Recording

SE-02-0691

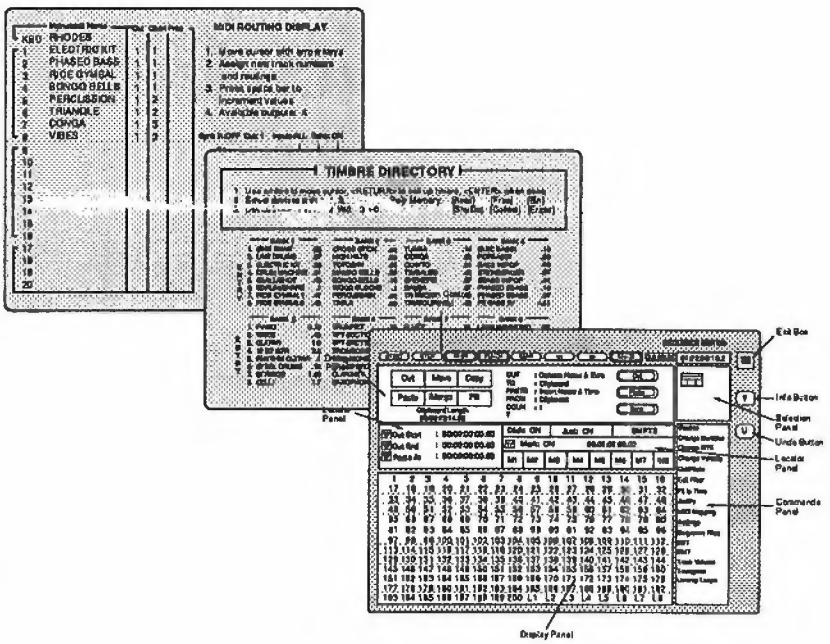
Preparing to record

A number of system parameters must be set before actual recording can take place. Although you may not need to set every parameter described on the following pages, confusion and errors may be avoided if you read the entire section carefully before beginning to record.

Checklist for setting up

The following set-up steps are explained in detail on the following pages.

1. If you are recording from a MIDI device, make sure your MIDI network is properly connected and MIDI input parameters are set.
2. If you have a Synclavier, recall a timbre for recording from the Timbre Directory.
3. Select the recording tempo by setting a click rate and a click rate multiplier, if desired, from the Sequence Editor.
4. Turn on the Justify switch from the Sequence Editor if you want your recorded notes placed to the nearest click or click subdivision.
5. Clear out the sequencer by erasing any previously recorded sequence from the Sequence Editor.



MIDI Display

Timbre Directory

Sequence Editor

Setting up for MIDI recording

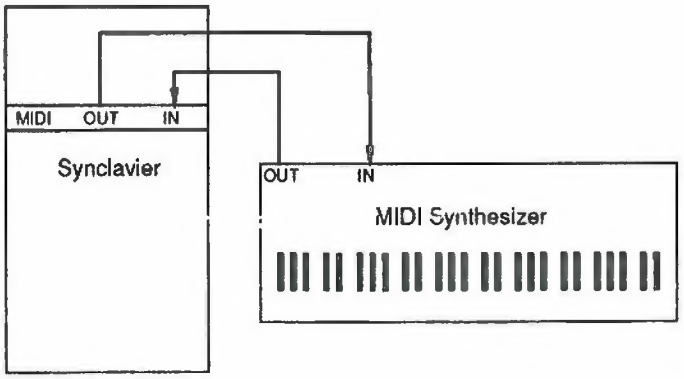
If you are recording from a MIDI device, make sure that the internal sequencer is set up as the receiving device. You can record to a single track of the internal sequencer or, if you are recording from a MIDI sequencr, you can record up to 16 tracks simultaneously.

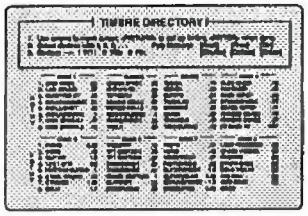
1. Connect the MIDI output of your MIDI device to MIDI IN on the Synclavier or Direct-to-Disk.

2. Set MIDI input parameters as explained in the section "MIDI" in the *Studio Operations* manual.

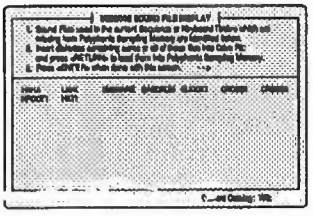
3. Set up the MIDI device according to its instructions.

   If you are recording more than one track at a time from a MIDI sequencer, route each MIDI sequencer track to a separate channel of the selected MIDI output.





Timbre Directory



Missing Sound File display

Recalling a timbre

If you do not have Synclavier voices, select the desired timbre on your MIDI device. If you have Synclavier voices, you can select a timbre for recording from anywhere in your system.*

1. Select the Timbre Directory from the Welcome or Main Menu.
2. If the desired timbre is in a timbre file on another device, choose that device from those shown at the top of the screen by typing the number preceding the desired device.

   If the desired timbre is in a timbre file in a subcatalog, select the subcatalog from the Subcatalog Directory (accessed from the Main Menu) and return to the Timbre Directory.
3. Click the desired timbre or select it with the arrow keys and press Return.

The selected timbre becomes the current timbre. MIDI or Synclavier keyboard notes are recorded with that timbre.

If you are recalling a sound file timbre, some sound files may be missing from the current catalog. Select the Missing Sound File display from the Main Menu and follow the instructions at the top of the display to identify and load the missing files.

Detailed explanations of timbres are in the *Organizing and Storing Sounds* and *Sampling and Sound Editing* manuals.

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* If you have a 96-voice poly system, special care must be taken when recalling timbres. See the section "Recording with a 96-voice poly system."

SKTand SMT—Making a track timbre the current timbre

With the Sequence Editor's SKT (Select Keyboard Timbre) command, any timbre previously recorded onto a track can be made the current timbre.

1. Click SKT in the Commands panel to bring up the SKT dialogl.
2. Select the source track by clicking on a track number in the Display panel or by typing a number and pressing Return.

   The selected number appears in the number field.
3. Click on the SKT button in the lower left corner of the Dialog panel.

   The selected track timbre becomes the current timbre.

With the SMT (Select Memory Timbre) command, any timbre ina timbre file, on another track or the current timbre can be placed onto a track.

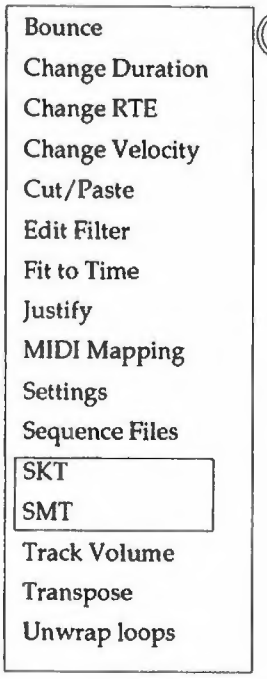
1. Click SMT in the Commands panel to bring up the SMT dialog.
2. Step the From: switch to KEYBOARD (for current timbre), TRACK (for another track timbre) or BANK, ENTRY (for a timbre from a timbre file).
3. Select blinking source and destination numbers by clicking on the desired number in the Display panel or typing in a number and pressing Return.
4. Click the SMT button in the lower left corner of the Dialog panel.

   The selected timbre is placed onto the track. It replaces any previously selected track timbre.

To cancel either command:

- Click the CANCEL button in the Dialog panel.

  The command is canceled.



Commands panel

Note: Tracks cannot be soloed from the Display panel while either the SKT or SMT instructions are on the Dialog panel.

The digital metronome

The digital metronome provides an audible click used to synchronize tracks. If your system has been properly set up, the click is audible when you first load the Real-Time Performance system and press START. If it is not, see that the CLICK OUT jack on the control unit is connected to a line input on your console or mixer and that the volume level at the console is turned up.

By default, the click is turned on. You can turn it off or on from the Settings dialog.

Setting a click rate or click period

The click can be expressed as either a click rate (beats-per-minute) or a click period (milliseconds). These values are reciprocals; that is, the click rate increases as the period between clicks decreases, and vice versa. When you first load the system, the click is expressed in beats-per-minute with a default rate of120 beats per minute.

To see the click expressed as a click period:

- Step the Beats/Min field after the click setting.

  The field changes to show 500 MS.

To return the setting to the click rate:

- Step the MS. field until Beats/Min appears.

To set a click rate or click period:

1. Click on the number field following the Click ON/OFF switch.

   The field highlights.

2. Type in any click value from 30 to 2400 or step the number on either side of the decimal point. Alternatively, type in any click period value from 0 to 9999 or step the number.

   When you start the sequencer, the click sounds at the selected rate or period.

Setting a click-rate multiplier

A justification unit is established by the click rate and click-rate multiplier settings.

The click-rate multiplier is similar to a resolution setting in that it controls the size of the note that will be justified. Settings of more than one subdivide the click period so that additional inaudible "clicks" are produced internally. You still hear the click only on the beat, but recorded notes are justified to the nearest internal click (or subdivided beat). When the click-rate multiplier is set to one, recorded notes are justified to the nearest click.

Different click-rate multiplier settings can be used to achieve different justification results. The default setting for the click-rate multiplier is 4.

To set the click-rate multiplier:

1. Click on the Settings command.

   The Settings dialog appears in the Dialog panel.

2. Click on the Click Mult field.

   The field highlights.

3. Type in a number from 1 to 48 or step the number field.

   The click-rate multiplier is set to the number entered.

Recording with justification

When you justify a recording, the computer automatically positions the notes you play exactly on the nearest click or selected subdivision of the click.

Once the Justify switch on the Locator panel is turned on, any notes you record are justified to the nearest click or click subdivision.

Erasing a sequence

You can erase the current sequence from either the Sequence Editor or the Motion Control panel of the Audio Event Editor.

- Click the Sequence editor ERASE button twice when none of the track numbers in the Display panel are lit.

  The current sequence is erased from memory.

- Click the DELETE button on the Motion Control panel of the Audio Event Editor.

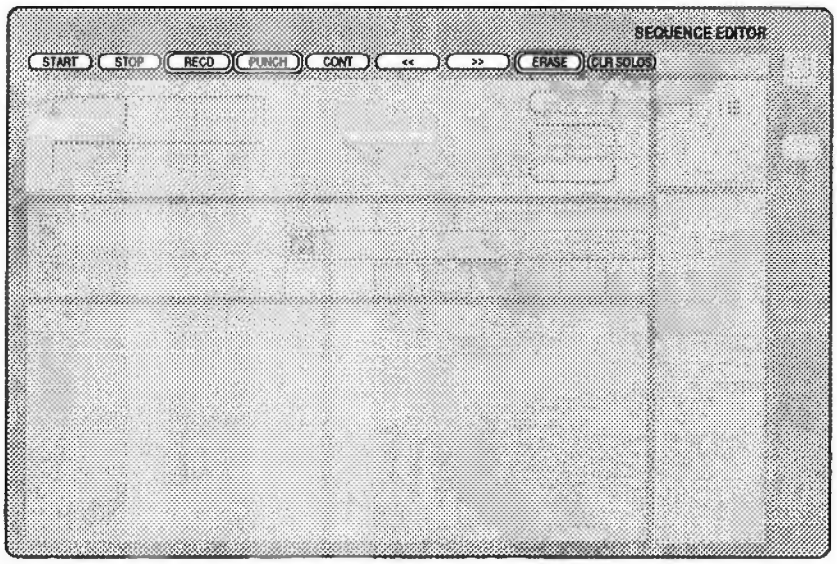
  A dialog appears instructing you to click [OK] to erase the sequence.

You can erase one or more individual tracks from the Sequence Editor only:

1. Select the track or tracks you wish to erase by clicking on the appropriate track number(s) in the Display panel. The numbers must be lit or blinking.

2. Click ERASE twice.

   All lit or blinking tracks are erased. Tracks that are neither lit nor blinking are not erased.



ERASE button on the Sequence Editor

DELETE on the Motion Control panel of the Audio Event Editor

Recording

You can record signals into the sequencer, one track at a time, from the Synclavier keyboard or any MIDI device.

If you are recording from a MIDI device, see also the MIDI section of the *Studio Operations* manual.

Recording the first track

You record the first track using the Motion Control panel of either the Sequence Editor or the Audio Event Editor.

1. Click the RECD button on the Sequence Editor; or click MIDI RECRD on the Motion Control panel of the Audio Event Editor.

   Both the START and RECD or MIDI RECRD buttons highlight.

2. Listen to the click for a couple of measures, then play on the keyboard.

   Your performance is automatically recorded on track 1.

3. Click the STOP button when you are finished recording.

   The START and RECD or MIDI RECRD buttons unhighlight.

To play back the recording:

- Click START once to play back your sequence from the first beat or twice to play it back from the first recorded note.

If you do not like what you have recorded, you can erase it.

- Click ERASE or DELETE twice.

Overdubbing

You can overdub by adding notes to the same track or by recording a new track. When you add notes to an already recorded track, you do not erase any previously recorded notes.

If you do not have Synclavier voices, all tracks are automatically assigned the same null timbre. Whenever you click RECD or MIDI RECRD, the first track is selected for recording. If you want to add notes to a different track, you select the desired track on the Sequence Editor Display panel.

Adding notes to a recorded sequence

You can record additional notes on track 1. If you are using Synclavier timbres, you must use the same timbre.

- Click RECD or MIDI RECRD andplay any additional notes you wish to add to the track.

  The notes are added to the original track without erasing the earlier ones.

Sometimes it is better to record new notes on a separate track to preserve the integrity of the original track, or if you are planning to use Music Printing, to print separate parts (such as for first and second violin) that are recorded using the same timbre.

To add notes to another track:

- Select the track on which you want to record from the Sequence Editor Display panel by clicking on it and click RECD.

  The new notes are recorded on the blinking track. If no other track numbers are lit, you hear all other recorded tracks.

After recording the same timbre or a null timbre on two or more tracks, you can bounce, or merge, them to one track once you are satisfied with the recorded sequence. (See "Editing from the Sequence Editor.")

Soloed and selected tracks

Soloed tracks are tracks chosen to be heard or affected by an editing operation. A **selected** track is one that is ready to be recorded on.

You can solo any number of tracks to be heard when you record or playback. Normally only one track is selected for recording.

Track numbers for 200 sequencer tracks are displayed on the Display panel of the Sequence Editor. Track numbers for 32 sequencer tracks at a time appear when you click Select Tracks at the bottom of the Event List Editor of the Audio Event Editor. Use small arrows to the left of the display to view other track numbers.

Note: You cannot select or solo tracks in the Display panel while the bounce, SMT or SKT instructions are in the Dialog panel. Click on Cancel in the lower left corner of the Dialog panel to clear any of these instructions.

Recording (con't)

Soloing and selecting, unsoloing and deselecting

To solo or select a single track:

- Click on an unhighlighted track.

  The track number highlights and blinks. When you play back the sequence, only the soloed track is heard. All notes are recorded on the blinking track.

To solo a group of tracks while selecting a single track:

- Click and drag from one track number to another.

  All tracksdragged over become highlighted and the highest track number blinks.When you play back the sequence, all the soloed tracks and the selected track are heard. All notes are recorded on the blinking track.

You can unsolo any soloed track by clicking on it or any group of tracks by dragging over them.

You can turn off a selected track either by deselecting it or by selecting another track.

- Click on the blinking track number.

  The track number is unhighlighted and the track is turned off. Recording takes place on the first available track.

- Select another track.

  The track number stops blinking but remains highlighted. Recording takes place on the newly selected track. The highlighted track is also heard when you record.

Recording without monitoring

There may be times when you wish to record without hearing any of the previously recorded tracks. You do this by monitoring an empty track.

1. Solo an empty track by clicking its track number.

   The track number of the empty track blinks.

2. Click a track number to select the track on which you want to record.

   The number of the empty track remains highlighted but stops blinking; the selected track's number blinks.

3. Click RECD.

   You hear only the digital metronome and the MIDI keyboard timbre as you record.

Recording from the middle of a sequence

You can enter the record mode at any time while the sequence is playing.

1. Click START to play back the sequence.

2. While the sequence is playing, click RECD (Seq. Ed.) or MIDI RECRD (AEE).

   The buttons haighlight. Notes performed are recorded on the selected track.

You can also use the Mark button or a Locator Point to set a starting point for recording anywhere in a sequence. (See the section "Marking a sequence.")

Punching in

You can record using the PUNCH button and erase any previously recorded notes as you record new ones.

1. Select the track on which you want to record. If you are using Synclavier voices, make sure that the current timbre matches the timbre of the track on which you want to punch in.

2. Play back the sequence to the point where you want to punch in. Click START to hear only the selected track. Click RECD (Seq. Ed.) or MIDI RECRD (AEE) if you want to hear all other tracks.

3. Click PUNCH (Seq. Ed.) or MIDI PUNCH (AEE)after the last note preceding and before the first note of the passage you want to change.

   The PUNCH, START and RECD buttons highlight. The previously recorded notes are erased as you record new notes over them.

4. When you have finished, click PUNCH or MIDI PUNCH a second time or click CONT (continue).

   Erasing and recording stop, and the sequence continues to play.

The sequencer does not start or stop erasing in the middle of a note.

- If you click PUNCH between two notes (after one has ended and before the next one begins), the erasing begins immediately.

- If you click PUNCH in the middle of a note, the erasing begins right after the note ends.

- If you click PUNCH a second time to stop recording during a held note, the recorder does not stop erasing until the note ends. The complete note is eliminated.

Note: Punch in can be used to simply erase without recording. However, if you are using Synclavier timbres, the current timbre still must be the same as the timbre on the blinking track.

(?)—The info button

You use the Info button on the Sequence Editor to get information about the sequence in the sequencer.

1. Click (?).

   The button is surrounded by a double outline.

   The track numbers of all tracks containing notes are highlighted.

2. Click START.

   The message line above the Motion Control panel shows the number of notes that can be recorded in the remaining recorder memory.

3. Click a track number in the Display panel.

   The first note recorded on the track sounds. The message line shows the track number, the timbre and the number of notes recorded on that track.

4. When you have finished using the Info button, click any other field or command.

   The info feature is turned off, and the Info button outline returns to a single line.

Recording with a 96-voice poly system

With a 96-voice poly system, you can record sequences that have up to 96 voices sounding simultaneously.

Recalling a timbre in the 96-voice poly system

When you recall a timbre with a 96-voice poly system, the sound files associated with the timbre are loaded into the preferred poly bin (poly bin 1, by default). The preferred poly bin is the poly bin assigned to the keyboard.

As sound files are loaded into the preferred poly bin, unnecessary sound files—those not part of the recalled timbre or of any track timbre in the current sequence—are erased as more room is required. If all of the sound files of the recalled timbre still cannot fit into the preferred poly bin, some are loaded into another poly bin. If there is insufficient memory in all three poly bins, an error message appears.

> Out of room in sample memory

Once a sound file is loaded into a poly bin, it remains there until it is erased from poly memory.

Checking poly memory

Before you recall a timbre from the Timbre Directory, you can check to see how much memory remains in each poly bin. You can check either for **free memory** (the amount of memory curently free for use) or **available memory** (the amount of memory that would be available if you made room by rearranging the sound files in that poly bin and /or erasing unneeded ones).

- Click [Free] in the upper right corner of the screen to see the amount of free memory in each bin.
- Click [Avail] in the upper right corner of the screen to see the amount of available memory in each bin.

If the amount of free memory indicates that the preferred poly bin has sufficient memory for the desired timbre, go ahead and recall it. If the free memory is insufficient but the available memory is sufficient for the desired timbre, make room in the preferred poly bin by following the instructions on the following page.

Making room in the poly bins

You can use any of three methods to make room in each poly bin. All three methods are available from the Timbre Directory.

Shuffle method

- Click [Shuffle] at the upper right of the screen to shuffle poly memory; that is, to move the sound files in each bin closer together. No sound files are erased.

Collect method

- Click [Collect] at the upper right of the screen to erase all sound files not part of the current sequence or timbre. The remaining sound files are moved together.

Erase method

- Click [Erase] at the upper right of the screen to erase all sound files from all three poly bins are erased.

Changing the preferred poly bin

As you recall new timbres to record multiple tracks in a 96-voice poly system, you will want to change the preferred poly bin so that the sound files of the sequence are spread evenly over the three poly bins.

You can do this from the Timbre Directory or the Sound File Directory. If you are recalling a timbre form an optical disk, you can also do it from the Optical Disk Display.

1. Click [Bin] (Timbre Display, upper right) or [R] (Sound File and Optical Disk Displays, center right) to bring up the dialog.
2. Click on the bin number and type in the preferred number.
3. Click on [Cancel] to end the dialog.

   Sound files or sound files of any timbre recalled are stored in the current preferred poly bin. Any tracks recorded with the sound file or timbre are assigned to the preferred poly bin.

Recording with a 96-voice poly system (con't)

Assigning track timbres to specific poly bins

The timbre on each track of a sequence is automatically assigned the poly bin of the timbre it is recorded with.

For example, if you recorded a track with a timbre that you recalled when the preferred poly bin was poly bin 1, then that track timbre is also assigned to poly bin 1. Even if the sound files associated with the track timbre were loaded into poly bin 2 because the preferred poly bin 1 was full, the track timbre nonetheless is assigned to poly bin 1.

It is a good idea, after recording a multiple-track sequence with a 96-voice poly system, to check the track timbre poly bin assignments and make changes as necessary. You can, of course, assign track timbres to specific poly bins at any time during the recording.

Assigning track timbres to specific poly bins does not change the bin location of any already loaded sound files. To make sure all sound files are loaded into their proper bins:

1. Assign each track to a poly bin as described on the following page from the Multichannel Display by clicking on the poly bin number for the keyboard or any track and typing in the desired bin number.

2. Store the sequence on disk (see "Storing, recalling and playback").

3. Erase the sequence and recall the sequence again.

   As the sequence is placed into memory, all the sound files associated with the track timbres are loaded into their assigned poly bins.

The poly bin assignments of each track timbre are stored with the sequence.

Whenever the sequence is recalled, the sound files associated with each track timbre are loaded into the assigned bins.

Click tracks

You can record a sequence with a changing tempo by using a click track.

Recording with a click track

The clicks generated by the digital metronome occur at a steady rate. Although you can change the click rate at any time during recording, the click rate remains the same from one bar to the next. This does not lend itself to certain types of musical expression, such as a cadenza, accelerando or ritard.

Any track can be used to control the output of the digital metronome. Tracks used this way are called **click tracks.** You can record a click track by tapping the beat on a key on the keyboard. Percussion timbres are easiest to work with, but any timbre may be used.

You may want to record different parts of the click track on different tracks at different tempos and then slide and bounce the tracks together to create the final click track. The justified mode should be used in this procedure. You can record some parts of your sequence with the digital metronome and others with a click track. A click track cannot be used to impose tempo changes upon already recorded tracks, however.

Creating a click track

1. Turn the click off on the Sequence Editor Locator panel.
2. Select a track to be used for the click track.
3. Record notes sounding at the times you want the clicks to sound.
4. Click the Settings command in the Commands panel to bring up the Settings dialog and step the Beats/Min field until you see Click Trk. The number "1" preceding Click Trk. is the default track selected for the click track.
5. Click on the Click Trk. number field and enter the desired track number.
6. Click on Track Volume in the Commands panel to bring up the Track Volume dialog and set the volume of the click track to zero.
7. Turn the click back on and click START to hear the new click track.

Note: A system limitation allows no more than 60 seconds between clicks.

External click tracks

You can use a click from an external source to control the sequencer. External click tracks that can be used include

- a live click or percussive sound that has been recorded on tape and conditioned using a timing interface module;
- a SMPTE-driven metronome that generates a trigger pulse from SMPTE time code recorded on tape;
- a drum machine or sync box that generates a trigger pulse based on a sync code (such as FSK) recorded on tape.
- any TTL standard trigger pulse (2 volts or more).

See the manual *Studio Operations* for complete instructions.

You can record your sequence to an external click fed through a pulse conditioner into the EXTERNAL CLOCK IN jack on the Synclavier control unit.

You can also record the external click onto a click track in the sequencer and proceed as explained in "Recording with a click track."

Both procedures are explained fully in the section "External click tracks" in the manual *Studio Operations*.

Marking a sequence

If you want to start recording at some point other than the beginning of the sequence, you can set a mark or locator point.

Setting a mark point from the Sequence Editor

A mark point Take button, ON/OFF switch and time field are on the right half of the Locator panel of the Sequence Editor. The mark point time is displayed in whichever time display format you have selected (see "Setting sequence options").

You can specify a mark point in one of several ways.

- Click the Mark Take button while the sequence is playing.

  The sequence time at the instant the Take button is clicked is entered in the Mark point time field.

- Drag a time from another time field or from a memory button.

- Click on the Mark point time field, and type in a value.

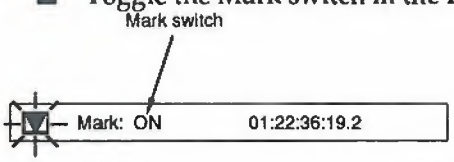
- Step the Mark: ON/OFF switch to TRK, and click on a track number in the Display panel.

  The time of the first note recorded on the selected track is entered in the Mark point time field.

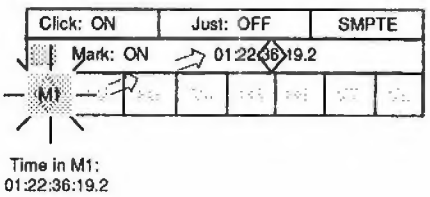
After a mark point is set, you can turn it on and off at any time. When the mark point is off, the sequence starts at the beginning. When the mark point is on, the sequence starts at the specified mark time.

To turn the mark point on or off:

- Toggle the Mark switch in the Locator panel.



Clicking the mark point take button



Dragging time from a memory button

Setting a mark point from the Audio Event Editor

A locator Take button, ON/OFF switch and time field are in the lower middle of the Sequencer Motion Control panel of the Audio Event Editor. The mark point time is displayed in whichever time display format you have selected (see "Setting sequence options").

You can specify a mark point in one of several ways.

- Click the Locator Take button while the sequence is playing.

  The sequence time at the instant the Take button is clicked is entered in the Locator point time field.

- Drag a time from another time field or from a memory button.

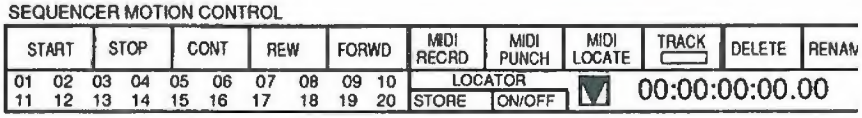
- Click on the Locator time field, and type in a value.

After a locator point is set, you can turn it on and off at any time. When the locator point is off, the sequence starts at the beginning. When the locator point is on, the sequence starts at the specified locator time.

To turn the locator point on or off:

- Toggle the ON/OFF switch.

  The Locator is on when the switch is highlighted and off when it is not.



Audio Event Editor Motion Control panel (detail)

Recording from a MIDI sequencer

Multitrack recording

You can record one or up to 16 tracks at once from a MIDI sequencer onto separate tracks of the internal sequencer.

You can route Incoming MIDI channels to any of the 200 Synclavier sequencer tracks using the MIDI Mapping command from the Sequence Editor.

1. Select the Sequence Editor from the Main Menu.
2. Click on the MIDI Mapping command.

   The MIDI Mapping dialog appears in the Dialog panel.

   All MIDI channels are routed to the Synclavier keyboard. Incoming MIDI notes control the keyboard timbre.
3. Toggle the word Keyboard to Recorder at the upper right of the Dialog panel.

   MIDI channels are routed to tracks in the sequencer as shown in the Dialog panel.
4. Change any track by clicking on the track number and typing in a new number.

   Incoming MIDI notes are routed to the track selected for each channel and play or record using the Synclavier track timbres. If your system does not have a keyboard or voices, a null timbre is automatically assigned.

(Con't next page)

Multitrack recording (con't)

5. Click on READY TRACKS in the MIDI Mapping dialog, and select the tracks that have been assigned to MIDI channels from the Display panel.

   Selected tracks highlight.

   If you change your mind, you can clear all track selections by clicking ALL SAFE in the dialog panel.

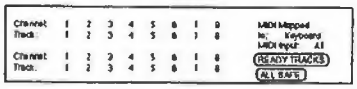
6. If desired, select an additional track to record the Synclavier keyboard by clicking READY TRACKS and then another track number.

   The previously selected track numbers are unlit. The track number selected for the keyboard blinks.

7. Click RECD (record) in the Sequence Editor Motion Control panel, start the MIDI sequencer and play on the Synclavier keyboard.

   Input from MIDI channels and the Synclavier keyboard is recorded simultaneously on selected tracks with Synclavier timbres assigned to those tracks.

   If you did not select a track for the keyboard, any keyboard notes played are recorded on the first track having the same timbre as the keyboard or on the first emptey track. If a MIDI channel is routed to the first track with a timbre matching the keyboard, the notes from both sources are merged.



MIDI Mapping dialog