize=On,* the reverse playback won't begin until the end of the current cycle, and proceeds from the end of the cycle towards the beginning. If *Quantize=Off,* then reverse playback begins as soon as you press **Reverse,** and proceeds from the time of the button press back towards the start of the loop.

Default: Off

RoundMode

Parameter Row: Keys

Determines whether certain material will be recorded.

Values: Off (OFF), Round (rnd)

During Multiply and Insert operations, which always are active for an exact number of cycles (unless ended with the **Record** button), this parameter determines whether new material played after the second press of the button but before the end of the current cycle will be recorded. Diagrams under the *Multiply* and *Insert* headings elsewhere in this chapter demonstrate the effects of this parameter explicitly.

See also: Overdub, Multiply, Insert

SamplerStyle

Default: Run

Parameter Row: Loops

Determines how loops will respond to MIDI triggers.

Values: Run, One, Attack

This is primarily useful when you are using multiple loops.

As you can read in the discussion of *LoopTrig*, an incoming MIDI Note On can trigger any loop. If *Velocity=On*, the velocities of the incoming notes will control the volume at which the loop is played. There are three different types of responses to one of these triggers, corresponding to the values of this *SamplerStyle* parameter, as follows:

RUN (run)

The loop will start and play continuously, just as if you had pressed **NextLoop** to trigger it.

ONE (OnE)

The loop will play just once, and then go into Mute mode.

ATTACK (At)

The loop will play as long as the triggering note is held down; i.e., until a Note Off or a different triggering note is received.

See also: LoopTrig, Velocity

Default: 36

Source

Parameter Row: MIDI

Determines the starting note number, or controller number, for MIDI control of Echoplex operations.

Values: 0-99

When *ControlSource* is set to *Notes*, each press of an *Echoplex* button will send a pair of Note On messages out the MIDI Out port; when *ControlSource* is set to *Controllers*, a pair of Control Change messages will be sent instead. This parameter determines the note or controller number associated with the **Parameter** button. Other buttons are assigned to notes or controllers based on the table below. In the table, "n" is assumed to represent the **Parameter** button (n other words, *Source #*). The numbers in parentheses are based on the default value of 36 for *Source #*.

Parameters	n (36)
Record	n+2 (38)
Overdub	n+3 (39)
Multiply	n+4 (40)
Insert	n+5 (41)
Mute	n+6 (42)
Undo	n+7 (43)
NextLoop	n+8 (44)

See also: ControlSource, Channel

StartPoint

Immediate Action

Parameter Row: Timing

Changes the logical starting point of a loop.

The logical starting point of a loop is the beginning of the first cycle. You can see when this point comes around by looking at the display—the green decimal point in the lower-right-corner of the display flashes briefly at the start of each loop.

Pressing this button makes the instant of the press the new *StartPoint* for the loop.

There are several reasons that you might want to change the starting point. For one thing, various operations that you perform might set the starting point to a value that doesn't make musical sense to you. In a rhythmic loop with multiple cycles, this would be most evident if the cycle numbers don't appear to change on the beat.

The position of the beginning of the loop is important for several reasons, among them:

- You can create arhythmic, textural loops where the startpoint isn't immediately obvious. At some point, additions to the loop might give it a rhythmic character. At that point, you may want to redefine the *StartPoint* so that other functions behave sensibly, in step with the rhythm.
- When you restart the loop from the beginning after muting it, the *Startpoint* is where it begins.
- Quantized activities occur on multiples of cycles, counted from the logical starting point.
- It's easier to relate to the display if the logical starting point makes musical sense.

See also: Quantize, Mute, MuteMode

Default: On

SwitchQuant

Parameter Row: Loops

Lets you jump among loops or copy the current loop to the next.

Values: Off (OFF), On (On), Confirm (cnf)

This function applies when you are using multiple loops. It determines when the switch to the next loop will occur after the **NextLoop** button has been pressed—immediately *(SwitchQuant=Off),* after a confirming press of the **Undo** button *(SwitchQuant=Confirm),* or at the end of the current cycle *(SwitchQuant=On). SwitchQuant=On* and *SwitchQuant= Confirm* are very useful, because they give you time to take additional actions before the move to the next loop takes effect. For the sake of this discussion, we'll call the time interval between the pressing of the **NextLoop** button and the end of the current loop the *lame duck period* (this phrase comes from United States politics, where it refers to the time between an election that deposes an incumbent politician and the actual date that the politician leaves office).

SwitchQuant=Confirm is affected by the Quantize parameter. If you have the *Quantize* parameter on, the switch to the next loop occurs at the end of the cycle during which the switch was confirmed with the **Undo** button.

With *SwitchQuant On,* a press of the **NextLoop** will turn the front-panel lights under the **Record, Multiply, Insert,** and **Mute** buttons orange, while the light under **NextLoop** will be red. *SwitchQuant=Confirm* is the same, except the light under the **Undo** button will also be orange. All of these buttons take on interesting functions during the lame duck period, as the explanations and examples on the following pages will illustrate.

BUTTONS ACTIVE DURING THE LAME DUCK PERIOD

► *NextLoop*

This skips over the next loop, allowing you to move to any other loop without activating the ones in-between.

Example 4.16: Switching to a Loop Other Than the Next One

When *SwitchQuant=On,* you can move directly from any loop to any other, without passing through the intermediate loops. For instance, to switch from Loop 1 to Loop 3, take the following steps:

1. Set *MoreLoops* to 3 or more
2. Set SwitchQuant*=On*
3. Record something a few seconds long into Loop 1, then end recording.
4. Near the beginning of the loop, press **NextLoop** twice. Notice that the display shows "L 3" in red, indicating that that's where you're going next.
5. When your loop ends, note that you'll be switched immediately into Loop 3. If *AutoRecord=On,* then the *Echoplex Digital Pro* will start recording as soon as you enter that loop.

   You can also switch to a loop other than the next one with MIDI messages, whether *SwitchQuant* is *On* or *Off.* See *LoopTrig* for more information.

▶ *Multiply/LoopCopy*

Puts you into Multiply mode when you move to the next loop. The first loop is copied to the new one. The timing of next press of the **Multiply** button will determine how many cycles from the first loop are kept. ***Caution:*** erases the contents of the next loop.

Example 4.17: Copying the Current Loop Prior to Switching

When *SwitchQuant=On,* you can take advantage of the lame duck period to copy the current loop into the next one by pressing the **Multiply (LoopCopy)** button. This can be handy when you want to create a single backing track for several distinct loops, which you'll later embellish differently with overdubbing and other actions. To see this in action, take the following steps:

1. Set *MoreLoops* to 2 or more
2. Turn *SwitchQuant On*
3. Record something a few seconds long into Loop 1, then end recording.
4. Near the beginning of the loop, press **NextLoop,** then press **Multiply.**
5. When your loop ends, you'll be switched immediately into Loop 2, and you'll be in Multiply mode. You won't hear the transition.
6. Keep playing, as you layer more sounds on top of the sounds copied from Loop 1. When you press **Multiply** again, the recording will end.

   Multiples of Loop 1 will be copied as long as Multiply is active. If Loop 1 contains multiple beats, then you may not get all of them if you end the Multiply function prematurely. Another example can clarify this.

Example 4.18: Copying a Portion of the Current Loop to the Next Loop

1. Set *MoreLoops* to 2 or more
2. Turn *SwitchQuant On*

3. Record a few seconds of chordal background in Loop 1
4. Use Multiply to record a short solo that lasts for 4 cycles or so, then end the Multiply function.
5. Press **NextLoop,** then press **Multiply.**
6. When you enter the next loop (after all 4 cycles of the current loop have completed), watch the Multiply counter in the right side of the display, and press the **Multiply** button again when this counter reaches 2.
7. Listen to the truncated solo as it loops.

   One final observation: you can achieve other effects by ending this Multiply function with any of the "Alternate Endings" listed in the *Multiply* topic in this section.

▶ *Insert*

Copies the timing (but not the contents) of the first cycle of the current loop into the next loop, and puts you into Insert mode when you get there. ***Caution:*** erases the contents of the next loop.

▶ *Mute*

At the end of the current loop, moves to the next one and goes into Mute mode.

▶ *Record*

Starts recording as soon as it enters the next loop. This is like *AutoRecord,* except that *AutoRecord* will only start recording when you move into an empty loop, whereas this function will work with any loop. ***Caution:*** erases the contents of the next loop.

Synchronizes the Echoplex Digital Pro with another Echoplex Digital Pro or with a MIDI sequencer.

Values: Off, Out, In

OFF (OFF)

No synchronization signals are received or sent.

OUT (OUT)

MIDI: MIDI clocks are sent out the **MIDI Out** port, provided *ControlSource* is not *Off*. If *8ths/Beat* is large and your loop is short, the effective tempo may be over 300 or so beats per minute, in which case the clocks will be turned off. See *8ths/Beat* for a full discussion.

BeatSync: A pulse is sent to the **BeatSync jack** a the start of every cycle. These pulses can be used to trigger another *Echoplex*, or to affect another device that accepts pulse inputs.

BrotherSync: All *Echoplexes* using BrotherSync should set *Sync=Out*.

IN (IN)

MIDI: MIDI clocks are sent out the **MIDI Out** port.

BeatSync: This *Echoplex* will receive impulses from another *Echoplex*, footswitch, or other pulse source and "slaves" its cycle time to that of the "master". This is described in detail in the *BeatSync* entry.

BrotherSync: *Sync=In* should not be used for BrotherSync. All *Echoplexes* using BrotherSync should set *Sync=Out*.

See also: 8ths/Beat, MIDI, BrotherSync, BeatSync, ControlSource

Threshold

Default: 0

Parameter Row: Timing

Tells the Echoplex to wait until you play before starting to record.

Values: 0-8

When a non-zero *Threshold* is set, the Record function waits until a large enough audio signal appears the the **Input jack** before it actually starts recording. When *Threshold=0,* this waiting is disabled.

Each successive number represents a 3dB increase in the volume necessary to trigger recording, so *1* is very sensitive, while *8* requires Pete Townshend-like moves.

The next example illustrates the use of *Threshold.*

Example 4.19: Using Threshold

1. Set *Threshold* to a medium value, like *3*.
2. Return to Play mode.
3. Press **Record**. The display will read "ooo" (this symbol means the *Echoplex* is waiting for something).
4. Begin playing. Recording will start with your first note.
5. Press **Record** to stop recording.

Cancels the previous action or erases the previous cycle.

Undo can be used to cancel a function that you've already started or to erase your last few Overdub passes, Multiply cycles, or Insert operations. In situations when your loop length is short compared to the total amount of memory available in the loop, Undo is easy to use. When memory gets short, you may be limited in the number of steps that you can Undo.

The basic operation of **Undo** is simple: press **Undo** to end an operation, and the loop will be restored to the state it was in before you started the operation, if possible. After an operation, a long press of **Undo** will erase the last layer of sound added (if possible), and additional long presses will erase as many layers of sound as memory permits, from the most recent to the most remote. A short press of **Undo** will only remove the tail end of the last layer, beginning at the time of the button press.

UNDER THE HOOD

If you really want to understand the way that Undo interacts with memory limitations, you have to take a look at the way memory is used and understand the concept of the *Playback Loop,* all of which we'll explain in the next few paragraphs.

▶ *When Memory Is Ample*

Figure 4.11 shows the normal operation of Overdub in a situation where memory is ample. When the **Overdub** button is first pressed, the *Echoplex* copies the beginning of the loop to a new memory area (marked "A" in the diagram). It then mixes the previously-recorded material with the new material into area B. When the Overdub ends, it copies the remainder of the original loop to area C. This fills out seconds 40-80 of memory with a complete loop, the result of the Overdub. The

Echoplex then alters its playback loop so that the new recording is heard, even though the original recording also resides in memory.

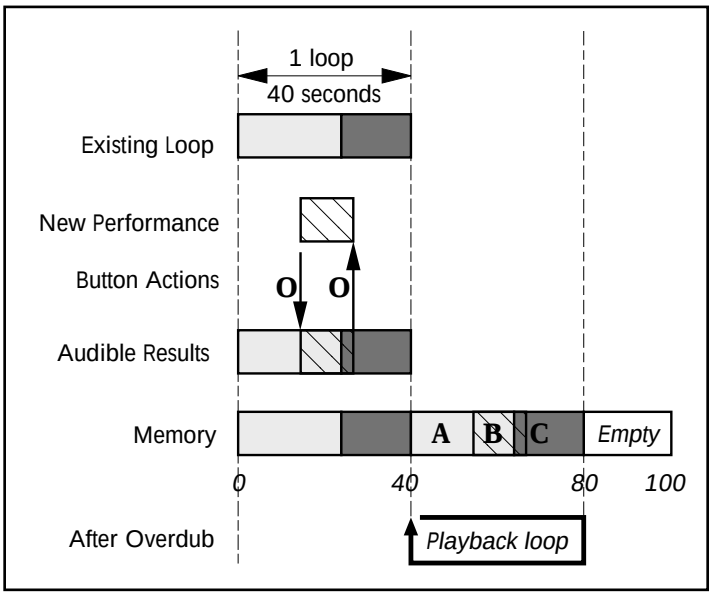


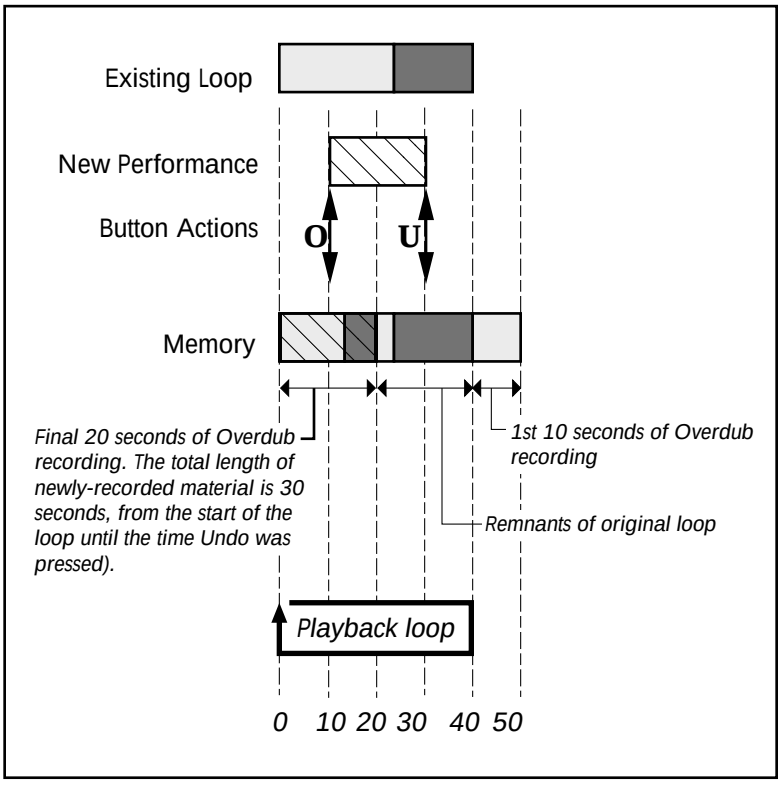
FIGURE 4.11
Basic operation of Overdub when memory is ample.

If, instead of completing the Overdub normally, you press the **Undo** button to terminate it, the *Echoplex* simply resets the playback loop to play back the first 40 seconds and marks the memory area that it was using for the Overdub as available for the next operation.

▶ When Memory Is Tight

Now let's look at what happens in a tight memory situation. *Figure 4.12* shows the course of an Overdub/Undo when the original loop is 40 seconds long, and total memory is 50 seconds. As before, when you first press the **Overdub** button, the *Echoplex* copies the beginning of the existing loop to a free area at the end of memory. In this case, that segment occupies all of free memory (the original loop was 40 seconds long, **Overdub** is pressed at 10 seconds into the loop, so 10 seconds is copied to free memory, filling it).

FIGURE 4.12
The difficulty of Undoing in tight memory situations



At this point, there's nowhere to put the new material mixed with the old. So the *Echoplex* starts overwriting the original loop. By the time the **Undo** button is pressed, 30 seconds of material have been newly-recorded: the 10 seconds copied from the first loop, plus 20 seconds of mixed material. This mixed material has overwritten the first 20 seconds of the original loop. There's no way to Undo, because the original loop is gone.

In this case, that press of the **Undo** button will set the playback loop to play back seconds 0-40 of memory. But what you will hear will not be the original loop; instead, it will be the final 20 seconds of the Overdub followed by the final 20 seconds of the original loop. It's an interesting effect, but it may not be what you were shooting for.

Undo

Continued

▶ *Undoing Multiple Layers*

When you leave Overdub on for a long time, recording moves to a new area of memory each time you pass the loop's start point. If your loop is short compared to the amount of memory available, then a number of Overdub cycles can pass before overwriting of memory starts to occur. If you end the Overdub before any overwriting occurs, then you'll be able to Undo each layer in succession, until you return to your original recording. If overwriting occurs, then you'll only be able to Undo back to the last fully-intact recording.

Determines the effect of MIDI velocity (or Control Change value) on loops triggered by MIDI messages.

Values: Off (OFF), On (On)

If *Velocity=Off*, loops that are triggered by MIDI messages will be played back at their full volume. If *Velocity=On*, loops that are triggered by Note Ons will be played back with their volume scaled according to the velocity of the Note On messages: velocity 127 will play back a loop at full volume, while velocity 1 will play it back so quietly that it may be inaudible.

See also: LoopTrig

VolumeCont

Default: 2

Parameter Row: MIDI

Determines which Continuous Controller will control the output level.

Values: 1-99

Incoming MIDI Continuous Controller messages can be used to control the output level of the *Echoplex Digital Pro*. Only messages that are on the MIDI channel specified by the *Channel* parameter will be recognized.

See also: Channel, FeedbkCont

APPENDIX A

Memory

You can add recording time to your *Echoplex Digital Pro* by adding memory, going up to a total recording time of 198 seconds.

The *Echoplex Digital Pro* comes with 4-256KB SIMMs (*Standard In-line Memory Modules*) installed, for a total of 1MB of memory, or 12.5 seconds of recording time. If you remove the top cover (by unscrewing 7 small screws—one each on the front and sides, and 4 on the back), you'll see the 4 SIMMs standing up behind the buttons, plugged into a SIMM socket attached to the main board.

***Extremely Important* - Unplug the Echoplex Digital Pro before removing the cover! Never put your hands inside an electronic device while it is plugged into a wall outlet. If you do so, you risk a very serious electric shock. Even when the Echoplex is unplugged, you should be careful not to touch anything other than the SIMMs and their sockets. Some components retain electric charges even after the power has been removed, while others are very sensitive to static charges that may have built up on *you*! If you do not feel comfortable upgrading the memory in your Echoplex yourself, contact your dealer or Oberheim Technical Support.**

Your *Echoplex* needs the two rear SIMMs installed in order to operate, but the two front SIMMs may be empty if you choose.

You can upgrade the memory by changing the front or rear pair of SIMMs, or by changing all four SIMMs. Be careful to handle the SIMMs by the sides. Do not touch the metal pins or the IC's themselves. The *Echoplex* will accept three different sizes of SIMMs—256KB, 1MB, and

4MB. Each MB of memory represents about 12.5 seconds of recording time. Here are some typical upgrade strategies:

- Replace a pair of 256KB SIMMs with a pair of 1MB SIMMs. Your total memory will be 2x256KB+2x1MB, or 2.5 MB. That will give you about 30 seconds of recording time.
- Replace all four 256KB SIMMs with 1MB SIMMs. Your total memory will be 4 MB. That will give you about 50 seconds of recording time.
- Replace all four 256KB SIMMs with 4MB SIMMs. Your total memory will be 16 MB. That will give you about 198 seconds of recording time.

TYPES OF SIMM TO USE

The Echoplex Digital Pro will accept SIMMs made for either the Mac or PC. The only requirements are:

- 30-pin SIMMs
- 120ns or better access time

SIMMs have varying numbers of chips installed on them—2 chips, 3 chips, 8 chips and even 9 chips are common. Don't worry about this—just order SIMMs with the specifications above, and you'll do just fine.

Echoplex Digital Pro

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Addendum

The first pressing of the manual contained a couple of errors with regard to the function of the *Echoplex Digital Pro*. Here is a quick summary of the corrections, along with the newly improved sections.

MIDI SYNC

In the **8ths/Beat** section of the Reference chapter, the manner in which the *Echoplex Digital Pro* synchronizes to MIDI clocks was described incorrectly. We had said that synchronization only occurs while the first cycle is being recorded, and that MIDI clock is ignored after that. This is utterly false. Synchronization to the MIDI clock source is in fact maintained, so your Echoplex will stay happily in time with the rest of your music. Reality is better than fiction in this case, and we deeply and humbly apologize for any inconvenience this may have caused.

SWITCHQUANT

After the first edition of the manual went to press, a new value was added to the *SwitchQuant* parameter. This value is called *confirm.* When **NextLoop** is pressed and *SwitchQuant=Confirm,* the *Echoplex* waits until the **Undo** button is pressed before it switches Loops.

Echoplex Digital Pro

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Software Upgrade LD3.3.2

Version LD3.3.0 of the Echoplex software unfortunately contained a few minor bugs, which we have corrected in the latest version. The fixes are as follows:

StartPoint LED - After the StartPoint function was used to change the starting point of the loop, the StartPoint LED refused to flash. It now flashes correctly.

SwitchQuant and Quantize - When SwitchQuant was set to "Confirm" and Quantize was on, the confirming press of the Undo button was sending us to the next loop immediately. It should have waited until the current cycle had reached its end before switching, as it now does. When quantize is off we jump immediately, as we did before.

Sample Dump - Due to several bugs introduced in the final sleep deprived moments before release, Sample dump was only working reliably between two Echoplexes. Those bugs have been corrected and sample dump is working considerably better. However, due to the various ways in which some manufacturers have implemented the sample dump "standard," there may still be problems with some devices. Therefore, we have chosen to leave some debugging tools in the software so that a user encountering problems with a particular device can help us find a way to solve them. Basically, various letters and numbers will dash across the display during the execution of the Sample Dump function, indicating what is currently happening.