Release O

New England Digital Corporation

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Introduction

Installing Release O

The procedure for installing your Release O software is straightforward. Once you have begun, the installation program steps you through the process, giving you instructions at every stage.

Starting the installation process

Before beginning the installation process, you should decide whether or not you are going to format your Winchester disk(s). Formatting your Winchester better utilizes storage space, but it erases all files from the disk. If you have the time, back up all your files onto floppy disks, tapes or optical disk so that you can choose this option.

To begin the installation process:

1. Insert the disk labeled "Release O Winchester Installation Disk" into floppy drive 0.

2. Press the load button on floppy drive 0.

   A message appears asking you to confirm the type of Winchester (SCSI or IMI) that will be used as W0, your system Winchester.

3. Unless you have a non-standard configuration, type Y for Yes. Call your local N.E.D. office/distributor if you are not sure how to answer this question.

   A message appears asking you whether or not you want to format your Winchester.

4. Type Y for Yes or N for No.

> WARNING: Formatting erases all information on your Winchester. Do not answer Yes unless all your files have been backed up to floppy disks, tape or optical disk.

Installing the Release O software

After you have passed the formatting stage of the installation program, a series of messages steps you through an orderly installation of all Release O software.

1. You are asked which options are part of your system.

   After each question about an option, type Y for Yes or N for No.

2. If your system has a profile file*, a message appears asking you whether you want your profile file updated to the Release O profile file. Type Y for Yes or N for No.

   The Release O profile file sets your system so that you enter the Real-Time Performance system automatically whenever you press the load button.

   If your system does not already have a profile file, the Release O profile is installed automatically.

3. After the final option question, instructions appear telling you which disks to insert into floppy drive 0. Insert the disks in the order given in the instructions.

   The version of the Release O Real-Time Performance software that corresponds to the options on your system is automatically installed, along with new system software, utility programs and Music Printing software (if you have this option). The different versions of the Release O Real-Time Performance software are listed on the following page.

4. A message appears asking you whether or not you want to install the Synclavier setup timbres and sequences. Type Y for Yes or N for No.

   If you answer Yes, the setup timbres and sequences overwrite the Timbre Directory and eight numbered sequence files in the top-level catalog of your W0: Winchester.

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* The profile file is a command file which is executed automatically when the system is turned on or rebooted. If no profile file exists, the system begins in the Monitor module whenever you press the load button.

Release O Real-Time Performance software versions

The following versions of the Real-Time Performance software are available with Release O.

Filename	Feature
SYN–OGAE	Audio Event Editor, Optical Disk, Sequence Editor, Digital Guitar
SYN–OAEE	Audio Event Editor, Optical Disk, Sequence Editor
SYN–OGOP	Optical Disk, Sequence Editor, Digital Guitar
SYN–OOPT	Optical Disk, Sequence Editor
SYN–OGSE	Sequence Editor, Digital Guitar
SYN–OSEQ	Sequence Editor
SYN–OMP	Music Engraving

Hardware

Minimum hardware requirements

Different features of Release O require different hardware configurations.* Minimum requirements are as follows.

Feature	Minimum hardware
General Release O requirements	512K external memory, Model C processor, superfloppy drive, graphics terminal
Macintosh II	Macintosh II terminal with internal disk drive, high resolution color monitor with 1024-by-768 pixel display, extended keyboard, trackball
Audio Event Editor	Direct-to-Disk, 1024K external memory, MG600 or Macintosh terminal, mouse or trackball
Sample-to-Memory	New Sample-to-Memory module
64–Voice Poly Memory	Major factory upgrade
Custom Console Control	Custom Console Control interface
Portable Motion Control Unit	Portable Motion Control box and interface

* See your local N.E.D. office/distributor for further details on hardware requirements.

Release O overview

Release O introduces a new workstation for the Synclavier and Direct-to-Disk systems: the Macintosh II terminal. The MG600 and Macintosh terminal keyboards now have limited remote control capabilities. A new Sample-to-Memory module is also available which sets the input gain in decibels. In addition, many enhancements have been made to the terminal displays.

Workstation and terminal enhancements

The Macintosh II terminal is a major new workstation for controlling the Synclavier and Direct-to-Disk systems. Currently, this new terminal emulates the old Monterey MG600 terminal. All the functions that were previously controlled by the old terminal are now controlled by the new terminal.

The new terminal comes with a high resolution monitor and a new terminal keyboard. In some cases old keyboard commands have been modified to fit the new keyboard. A trackball is also included. The trackball is used in place of a mouse to activate commands, store and move values, enter and exit displays and move the cursor on the screen.

Future developments will include faster drawing speed, windowing, multitasking, using color and having the ability to use several terminal screens simultaneously.

In addition, both old and new terminal keyboards now have remote control capabilities. If you have a Direct-to-Disk system, you can play and edit cues on the Cue Editor panel using the function keys on the terminal keyboard.

Two additional remote control devices are the Portable Motion Control Unit and the Custom Console Control.

Overview of general display enhancements

Release O includes many enhancements to existing displays and functions.

- New Sequence Editor features allow you to cut and paste to any track, and edit most note and real-time effects values. A new edit filter gives you precise control of all edit operations. Undo, recall and unsave commands have also been added.

- The Optical Disk display now remembers your current location and the type of information displayed on the screen. It is faster at performing index updating while archiving. You can also copy an entire category of sound files from an optical disk and print a list of all files and categories on an optical disk volume. You can repair optical disks that are unable to write directory entries. The Search function has been improved.

- In the Sound File Editor, the crossfade time has been increased and its use improved. Two new display modes have been added, as well as the ability to play both the current and the locked sound file. A number of commands have been enhanced and improved.

- The Sound File Directory includes two memory buttons and a print button. You can display a full screen of sound files, the poly bin assignment for each file in poly memory and a list of only categories for the optical disk. The Search feature has been improved.

- The Recorder Display has several enhancements, including an Undo command, an improved Continue command and Feet:Frames time display.

- If you have a 64-voice poly system, the Multichannel Display has been redesigned so that you can designate the poly bin into which sound files are loaded.

- The CONFIGUR utility has been updated to include the Macintosh Terminal setting and the Mouse Interface. DO files can now be as long as you want and include other DO files.

Overview of general Direct-to-Disk display enhancements

Release O includes many new features and enhancements to the Direct-to-Disk system.

- The Multichannel Display has been redesigned so that you can route Direct-to-Disk tracks and cuelists.

- The Track Display has been redesigned for easier Direct-to-Disk output and input routing. Motion controls, a time display and the ability to set a mark point have been added.

- The Selection panel includes buttons for turning bounce and digital transfer off and on.

- The Project Manager panel has been redesigned for easier Direct-to-Disk output and input routing. It also includes a command for changing the size of the panel. Project creation can now be done completely from the Project Manager panel.

- The Sequence Editor panel of the Audio Event Editor includes two new functions: the ability to route cuelists and set the cuelist volume. The audition track now plays when previewing a cue you want to place on the track.

- The Cue Editor panel of the Audio Event Editor includes an optional signal display for easier cue editing and a command for sliding edit segments. You can also play and edit cues from a new or old terminal keyboard.

General enhancements

Remote controls

Remote control capabilities have been added to the Direct-to-Disk system's Audio Event Editor. Function keys on the terminal keyboard can be used to play and edit cues on the Cue Editor panel.

Function keys on the terminal keyboard

A major new feature of the Direct-to-Disk system is the use of function keys for remote control cue editing and playback. The function keys on the terminal keyboard operate when the Cue Editor panel is open. They work with both the new Macintosh II terminal (F keys) and the old MG600 terminal (PF keys), although different keys are used. (See the opposite page for keyboard equivalents.)

Four function keys allow you to lock onto a Cue In, Cue Out, Edit In or Edit Out time field on the Cue Editor panel—without ever having to click on the time field.

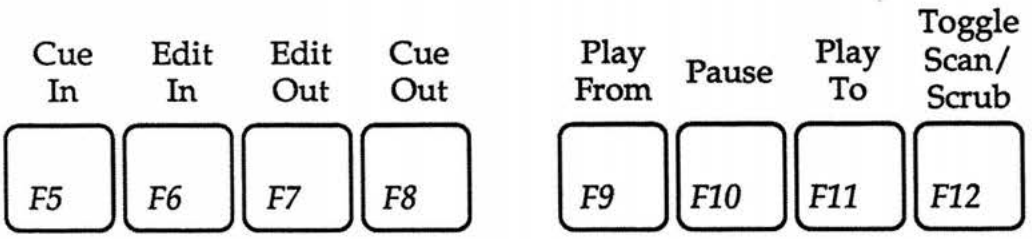
Once you are locked onto a time, you can enter a new time, or you can use the trackball or three-button mouse to drag the cue or edit icon. You can use the Toggle function key to switch between scan and scrub modes while dragging. For small movements, you can use the arrow keys to nudge the icon left or right.

The Play From and Play To function keys allow you to play the cue from any point. The Pause key stops or continues playback.

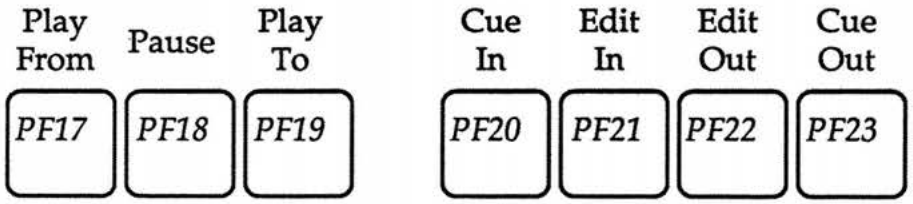
Detailed instructions for using the remote functions of the terminal keyboard can be found in the section "Editing and playing cues from the terminal keyboard."

Function key equivalents

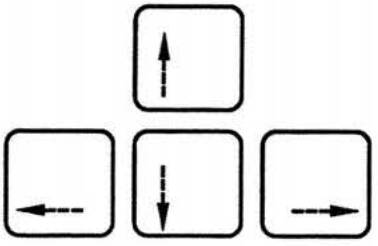
NEW TERMINAL



OLD TERMINAL



Arrow keys equivalents



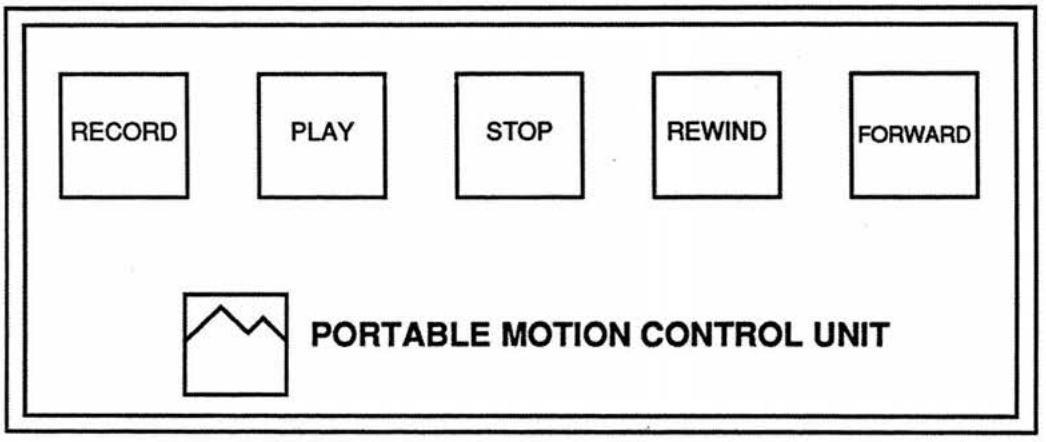
The Portable Motion Control Unit and the Custom Console Control

There are two new remote control units available for the Direct-to-Disk and Synclavier. The Portable Motion Control Unit is a five-button box with motion controls—RECORD, PLAY, STOP, REWIND and FORWARD. You use these to remotely record on Direct-to-Disk tracks and to play back a sequence that contains cues, MIDI information or Synclavier timbres.

The Custom Console Control includes hardware for connecting switch inputs to your console, allowing you input/output access to the Direct-to-Disk from a film-style recorder panel.

Detailed instructions for using the remote control units can be found in the section "Remote control units."

The Portable Motion Control Unit



Entering values and text

You can enter and edit values or text in a numeric, time or text field using the Tab, arrow and Control keys.

Entering values and text with the Tab and arrow keys

You can enter values and text using the terminal keys only. In the following steps, you do not need to use the trackball at all.

1. Press the arrow keys until you reach the desired field.

2. Press the Tab key.

   You enter the overstrike mode. Any typed character replaces the one at the cursor. The cursor advances to the next character.

3. Press the Tab key again to move by segments or words within the field. At the end of the field, the cursor wraps.

   OR

   Press the arrow keys to move character by character within the field. At the end of the field, the cursor wraps.

4. Position the cursor directly over the incorrect character and type the correct one.

5. Press Return to enter the value or text.

   The field returns to functioning as a single entry.

Advanced editing techniques

You can use the control keys for more advanced editing techniques within a field. To use the control keys for editing, tab to the field and then hold the control key down while pressing the additional character.

Control Key	Result
Control-A	Toggles between the insert and overstrike mode in a text field.
Control-D	In insert mode, deletes one character to the right of the cursor. In overstrike mode, moves the cursor one character to the right.
Control-E	Deletes all characters to the right of the cursor.
Control-I or Tab	Advances the cursor to the next field within the object.
Control-H	Moves the cursor one character to the left.
Control-L	Moves the cursor one character to the right.
Control-R	Cursor moves to the left most character in the field.
Control-X	Erases the entire entry and leaves the edit mode.
Delete	In the overstrike mode, moves the cursor one character to the left. In the insert mode, deletes one character to the left.

- You can restore the previous value to an empty field by pressing the Control-D, Control-E or Control-X keys.
- In overstrike mode, you can move the cursor to the next colon or decimal by pressing ':' or '.'.

Sample-to-Memory module

A new Sample-to-Memory (STM) module is available with Release O. With the new STM module installed in either the Synclavier or Direct-to-Disk system, you set the input gain in dB.

Sampling rate and input gain

Linear gain settings stored with a Direct-to-Disk project created before Release O are automatically converted to the nearest integer values between -3 and +28 dB. You set the input gain for the Direct-to-Disk either from the Project Manager of the Audio Event Editor or from the Track Display. (For more information on setting the input gain, see the section "Direct-to-Disk inputs.")

During polyphonic sampling, you set the input gain from the Sound File Editor. (For more information on setting the input gain for poly sampling, see the section "The Sound File Editor.")

Regardless of which display you use to set the gain, the default value, 0 dB, represents unity gain.

The Optical Disk display

The Optical Disk Display now remembers the location of your current sound file and the type of information displayed. It is also faster at performing index updating while archiving. You can copy an entire category of sound files from your optical disk to your Winchester hard disk. You can abort a search by clicking the large trackball button. There are also two new optical disk utilities.

Returning to the current sound file location and format

The Optical Disk display has new display features. It now remembers the type of information displayed and your current sound file location until you leave the Real-Time Performance system or turn off the system. When you return to the Optical Disk display from another display, the Optical Disk display opens at the same sound file location at which you left it. Even if you display different sound file information (Names, Captions, etc.), the current sound file remains highlighted on the screen.

When you return to the Optical Disk display after having recalled a different sound file from the Sound File Editor, the Optical Disk display still shows the previous information and sound file location.

When you change the play markers on a sound file that has been stored on optical disk, the play markers can be saved using the UPDATE command, and the sound file data remains unchanged. Overall, the index updating process while archiving to the optical disk is significantly faster.

The Optical Disk Listing Utility

You can produce a list of all the files and categories on an optical disk volume using the Optical Disk Listing Utility. The list can be sent to a printer or displayed on the terminal screen.

You can list filenames only or categories and filenames. In either case, the list can include the file length in seconds and in megabytes, the caption and a letter that indicates whether the file is a stereo file or a mono file.

The Optical Disk Listing Utility is accessed from the Monitor.

1. Insert the 5.25" disk labeled System Utilities Disk into the floppy drive and turn the lever down.

2. At the Ready prompt of the Monitor, enter the command

   old f0:oplist;run

   A message appears at the top of the screen.

   ```
   Optical Disk Listing Utility version of 10 June 1988
   Enter name of index file or <RETURN> to quit:
   ```

3. Enter the name of the optical disk volume you want to list. It does not have to be the currently loaded volume.

   This message appears.

   ```
   Display File List [Y(es) or N(o)]?
   ```

(continued next page)

The Optical Disk Listing Utility (con't)

4. Type the letter **y** if you want a list of filenames only. Otherwise type **n.**

   Another message appears.

   Display Category List [Y(es) or N(o)]?

5. Type the letter **y** if you want a list of categories and filenames. Otherwise type **n.**

   Another message appears.

   Display all file information [Y(es) or N(o)]?

6. Type the letter **y** if you want the list to indicate whether each file is a stereo file or mono file, the file length in seconds, the file length in megabytes and the caption. Type **n** if you do not want to include this information on your list.

   The final message appears.

   Send output to printer [Y(es) or N(o)]?

7. If you want to print a hardcopy of the list, be sure your printer is ready and type the letter **y.** If you want to display the list on the screen, type **n.**

   When the specified list is printed,the Ready prompt reappears.

Note: You can halt the listing procedure at any time by pressing ⌘-Spacebar. If you display the list on the screen, you can temporarily freeze the scrolling screen by pressing the F15 key. Press the F15 key again to continue the display.

The Optical Disk Repair Utility

When you save or delete files on the optical disk, an error message sometimes appears on the screen.

> Unable to write directory entry

If this message appears, you can use the Optical Disk Repair Utility to move the directory information to a new area of the disk. Running the Optical Disk Repair Utility decreases the amount of space available on the disk.

> **WARNING:** If you have to repair disks often, your drive may have an alignment problem. Please contact your N.E.D. Customer Service representative.

Using the Optical Disk Repair Utility

Run the Optical Disk Repair Utility only on disks which produce the error message shown on the previous page.

1. Insert the disk you want to repair into the optical disk drive and press the START/STOP button.

   The Ready Indicator on the button blinks and then remains lit.

2. Insert the 5.25" disk labeled System Utilities Disk into the floppy drive and turn the lever down.

3. At the Ready prompt of the Monitor, enter the command

   old f0:oprepair;run

   A message appears on the screen.

   Do you wish to repair this optical disk cartridge [Y(es) or N(o)]?

4. Type the letter **y** to begin the repair process, or type the letter **n** to return to the Monitor without repairing the disk.

   If you type **y**, messages appear on the screen to indicate the status of the repair process. When the process is complete, the Ready prompt appears.

   If the disk cannot be repaired, an error message appears. Please copy the exact text of the message and contact your N.E.D. Customer Service representative.

Note: Use a repaired optical disk only with Release O or updated Release N (revision date 6/21/88) software. Any other software will not recognize the repairs, and therefore will be able to access only files written before the disk was repaired.

Preparing to copy an optical disk category

You copy sound files from an optical disk category to a Winchester subcatalog using the Optical Disk Display. See "Optical disk" in the manual *Organizing and storing sounds* for details about the optical disk and its display.

1. Insert the appropriate optical disk into the optical drive and press the START/STOP button.

2. The current catalog is indicated at the bottom right of the Main Menu. If you want to copy files into some other catalog, select the desired current catalog from the Subcatalog Directory.

3. Select the Optical Disk Display from the Main Menu.

   The current volume is loaded automatically, and an information panel appears at the top of the screen. The optical disk window appears at the bottom left and the sound file window appears at the bottom right.

4. Set the display format selectors as desired. You can display categories, filenames, captions and file lengths.

5. Locate the desired category by using either the scroll bar or the Search button in the optical disk window.

6. Drag the category name to the field labeled Sound File at the top of the information panel.

   The field label changes to Category, and the selected category name appears in the field. Two buttons, labeled Copy Category and Info, appear to the right of the field.

7. If desired, click the Info button to see information about the selected category and the current catalog. See "The Info button" on the following page for details.

The Info button

When you click the Info button, a box containing information about the selected optical disk category and the current catalog of the Winchester appears on the screen. You can click the Info button at any time during the copy procedure.

The left side of the box lists the

- selected category name,
- number of sound files in that optical disk category,
- total amount of memory required to copy all the files.

The right side of the box indicates the

- name of the current catalog,
- number of files and subcatalogs it contains,
- total amount of memory available in the current catalog,
- largest amount of contiguous memory available in the current catalog.

Memory is measured in sectors. You must clear the information box from the screen before continuing the copy procedure.

■ Click [CANCEL] when you are finished with the information box.

The information box is cleared from the screen. If a dialog box was displayed when you clicked the Info button, the dialog box reappears.

Note: You can increase the Largest Available Space number by using the Shuffle Utility to pack files together so that all available sectors are contiguous. See the section "Shuffle" in the *Reference Guide* manual for instructions.

Copying sound files to the current catalog

You can copy all or some of the files from an optical disk category to the current catalog on the Winchester, provided that the current catalog has enough available memory and directory entries. You can click the Info button to see the number of entries and the amounts of required and available memory.

If the number in the Sound Files field added to the number in the Entries field exceeds 128, or if the number in the Total Sectors field is larger than the number in the field labeled Avail Sectors, a warning message appears before any files are copied. If you choose to continue the copy procedure, only files for which there is room will be copied.

Follow these instructions to copy sound files from the optical disk to the current catalog.

1. Click the Copy Category button.

   A dialog box appears below the information panel. The dialog box contains [COPY] and [CANCEL] buttons and switches that indicate how the sound files are to be stored on the Winchester.

2. Set the switches labeled New Files and Existing Files as explained in "Selecting the sound files to be copied" later in this section.

3. Click the [COPY] button.

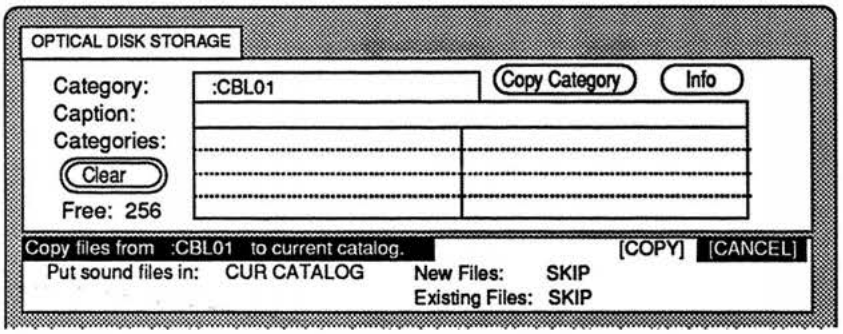
   If you selected the Verify option for the New Files or Existing Files switch, a dialog box appears below the information panel before the files are copied. See "The Verify dialog box" later in this section for details.

   The files in the selected category on the optical disk are copied to the current catalog on the Winchester disk and appear in the sound file window of the Optical Disk Display. When the process is complete, a message appears at the bottom of the screen.

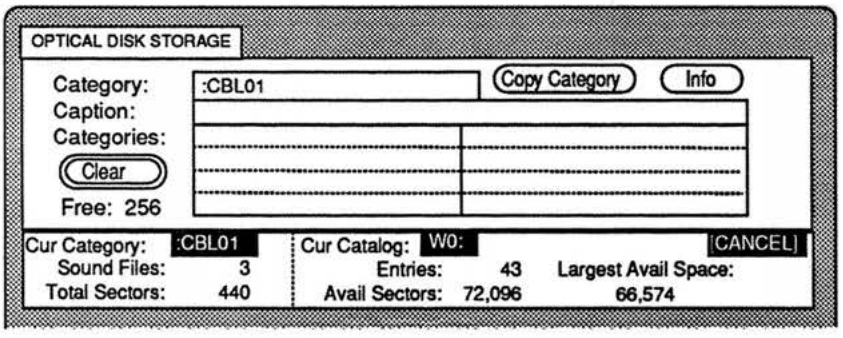
   Optical disk operation completed successfully.

Note: You can click the [CANCEL] button in the Copy Category dialog box or in the warning message if you decide not to copy files from the selected category.

The Copy Category dialog box



The Information box



Copying sound files to a new subcatalog

You can copy all or some of the files from an optical disk category to a new subcatalog within the current catalog on the Winchester, provided that the optical disk category is smaller than the largest available space in the current catalog. You can click the Info button to see the amount of memory required by the category.

If the optical disk category is larger than the current catalog, the copy procedure is aborted and an error message appears when you try to copy the sound files. If the category exceeds 128 sound files, a warning message appears before any files are copied. If you choose to continue the copy procedure, only files for which there is room will be copied.

Follow these instructions to copy sound files from the optical disk to a new subcatalog.

1. Click the Copy Category button.

   A dialog box appears below the information panel. The dialog box contains [COPY] and [CANCEL] buttons and switches that indicate how the sound files are to be stored on the Winchester.

2. Set the switch labeled "Put sound files in" to NEW SUBCAT.

   A field labeled "New Subcat Name" appears at the bottom left of the dialog box with the default subcatalog name.

3. If you want to change the name for the new subcatalog, click the subcatalog name.

   The subcatalog name is highlighted.

4. Type a name for the new subcatalog.

   The new name appears in the field.

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Copying sound files to a new subcatalog (con't)

5. Set the switches labeled New Files and Existing Files as explained in "Selecting the sound files to be copied" on the following page.

6. Click the [COPY] button.

   A new subcatalog is created and becomes the current catalog. The size of the new subcatalog is equal to the size of the optical disk category, regardless of how many sound files you want to copy. The subcatalog has a large directory, which means it can contain up to 128 entries.

   If you selected the Verify option for the New Files or Existing Files switch, a dialog box appears below the information panel before the files are copied. See "The Verify dialog box" later in this section for details.

   The files in the selected category on the optical disk are copied to the new subcatalog on the Winchester disk and appear in the sound file window of the Optical Disk Display. When the process is complete, a message appears at the bottom of the screen.

   Optical disk operation completed successfully.

Note: You can click the [CANCEL] button in the Copy Category dialog box or in the warning message if you decide not to copy files from the selected category.

Selecting the sound files to be copied

Files that have never been stored in the current catalog of the Winchester are **new files.** Files that previously have been stored in the current catalog are **existing files.** You can copy some or all of the sound files in the selected category by setting options on the switches labeled New Files and Existing Files.

New Files switch settings

SKIP — All new files are skipped. Use this option when you are updating existing files and do not want to copy any new files.

COPY — All new files are copied. Use this option when you want to copy all new files from the selected optical disk category to the Winchester.

VERIFY — A verification dialog box appears for each new file, allowing you to either skip or copy that sound file. Use this option when you want to copy some new files and not others.

Existing Files switch settings

SKIP — All existing files are skipped. Use this option when you are copying only new files and do not want to alter any existing files.

REPLACE — All existing files are replaced. Use this option when you want to replace all existing files in the current catalog with the version of the file from the optical disk.

VERIFY — A verification dialog box appears for each existing file, allowing you to either skip or replace that sound file. Use this option when you want to replace some existing files and not others.

Note: To copy the entire category at once, set the New Files switch to Copy and the Existing Files switch to Replace.

The Verify dialog box

When you select the Verify option for the New Files switch, a dialog box appears for each new sound file in the category. When you select the Verify option for the Existing Files switch, a dialog box appears for each existing file in the category.

The dialog box displays the sound file name and all the options available for copying that file. You skip, copy or replace the sound files, one at a time, by clicking the appropriate button in the Verify dialog box. You can cancel the copy procedure by clicking [ABORT].

You also can change the name of the sound file shown in the Verify dialog box.

1. Click the sound file name in the Verify dialog box.

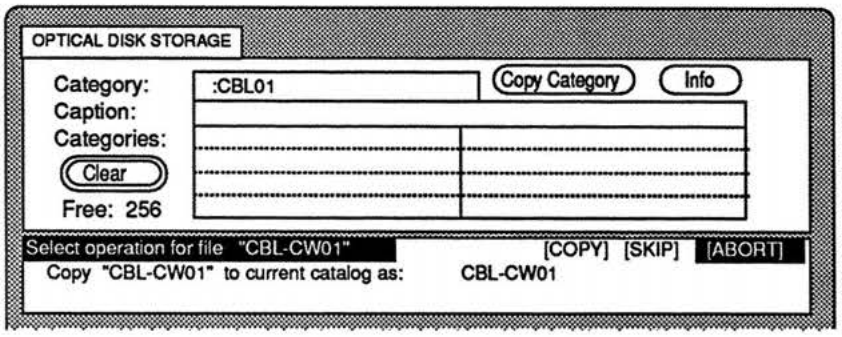
   The name highlights.

2. Type a new filename. A valid filename has up to eight consecutive characters. Spaces and the following characters cannot be used.

   ? ! : ; , / \ < > + = % & * | @

   The options available for copying the newly named sound file may change, depending on whether or not the new name already exists as a file in the selected subcatalog.

Verify dialog box



Summary of Copy Category options

switch	setting	result
Put sound files in	CUR CATALOG	Copies sound files to current catalog of the Winchester.
	NEW SUBCAT	Copies sound files to new subcatalog within current catalog.
New Files	SKIP	Does not copy any new file.
	COPY	Copies all new files to the selected Winchester catalog.
	VERIFY	Shows a verify dialog box for eachnew file.
Existing Files	SKIP	Does not copy any file that alreadyexists in the selected Winchester catalog.
	REPLACE	Replaces all existing files in the selected Winchester catalog.
	VERIFY	Shows a verify dialog box for each existing file.

The Sound File Directory

The Sound File Directory now has a memory display button, two memory buttons and a print button. In addition, you can abort a search by clicking the large trackball button.

When the optical disk is the selected device, you can choose to display categories only, files only or categories and files. When poly memory is the selected device, you can choose to display the poly bin assignment for each sound file. (See "The 64-voice poly system" in this manual for more details.)

Removing the menu from the screen

You can remove the menu selections at the top of the Sound File Directory by activating the new **M** (Menu) button located at the top right of the display. This is useful for displaying more sound files on the screen at once.

- Click the M button, or type M.

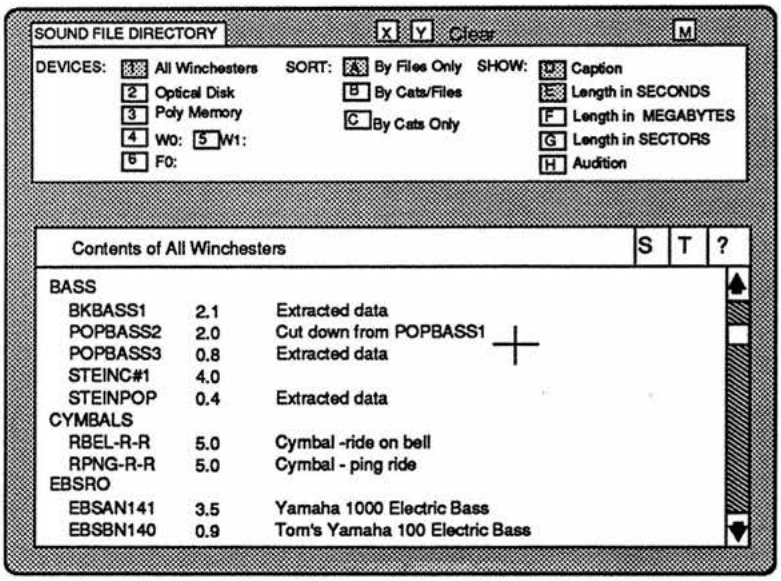
  The menu selections at the top of the display disappear. Only the directory of sound files and the memory buttons appear on the screen.

Even when the menus do not appear on the screen, they can be activated by typing the letter or number associated with a particular menu selection.

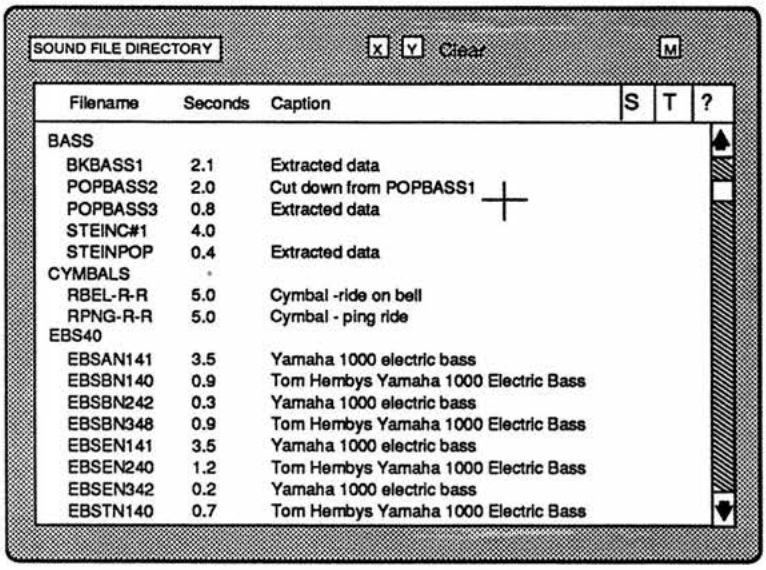
- Click the M button, or type M, again to return the menu selections to the display.

  The menus reappear.

The Sound File Directory with menus



The Sound File Directory without menus



Location memory buttons

The Sound File Directory has two location memory buttons labelled **X** and **Y** at the top of the display. Each button remembers a selected location on the screen and returns you to that location when activated.

1. Select a sound file from the Sound File Directory.

   The sound file is highlighted.

2. Click the X memory button, or type X.

   The button lights and remembers the location of the current sound file. This sound file is now the mark point to which the display returns whenever you click the X memory button or type X on the terminal keyboard.

Follow the same procedure for setting the Y location memory button.

When you no longer want to use the X memory button location, you can clear it.

1. Click **Clear**, next to the memory buttons.

   Clear begins blinking.

2. Click the X memory button.

   The X button and the Clear button unlight. The X memory button is cleared.

Follow the same procedure for clearing the Y memory button.

Memory buttons are also cleared when you change devices, leave the Real-Time Performance system or press Control–X or Control–Y.

Printing the Sound File Directory

You can print a list of all the sound files and subcatalogs or categories displayed in the Sound File Directory.

1. Be sure that your printer is connected and the power is on. The printer must be in "ready" or "on line" mode.

2. Select the Sound File Directory from the Main Menu.

   A list of devices and display formats appears at the top of the screen. Sound files are listed in the window at the bottom.

3. Select the desired device by clicking or typing the number preceding it. If you select the optical disk, you may have to insert the disk and load the volume (see "Optical disk" in the *Organizing and storing sounds* manual for instructions).

   The list of sound files changes to reflect the selected device. If the selected device is a Winchester or floppy disk, only sound files in the top-level catalog appear. If the selected device is "All Winchesters," all sound files on all Winchesters are listed alphabetically by subcatalog and filename.

4. Select a display format from the SORT and SHOW options. You can select one or more SHOW options.

   If you selected the optical disk, you can sort the sound file list alphabetically by category, filename or both. For any device, you can show names only, names with captions or names with lengths and captions. Lengths can be shown in seconds, sectors and/or megabytes.

(con't next page)

Printing the Sound File Directory (con't)

5. Click the button labeled **P** near the top right of the sound file window, or type the letter **p.**

   This message appears in the dialog box.

   Click PRINT to initiate printout [PRINT] [CANCEL]
   Title:

6. If you want to specify a title for the printout, click the field labeled Title and type the desired text.

7. Be sure your printer is ready and click [PRINT].

   The printer produces a copy of the list that appears in the sound file window. If you specified a title, it appears on the cover page.

Note: You can halt the printing procedure at any time by clicking the large trackball button.

Sound File Editor

The Sound File Editor has been improved in many ways that make its operation easier. User interfaces have changed in some cases. Most of the editing commands have been improved. Several new features and command enhancements have also been added.

Crossfade times

The use of crossfade times with the Delete, Cut, Copy, Extract, Loop and Reverse Loop operations has been improved and is now more flexible. The maximum possible length for crossfade times has been increased to 65,535 milliseconds (65.535 seconds).

You can designate a different crossfade time for the beginning and end of a Cut, Copy or Extract operation.

1. Select one of the above commands from the Modify menu of the Sound File Editor.

2. If you want to use the default crossfade time, press Return. If you want to designate a different crossfade time, proceed to Step 3.

3. Type the beginning crossfade time (in seconds).

4. If you want to designate an ending crossfade time that is different from the beginning crossfade time, type a comma (,) followed by the ending crossfade time (in seconds). If you do not type an ending crossfade time, the beginning crossfade time is used for both the beginning and the end.

5. Press Return.

   The operation is performed with the crossfade times designated.

Setting the input gain

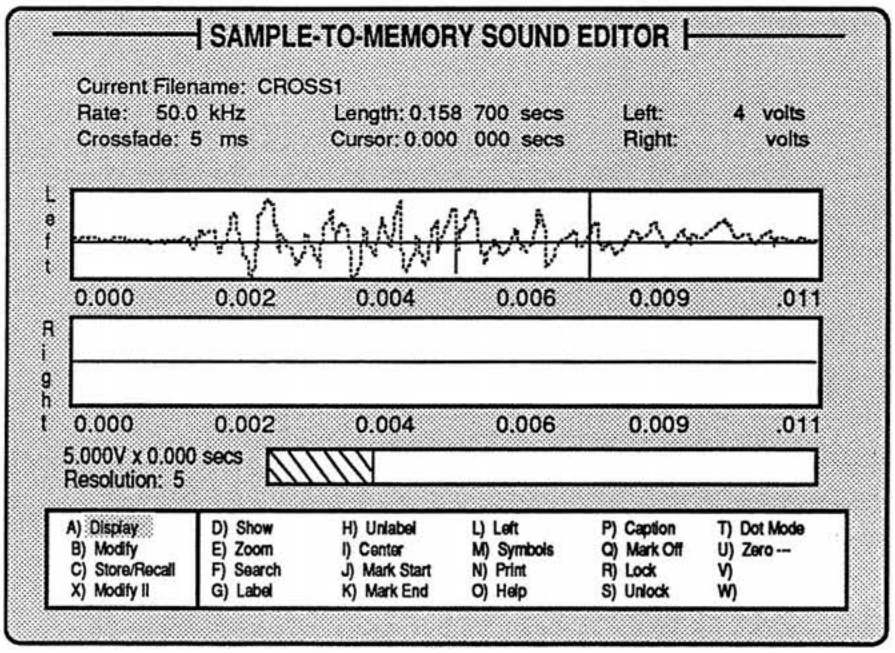
With the new Sample-to-Memory (STM) module installed in your Synclavier, you set the input gain for polyphonic sampling in dB. The default value, 0 dB, represents unity gain.

1. Select the Record command from the Store/Recall menu of the Sound File Editor.

2. Select Gain.

3. Enter an integer value between -3 and +28 dB. Negative gain settings provide attenuation.

(For more information on the new STM module, see the sections "Sample-to-Memory module" and "Direct-to-Disk inputs.")



A) Display	D) Reverse	H) Delete	L) Crossfade	P) Volume	T) Mix
B) Modify	E) Cut	I) Exchange	M) copy	Q) Normalize	U) Undo
C) Store/Recall	F) Paste	J) Combine	N) Fill	R) Modulate	V) Invert
X) Modify II	G) Extract	K) Ext Mono	O) Loop	S) Rev Loop	W) DC Trim

A) Display	D) Save	H) Collect	L)	P)	T)
B) Modify	E) Unsave	I) Record	M)	Q)	U)
C) Store/Recall	F) Rename	J) Max Time	N)	R)	V)
X) Modify II	G) Recall	K)	O)	S)	W)

Sound file windows

Several new features have been added to the Sound File Editor.

Zero line

You can now choose to display a zero line running horizontally through the middle of each sound file window. The amplitude level of the sample can vary five volts above or below the zero line.

You can toggle the zero line on and off.

- Select U, the Zero command from the Display menu of the Sound File Editor.

Drawing modes

You can draw a sound file in one of two modes. Switching between these modes does not alter the sound file, only the way the file is displayed.

- **Line mode** connects sample points with a solid line.
- **Dot mode** plots one dot for each sample or group of samples, depending on the display scale.

You can toggle the dot mode on and off.

- Select T, the Dot Mode command from the Display Menu of the Sound File Editor.

Comparing sound files

When comparing two mono sound files by placing one in the upper and one in the lower window using the LOCK command, you can now listen to either the current sound file or the locked sound file.

The locked sound file can only be played using the trackball or mouse; it cannot be played at the Synclavier keyboard.

Command enhancements

Several additional features have been added or improved.

Recalling a sound file

The Recall function has been improved so that the entire system is automatically searched when you recall a sound file. Sound files can be recalled either by filename or by treename. If an eight-character sound file name is typed in response to the Recall command dialog, the following areas are searched in order: polyphonic memory, the current catalog, the Winchester subsystem and the current optical disk volume. If a treename is specified, the system searches for the sound file using the path specified in the treename.

Mark Start and Mark End play markers

When using a modify operation on a portion of the sound file which includes a Mark Start or Mark End play marker, the markers are preserved after the operation has been performed.

Moving sound files with the Max Time command

If you have a 64-voice poly system, you can use the new Max Time command of the Store/Recall menu to move sound files from Poly Bin 1 to Poly Bin 2. When you activate the command, both bins are shuffled, and as many sound files as will fit in the second poly bin are moved from the first poly bin. (For more information on using the Max Time command, see "The 64-voice poly system.")

Verifying the Collect, Max Time and Print commands

The Collect, Max Time and Print commands now ask you to verify the specified operation by typing OK. This helps prevent initiating these time-consuming operations accidentally.

The Recorder Display

Several enhancements have been made to the Recorder Display, including an improved Continue command and an Undo feature.

General enhancements

- The time field has been expanded on the Recorder Display to include FEET:FRAMES as a selection. The default selection is MEASURES.
- The command Ctrl-C continues playing your sequence from the current screen cursor position, not the song pointer position.
- You can go directly to the Sequence Editor by pressing Shift–period (.).
- After selecting a region using the right and left square brackets, you can unselect the region by typing another right and a left square bracket anywhere in the notelist.

An undo feature has been added which allows you to undo the most recent editing operation performed on the Recorder Display. (It does not undo operations performed on other displays.)

- Type Ctrl-U.

  The current sequence is changed to the version **before** the most recent operation.

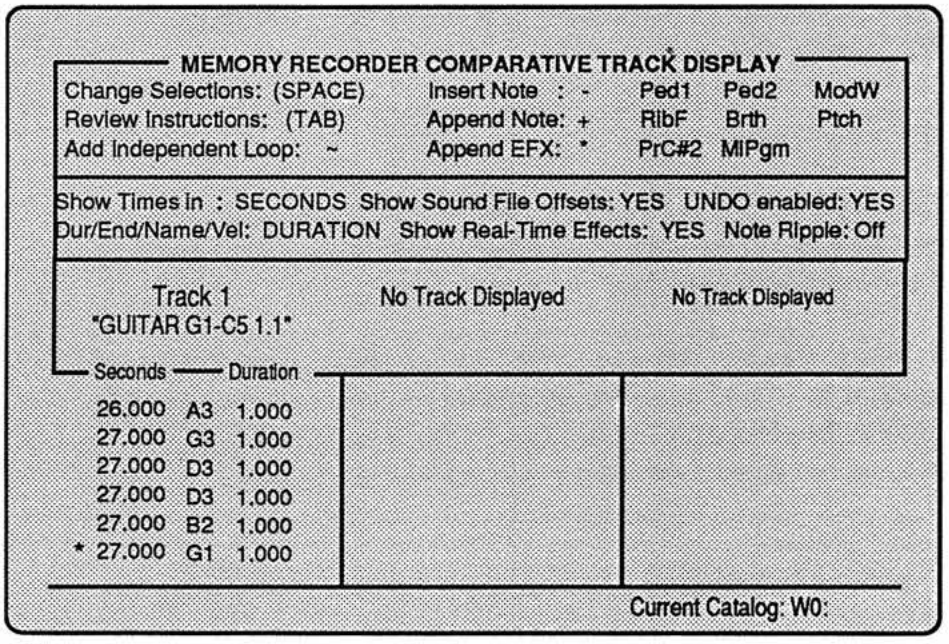
- Type Ctrl-U again.

  The current sequence is changed to the version **after** the most recent editing operation.

You can toggle back and forth between versions by pressing Ctrl-U repeatedly.

The undo feature uses some notespace, so if you are running low on notespace, you can toggle the UNDO Enabled switch to NO.

The Recorder Display



The Monitor module

Two enhancements have been added to the Configur utility, which is accessed from the Monitor software.

Configur utility and DO files

At the top of the first column of the Configur utility, the Macintosh has been added to the Terminal listing. If you are running a Mac II as your terminal, you should select the Macintosh terminal setting.

At the bottom of the same column, Mouse Interface has been added to the selections. Set this option to YES if you are operating a 3-button Synclavier mouse and have a Mouse Interface Card installed. Set it to NO if you are not using a Synclavier mouse, or if you are using a trackball or the new terminal mouse.

If you find that your mouse is not operating, make sure that the Mouse Interface is set to YES.

It is now possible call DO files within DO files. The length of a DO file is no longer limited to four sectors.

```
C O N F I G U R Configuration Utility                    version of 1 June 1988
    To change an item, move the cursor over the item and press the space bar.
    Press Q to quit (exit to MONITOR) or RETURN to write configuration.
Configuration of: W0
-------------------------------------------------------------------------------
Terminal:  Macintosh                    | Storage Devices:          D T L
Printer:   IDS/Dataprods  Graph: Yes    |   W0: (1)  5", SCSI       0,5,0
System Device:   W0:                    |       (2)  5", SCSI       0,4,0
Current Device:  W0:                    |       (3)  None
                                        |       (4)  None
Music Interfaces:                       |   W1: (1)  5", 15 MB      0,0
   Keyboard (D130):        Yes          |       (2)  None
   Synthesizer (D160):     Yes          |       (3)  None
   Sample-to-Disk (D66):   No           |       (4)  None
Computer Options:                       |   F0:      5" Supermini
   Memory Size:            60 K words   |   F1:      None
   Printer Interface:      Yes          |   R0:      None
   Mouse Interface         Yes          |   R1:      None
   Processor Type:         C            |   T0:      1/4" Cartridge
   Hardware Mul/Div:       Yes          |   O0:      12" Write -Once
-------------------------------------------------------------------------------
```

Sequencer enhancements

Two general enhancements have been made to sequencer operation.

Using the new frequency table

The frequency resolution and accuracy of the polyphonic sampling voices has been greatly improved. You have the choice of continuing to use the old frequency table for new and existing sequences, or you can use the improved table. New sequences automatically use the new frequency table. When an old sequence is recalled, it automatically uses the original frequency table. You can override these defaults.

- Press the START button while holding the PITCH CLASS button on the second keyboard control panel.

  The new frequency table for poly voices is selected.

- Press the STOP button while holding the PITCH CLASS button.

  The old frequency table for poly voices is selected.

The choice of frequency table is stored with your sequences. When you recall a sequence, the appropriate lookup table is automatically recalled. Sequences created with Release O can still be played with earlier RTP software, but they use the original frequency table.

Disabling an independent loop

You can disable all independent loops from the keyboard control panel while a sequence is playing.

1. Start the sequence.

   The sequence begins playing.

2. Hold down the START LOOP button on the keyboard control panel.

3. Press either the START or STOP button on the keyboard control panel.

   The sequence ignores all independent loops and continues playing beyond the loop.

SMPTE enhancements

Several enhancements have been made to the SMPTE feature.

- A Take button has been added to the SMPTE offset time on the Synchronization and Time Control panel of the Audio Event Editor. It is used to take the current time.

- All SMPTE fields accept times up to 23:59:59. SMPTE times wrap around under time 00:00:00.

- Negative SMPTE numbers are available. Fifteen minutes before the current SMPTE offset is considered negative time.

- Positive SMPTE times work for a full 23:45:00 beyond the SMPTE offset.

- SMPTE defaults to Non-drop mode.

- A SMPTE generator button has been added to the Audio Event Editor Synchronization and Time Contro panel.

Macintosh II

Introduction

If you have purchased the new Macintosh II workstation from New England Digital, you now control the Synclavier and Direct-to-Disk systems by entering commands and information on an "intelligent" terminal.

The new terminal

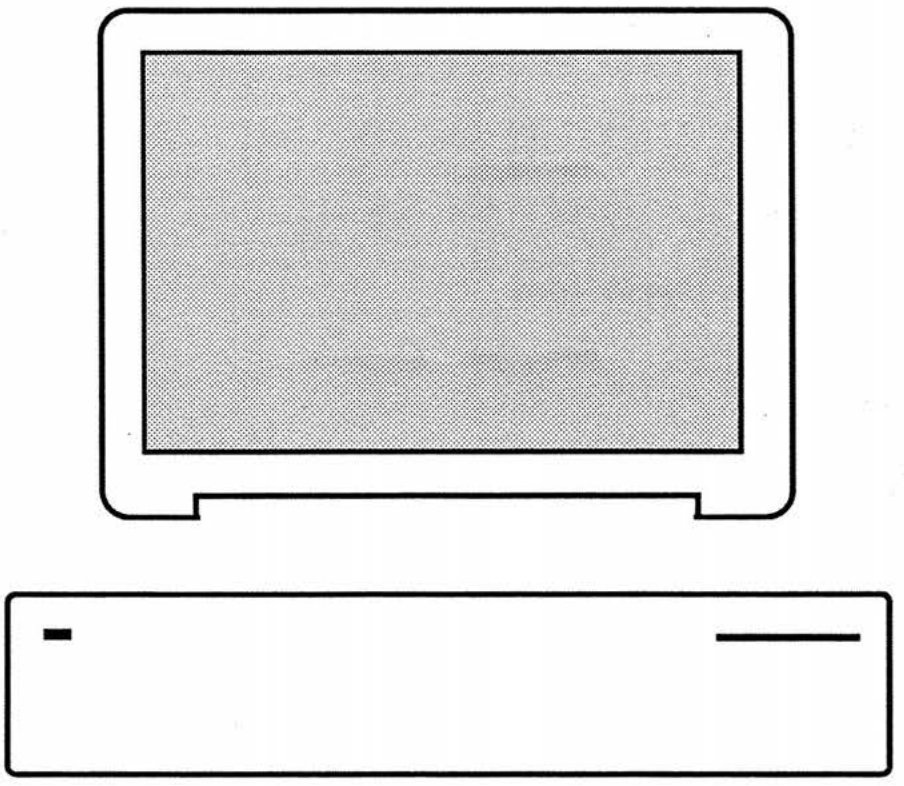
Based on a Macintosh II computer, the new terminal consists of several components:

- main unit,
- high-resolution screen,
- extended terminal keyboard,
- trackball.

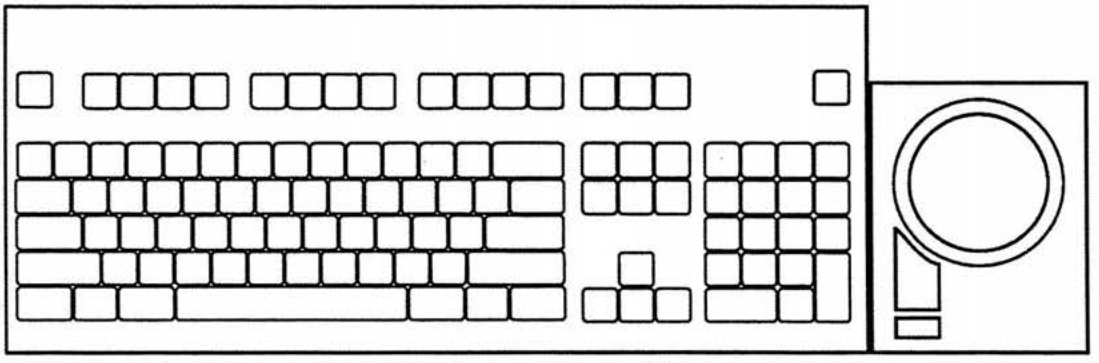
Currently, the new terminal uses a program called NED StartUp to merely emulate the Monterey MG600 terminal (referred to as the old terminal). Future releases will utilize the full capabilities of the Macintosh II.

New England Digital recommends that you read all the documentation that accompanies the new terminal. The New Features Update and this document contain information that supercedes the Macintosh II Owner's guide. The second chapter of the Macintosh II Owner's guide provides basic instructions for operating the new terminal.

New terminal and screen



Terminal keyboard and trackball



Setting up

Follow these instructions to set up your new terminal with the Synclavier or Direct-to-Disk system. You can arrange the components of your system in several ways. These pages describe the configuration used most frequently.

You may find it helpful to refer to the diagrams in the first chapter of the Macintosh II Owner's guide. New England Digital strongly recommends that you read all the warnings included in that chapter.

Connecting the main power cord

Because the main power cord provides a ground for the system, you need to connect it first.

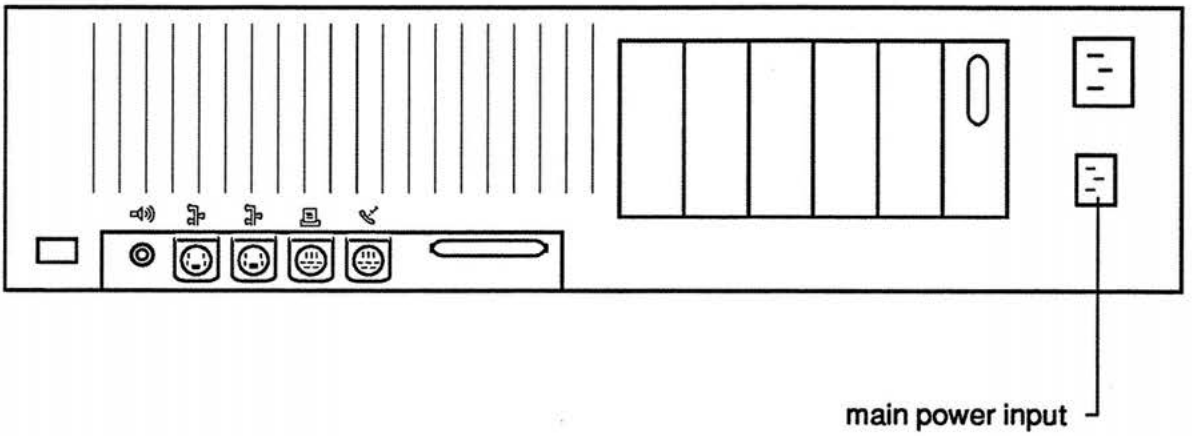
1. Turn the main unit of the new terminal so that you are facing its back panel.

2. Plug the socket end of the main power cord into the main power input, located at the bottom right of the back panel.

3. Plug the other end of the main power cord into a three-hole grounded AC power outlet.

> **WARNING:** Do not turn on the computer system until you have completed the entire installation process. If the power is on, turn it off and wait at least five minutes before continuing.

Back panel of the terminal main unit



Connecting the terminal screen

The video card has already been installed by New England Digital. You need to connect the video cable and terminal screen power cord. (The terminal screen is referred to as the monitor in the Macintosh II Owner's guide.)

1. Place the terminal screen near the main unit of the new terminal. Turn them so that you are facing their back panels.

> **WARNING:** Do not place the terminal screen directly on the main unit of the terminal.

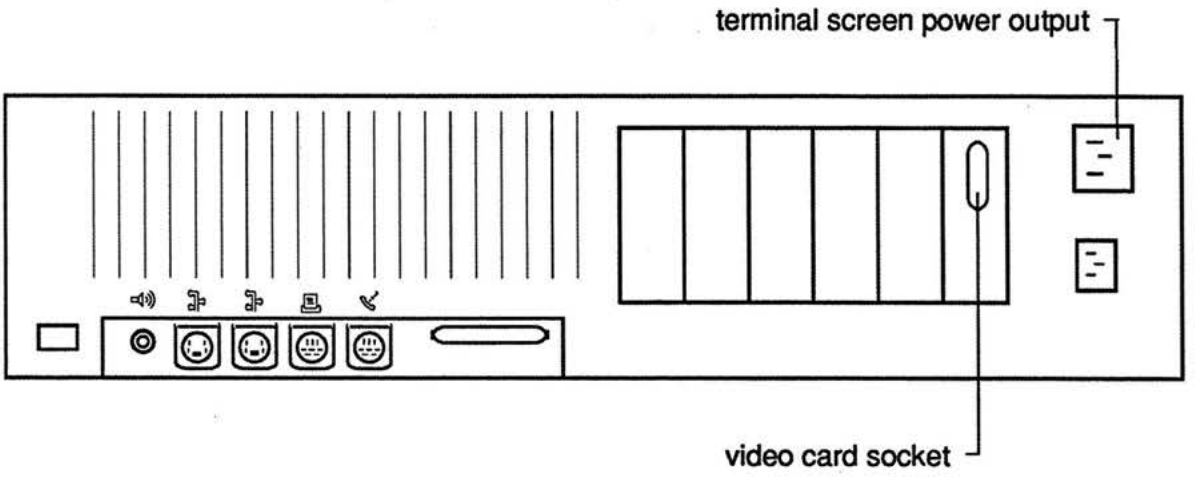
2. Connect the red, green and blue BNC ends of the video cable to the corresponding connectors labeled R, G and B on the back of the terminal screen. If your video cable includes a gray BNC end, connect it to the connector labeled HD.

3. Connect the other end of the video cable to the socket on the video card (accessed through the expansion slot in the back of the main unit). Tighten the thumbscrews.

4. Plug the three-pronged end of the terminal screen power cord into the terminal screen power output, located at the top right of the main unit back panel.

5. Plug the socket end of the power cord into the power input on the back of the terminal screen.

Back panel of the terminal main unit



Connecting the trackball and keyboard

The trackball cable and keyboard cable are interchangeable. They can be connected in a variety of ways. This page describes the configuration used most frequently.

1. Place the new terminal keyboard and trackball near the back of the main unit.

2. Connect either end of the trackball cable to the socket on either the right or left side of the trackball.

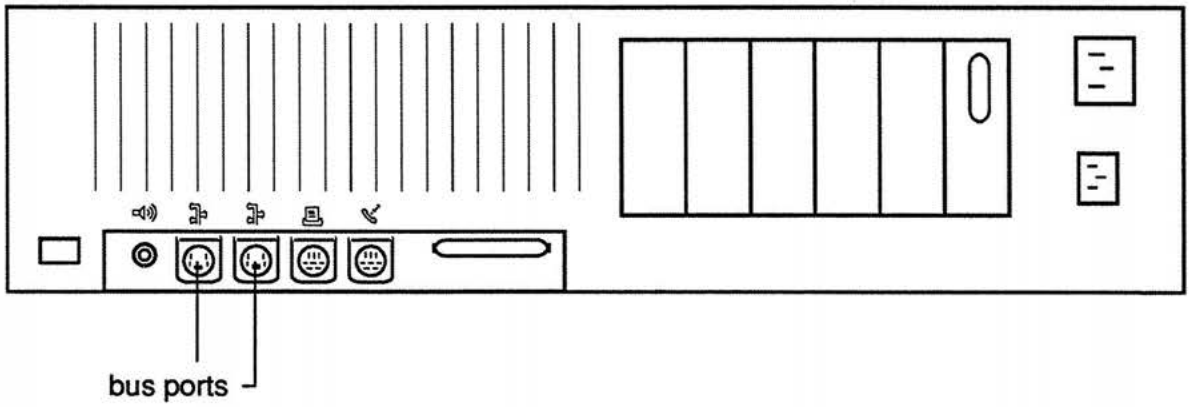
3. Connect the other end of the trackball cable to either of the two bus ports, located at the bottom of the main unit back panel.

   The bus ports are second and third from the left as you face the back panel. There are identical icons above the sockets.

4. Connect either end of the keyboard cable to the socket on either the right or left side of the terminal keyboard.

5. Connect the other end of the keyboard cable to the other bus port, located at the bottom of the main unit back panel.

Back panel of the terminal main unit



Connecting the Synclavier, Direct-to-Disk and printer

In addition to the five cables you have already connected, there is an Able-to-Mac cable that is 100 feet long. The large end of the cable has seven pins, and the small end has eight pins.

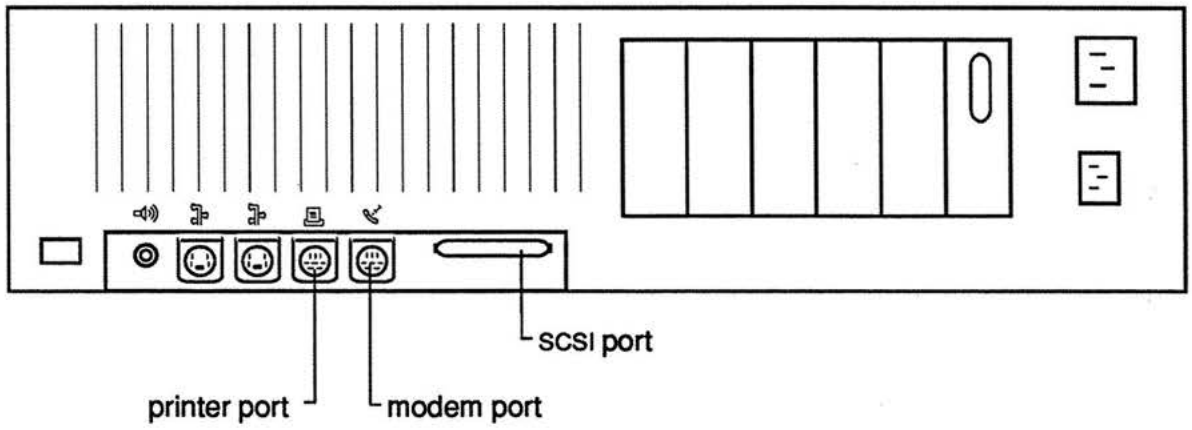
1. Connect the large end of the Able-to-Mac cable to the TERMINAL port on the Able computer panel.

> **WARNING:** Do not connect the Able-to-Mac cable to the SCSI port on the main unit of the new terminal.

2. Connect the small end of the Able-to-Mac cable to the modem port (the serial interface port that is closest to the SCSI port) on the back of the main unit of the terminal. The modem port has a phone icon above it.

3. If you want to use a printer, connect it to the other serial interface port on the main unit of the terminal. The printer port has a printer icon above it.

Back panel of the terminal main unit



Starting the system

To start the system, you need to turn on the power and understand how to use the trackball and the new terminal.

Turning on the power

We recommend that you set up your system so that one switch turns on all components.

1. Turn on that power switch now.

   The red power indicator on the Able computer control unit lights. If you have the Synclavier keyboard, its display window shows broken horizontal lines.

2. Wait about 30 seconds to allow for warm-up time.

3. If the power indicator on the terminal screen is not lit, press the terminal screen power switch. It is located at the bottom right as you face the front of the terminal screen.

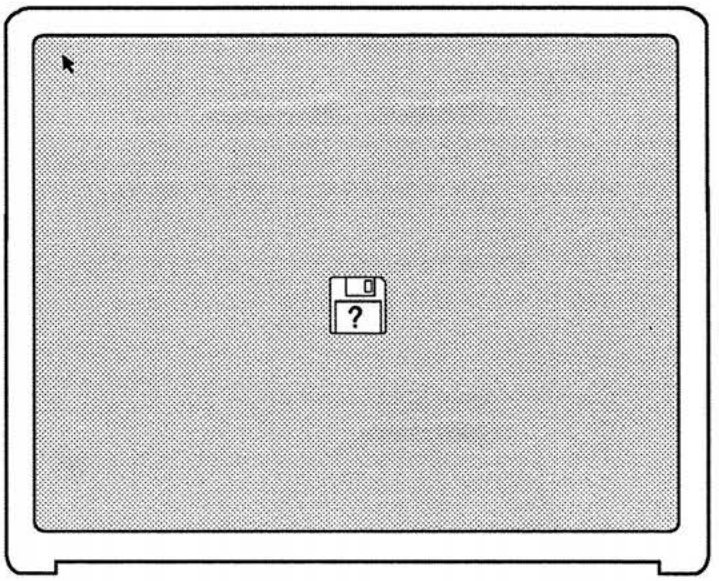
4. Press the Power On key near the top right corner of the terminal keyboard. The Power On key is labeled with a triangle.

   A chord sounds. An arrow and a disk icon with a flashing question mark appear on the terminal screen. The terminal is waiting for you to insert a 3.5" disk into the disk drive.

If you have never used a trackball, you may want to practice before starting to work with your Synclavier or Direct-to-Disk system. If this is the case, proceed to "The trackball."

If you already know how to use a trackball, go on to "Using the new terminal."

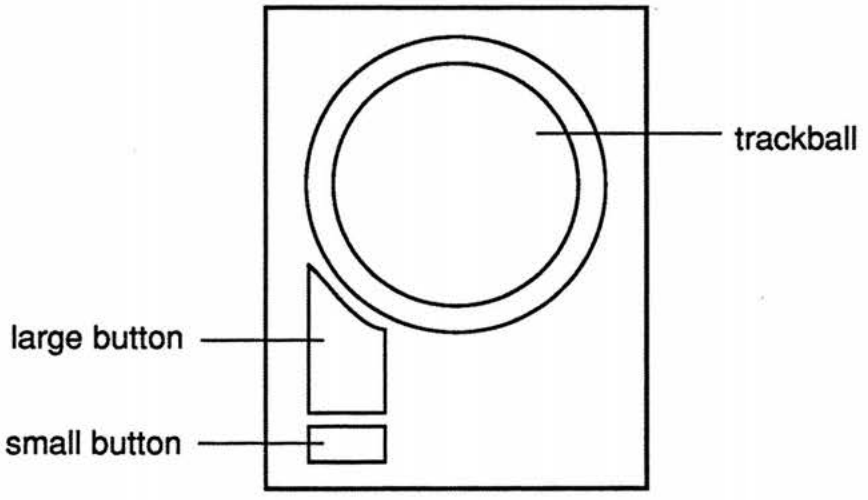
Signals when the power is on



The trackball

The trackball unit is a hand-operated controller that has three components.

- The trackball rolls in its socket and is used to move the arrow pointer and other items on the screen.
- The large button is used to activate commands, enter or exit displays, select screen items or open applications or documents.
- The small button "locks" on a selected item, so you can move the item or scroll through options without holding the button.



Using the trackball

The following exercise shows you how to control each of the trackball components and how to **click, drag** and **select** items on the screen.

1. Place your hand on top of the trackball and move it so that the trackball rolls in its socket.

   The movement of the arrow pointer on the screen corresponds to the direction and speed of the trackball movement.

2. Insert the 3.5" disk labeled System Tools Disk #1 into the disk drive of the terminal, metal end first, label side up.

   A smile replaces the question mark, and the screen shows a Welcome message.

   A horizontal menu bar with menu titles appears at the top of the screen. A disk icon appears at the top right, and a trashcan icon appears at the bottom right of the screen.

3. Roll the trackball until the tip of the pointer is on the trashcan icon. Click (press and release) the small button to select and lock the trashcan icon.

4. Roll the trackball to drag the trashcan icon to another location.

   An outline of the icon moves with the pointer.

5. Click the small button to unlock the icon.

   The icon remains selected and quickly moves to the location you chose.

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Using the trackball (con't)

6. With the pointer on the trashcan icon, press and hold the large button while you roll the trackball.

   An outline of the icon moves with the pointer.

7. When the icon is in the desired location, release the button.

   The icon remains selected and quickly moves to the location you chose.

8. When you have finished practicing, roll the trackball to the top of the screen until the tip of the pointer is on Special. Click the small button to lock the menu.

   The Special menu items appear.

9. Roll the trackball until the tip of the pointer is on Restart. Click the small button to select Restart.

   The disk is ejected from the drive, a chord sounds and the icon with a flashing question mark appears on the screen. The terminal is waiting for you to insert another disk.

Note: Use the large button for double-clicking or to close a window by clicking.

Using the new terminal

If you have never used a Macintosh before, we recommend that you now use the Macintosh tutorial or the training disk labeled "Your Apple Tour of the Macintosh II (Operating Your Computer)." Both are explained in the second chapter of the Macintosh II Owner's guide. Use the trackball instead of a mouse to manipulate items on the screen.

If you use the training disk, the terminal will be restarted automatically when you quit the tour. If you use the manual tutorial, follow this instruction when you finish.

- Select Restart from the Special menu.

  The disk is ejected from the drive, a chord sounds and the icon with a flashing question mark appears on the screen.

Backing up the NED System Disk

Before you work with the new software for the first time, we recommend that you make a backup copy of the NED System Disk. You need a blank 3.5" double-sided disk, which can be purchased at a computer store.

Initializing a blank disk

1. Insert the NED System Disk into the disk drive of the terminal.

   A smile replaces the question mark, and the screen shows the New England Digital logo. After a few moments, a horizontal menu bar and a flashing rectangle appear at the top of the screen.

2. Select Quit from the File menu.

   In a few moments, the titles in the menu bar change and the NED System Disk icon appears in the top right corner of the screen.

3. Select Eject from the File menu.

   The disk is ejected from the drive, but its icon remains on the screen.

4. Insert a blank 3.5" double-sided disk into the disk drive.

   This message appears on the screen.

   This disk is unreadable:
   Do you want to initialize it?
   Eject One-Sided Two-Sided

5. Click Two-Sided.

   The message on the screen changes.

   This process will erase all information on this disk.
   Cancel Erase

6. Click Erase.

   Another message appears.

   Please name this disk:
   Untitled
   OK

7. Type the desired name and then click OK.

   Several messages appear on the screen to indicate that the disk is being initialized. This process takes about a minute.

Copying the NED System Disk

When the initialization process is complete, the icon for your blank disk appears below the NED System Disk icon.

1. Drag the NED System Disk icon onto the blank disk icon.

   The blank disk is ejected from the drive and a message appears.

   > Please insert the disk:
   > NED System Disk

2. Insert the NED System Disk into the disk drive.

   The message changes.

   > Are you sure you want to completely
   > replace contents of
   > "[disk name]" (not in any drive)
   > with contents of
   > "NED System Disk" (internal drive)?
   > OK Cancel

3. Click OK.

   Several messages appear on the screen to indicate that the NED System Disk is being copied onto the blank disk. Three times during the backup procedure, the current disk is ejected from the drive, and the second line in the message box prompts you to insert the other disk.

4. Insert the disks as prompted by the messages on the screen.

   The message box disappears when the backup procedure, which takes about two minutes, is complete.

5. When the procedure is complete, select Restart from the Special menu.

   Your backup disk is ejected from the drive, and the message box reappears.

6. Insert the NED System Disk into the disk drive.

   The disk is ejected from the drive, a chord sounds and the icon with a flashing question mark appears on the screen.

Activating the Real-Time Performance system

Once the power is on, you need to start both the terminal software and the Synclavier or Direct-to-Disk software.

Starting the software

1. Insert the 3.5" disk labeled NED System Disk into the disk drive of the terminal, metal end first, label side up.

   A smile replaces the question mark, and the screen shows the New England Digital logo.

   A horizontal menu bar appears at the top of the screen with the name of each menu in the NED StartUp program. Below the menu bar, a window opens with a flashing rectangle in the top left corner. The flashing rectangle is called the **screen cursor.**

2. The Synclavier and Direct-to-Disk systems are set for a baud rate of 9600 before shipping. If you have changed the baud rate of your system, select the corresponding baud rate from the Terminal menu.

3. Insert the 5.25" disk labeled Winchester Bootload Disk into the floppy drive (F0:). The floppy drive is the black box attached to the connector labeled FLOPPY DRIVE 0 on the Able computer control unit.

4. Turn the lever on the floppy drive to the down position.

5. Press the red LOAD button on the floppy drive.

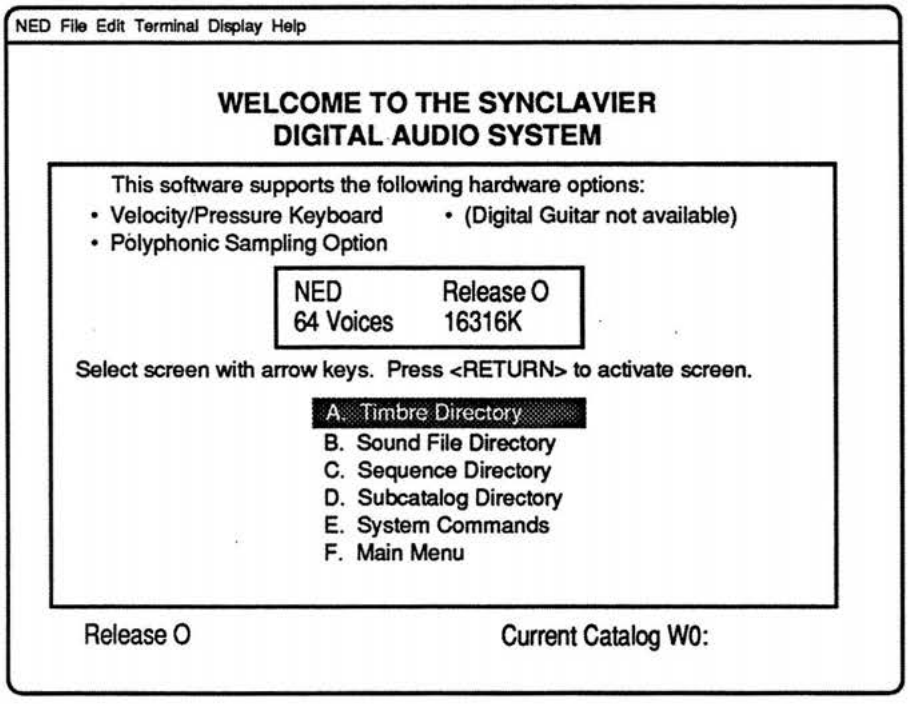
   A brief series of messages appear on the screen, followed by the Welcome Menu of the Real-Time Performance (RTP) system.

   If you have a Synclavier keyboard, its display window shows the software release name, the number of voices and the amount of memory installed in your system. Three buttons light on the keyboard control panel.

Note: Use the NED System Disk only for operating the Synclavier and Direct-to-Disk systems. Use another startup disk if you want to use your Macintosh II for other applications.

Startup disks

Welcome Menu



NED StartUp menus

The horizontal menu bar at the top of the terminal screen contains six menu titles. When you click a menu title, a list of commands appears. Just to the right of the titles in the menu bar is an icon that represents MacroMaker, an accessory which allows you to define program-specific commands.

menu	command	function
NED	About NED StartUp...	Shows copyright information. Click anywhere on the About NED StartUp display to clear it from the screen.
	Chooser	Desk accessory used to select printer.
	Control Panel	Desk accessory used to set terminal and keyboard controls (see the Macintosh II Owner's guide).
File	Quit	Exits the NED StartUp program.
Edit		All the Edit menu items are inactive in the NED StartUp program.
Terminal	PF1	Moves from the RTP system or Music Printing to the Reverse Compiler.
	PF2	Moves to the RTP system.
	PF3	Moves from the RTP system to Music Printing.
	PF4	Moves to the Signal File Manager.
	Pause	Freezes and unfreezes a scrolling screen.
	Send Break	Moves from the Main Menu of the RTP system to the Monitor software module.
	Reset	Reinitializes the terminal screen and trackball.

(con't next page)

NED StartUp menus (con't)

menu	command	function
Terminal	Baud	Rate should correspond to the baud rate of your Synclavier or Direct-to-Disk system.
	Modem	Sets the Macintosh modem port to communicate with the Synclavier or Direct-to-Disk.
	Printer	Sets the Macintosh printer port to communicate with the Synclavier or Direct-to-Disk.
Display	Half Size	The window uses about one-fourth the area of the terminal screen.
	Mid Size	The window uses about one-third the area of the terminal screen.
	Full Size	The window is the same size as the terminal screen.
	Show Title & Scrollbars	Toggles between showing and hiding the title and scroll bars around the window. This command toggles to "Hide Title & Scrollbars."
	Extended	The window is larger than the terminal screen. This command is used only with the Music Printing Option.
	White-on-Black	Displays white print on a dark background. This command toggles to "Black-on-White."
Help	Help	Describes startup and shutdown procedures and displays a list of frequently used terminal keyboard commands.

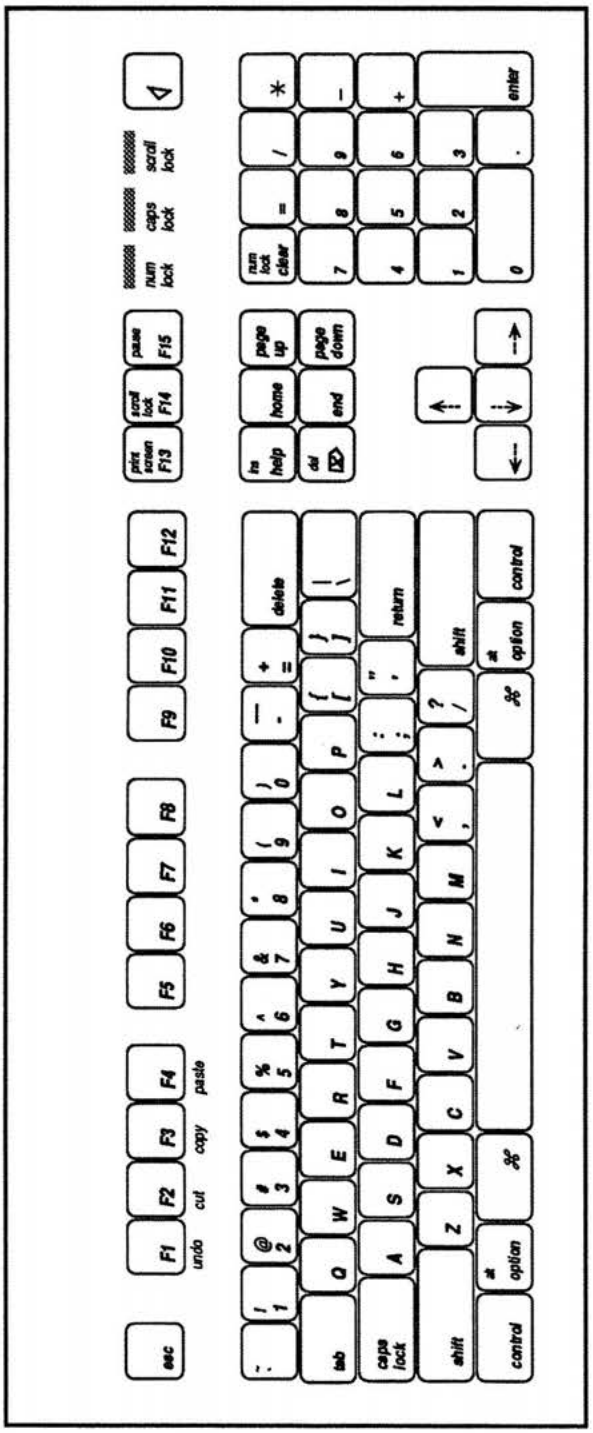
The terminal keyboard

Because the new terminal keyboard is different than the old terminal keyboard, several commands are executed differently. The following table contains a list of old terminal keyboard commands and their equivalents for the new terminal keyboard.

old keys	new keys	functions
Backspace	del ⌦	Screen Editor cursor moves left one space without deleting character.
Break	⌘-Spacebar	Moves from the Main Menu of the RTP system to the Monitor software module.
Line feed	Page Down	Cursor moves down one line.
No scroll	pause F15	Freezes and unfreezes a scrolling screen.
PF1 or F1	F1	Moves from RTP or Music Printing to Reverse Compiler.
PF2 or F2	F2	Moves to RTP.
PF3 or F3	F3	Moves from RTP to Music Printing.
PF4 or F4	F4	Moves to Signal File Manager.
diagonal arrow	Home	Screen Editor cursor moves to command column.
, (keypad comma)	+ (keypad plus)	Executes commands, such as Save sequence, in the Music Printing Option.

Note: You still can send the F1, F2, F3 and F4 commands by pressing the keys in the top row of the numeric keypad.

The new terminal keyboard



Changing the window size

You can view the window on the terminal screen in any one of three sizes. An extended window size also is available for use with the Music Printing Option.

- Half Size uses about one-fourth the area of the terminal screen.
- Mid Size uses about one-third the area of the terminal screen.
- Full Size is the same size as the terminal screen.

You can change the window size by using the Display menu.

1. Roll the trackball until the tip of the pointer is on Display, and click the small button.

   The Display menu items appear.

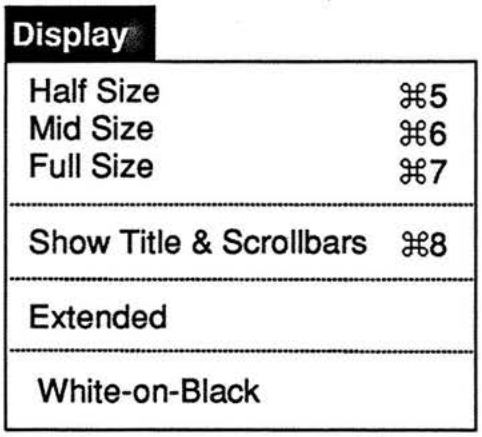
2. Roll the trackball until the tip of the pointer is on the desired size, and click the small button again.

   The window changes to the selected size.

You also can change the window size by using terminal keyboard commands.

- Press ⌘-5 to select Half Size.
- Press ⌘-6 to select Mid Size.
- Press ⌘-7 to select Full Size.

The Display menu



Using the trackball in the Real-Time Performance system

All of the functions that were previously controlled by the mouse are now controlled by the trackball. You can activate commands, select and move values, enter and exit displays, scroll through a set of options and perform many other operations.

Controlling the trackball cursor

When the arrow pointer on the terminal screen is moved from the menu bar to an RTP display, it changes into a crosshair, called the **trackball cursor.**

- Place your hand on top of the trackball, and move it so that the trackball rolls in its socket.

  The movement of the trackball cursor on the screen corresponds to the direction and speed of the trackball movement.

No operation is activated by the trackball until you press one of the trackball buttons. When you press the large trackball button, the trackball cursor momentarily becomes three-dimensional.

When you press the small trackball button, the trackball cursor becomes three-dimensional to indicate that the button is locked. When you press the small trackball button again, the cursor changes back to a crosshair to indicate that the button is unlocked.

Clicking and dragging

You can **click** some items on the terminal screen. Clicking an item may activate a command, select a menu choice, exit a display or enter a value.

1. Roll the trackball until the trackball cursor is on the desired item.

2. Press and immediately release the large trackball button.

You can **drag** some items on the terminal screen. Dragging is used to move something from one place to another.

1. Roll the trackball until the trackball cursor is on the desired item.

2. Click the small trackball button to lock the item under the cursor.

   The cursor becomes a diamond to indicate that the item can be dragged.

3. Roll the trackball until the cursor is in a new location, and click the small button again to release the item.

   If the item you dragged is in a valid format, range and location, it appears in that location. If it is not valid, an error message appears or the information is ignored.

Operating screen switches

Some RTP displays contain switches. You can use the trackball and terminal keyboard instead of the left or right mouse button to **step** through the options available on a screen switch.

1. Roll the trackball until the trackball cursor is on the screen switch.

2. Press and hold the ⌘ key while you click the large trackball button to step to the next switch options.

   OR

   Press and hold the Option key while you click the large trackball button to step to the previous switch options.

You can use the trackball alone to **scroll** forward or backward through a set of options available on a screen switch.

1. Roll the trackball until the trackball cursor is on the screen switch.

2. Click the small trackball button to lock the screen switch.

   The switch is highlighted and the trackball cursor disappears.

3. Roll the trackball right or left to scroll through the available options.

4. Click the small button again to select the desired option.

   The trackball cursor reappears.

Entering values and text

You can use the trackball and terminal keyboard instead of the left or right mouse button to enter values into time fields on the screen.

1. Roll the trackball until the trackball cursor is on the desired segment (for example, the minutes segment in a SMPTE time field).

2. Press and hold the ⌘ key while you click the large trackball button to increase the number in the segment.

   OR

   Press and hold the Option key while you click the large trackball button to decrease the number in the segment.

You also can enter values and text into some fields on the screen by using the trackball and typing on the terminal keyboard.

1. Roll the trackball until the cursor is on the desired field, and click the large button.

   The screen cursor moves to the selected field.

2. Type the entire value or text entry.

3. Press Return or click any other field.

   If the value or text you typed is valid, it is entered in the field. If the information is not valid, an error message appears or the information is ignored.

Ending a session

You can use several methods to turn off your system. The following instructions explain the recommended method.

Turning off the system

You turn off the system by quitting the NED StartUp program and turning off both the terminal and the Synclavier or Direct-to-Disk.

1. Return to the Main or Welcome Menu in the RTP system.

2. Press ⌘-0, or select Quit from the File menu.

   After a few moments, the window closes and the titles in the menu bar change.

3. Select Shut Down from the Special menu.

   The disk is ejected from the drive, the terminal screen becomes dark and the terminal is turned off automatically.

4. Lift the floppy drive lever and remove the Winchester Bootload disk.

5. Turn off the power switch.

   The RTP software is no longer active.

Quitting the NED StartUp program

Turning off the terminal

Restarting the NED StartUp program

You can quit the NED StartUp program, and turn off the terminal or use it for another application without turning off the Synclavier or Direct-to-Disk. If you have not turned off the power, you can restart the NED StartUp program without rebooting the Synclavier or Direct-to-Disk.

1. If the terminal is on, select Restart from the Special menu. Otherwise, press the Power On key on the terminal keyboard.

   A chord sounds. The pointer and a disk icon with a flashing question mark appear on the screen.

2. Insert the NED System Disk into the disk drive of the terminal.

   The question mark is replaced by a smile. The New England Digital logo and the NED StartUp menus appear. If you restart after quitting from an RTP display, the Main or Welcome Menu appears on the screen. Otherwise, the screen that was displayed when you quit the program reappears.

The Sequence Editor

General enhancements

The Sequence Editor can now edit many more sequence parameters and control the editing with much more precision. A number of improvements also make it easier and faster to use.

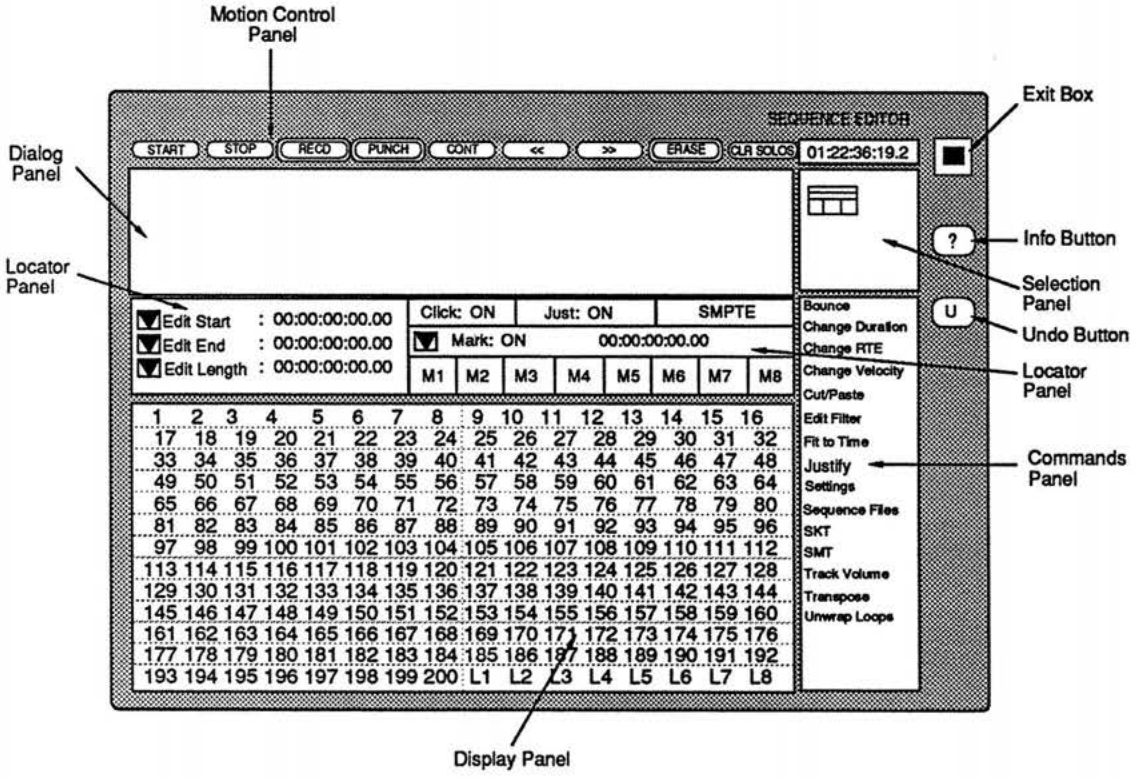
Overview of new features and enhancements

The Sequence Editor now allows you to cut and paste to any track in any sequence. You can change note pitches, durations, velocity and all real-time effects values in the whole sequence or in only a selected segment. An Edit Filter filters designated pitches, durations and real-time effects values when making these changes.

You can move directly between the Sequence Editor and the Recorder Display. You can also undo editing or toggle between the last and next-to-last version of an edited sequence. Complete sequence file management—saving, erasing and recalling sequences from any catalog in the system—can be done from the Sequence Editor.

These and other enhancements are described on the following pages.

Sequence Editor Display



Moving between the Sequence Editor and the Recorder Display

You can move between the Sequence Editor and the Recorder Display without passing through the Main Menu.

From the Sequence Editor

- Click the Recorder Display icon in the Selection panel.

  The Recorder Display replaces the Sequence Editor.

From the Recorder Display

- Press Shift-. (Hold the Shift key and press the Period key).

  The Sequence Editor replaces the Recorder Display.

The Undo button

When editing a sequence, you may find that the results are not as expected, or you may want to compare the latest edit with the immediately preceding version. You can retrieve the version before the last edit or toggle between the edited and pre-edit versions using the Undo button—the button labeled (U) located to the right of the Command panel.

1. Click the Undo button.

   The latest version of the sequence is replaced by the previous version.

2. Click the Undo button again.

   The latest version returns.

In order for the Undo button to work, the top level of your current device must have space equivalent to twice the size of the current sequence.

The undo function can be turned off from the Settings dialog.

The Info button

The Sequence Editor Info button (?) has been improved to make it more like the keyboard control panel INFO button. If you click Info (?) and then START on the Sequence Editor screen, the number of notes available for recording is displayed.

SMPTE improvements

When a SMPTE signal is lost temporarily, the Synclavier calculates a speed from the last signals received and continues or "coasts" until valid SMPTE signals are again received. The length of time that the Synclavier will do this can be set from 0 to 5000 ms. You adjust this parameter by setting the Coast Msec: number field on the Sequence Editor Settings dialog.

After a loss of SMPTE signal, the Synclavier may be slightly off from the SMPTE time code. You can either set it to resynchronize, which may result in a slight interruption in the sequence; or you can set it to continue slightly off and preserve the integrity of the sequence. You do this by setting the SMPTE Resync: switch on the Sequence Editor Settings dialog to ON or OFF.

Voice check

When there are more voices called for in a sequence than there are voices in your system, some of the notes do not sound. You can turn on a voice check function from the Sequence Editor Settings dialog which indicates on the keyboard display window the beat on which such dropouts first occur. Additional dropouts are shown each second. If the dropouts cease, the display returns to counting beats after five seconds.

Mark point improvement

You can now use the starting time of the first note on any track as the mark point.

1. Set the Mark ON/OFF switch to TRK.

2. Click on the desired track number in the track display.

   The starting time of the first note on the selected track is placed in the Mark time field.

Entering time values

The current time of the sequence is shown in the time display at the upper right hand corner of the Sequence Editor. Other time display fields appear in the Locator panel. The time in all of these time fields can be displayed in any of several different formats.

- seconds
- minutes
- beats (clicks)
- measures and beats
- SMPTE time code
- feet and frames

The Time Display Format switch on the Locator panel shows the current format. To change the format:

- Step or scroll the Time Display Format switch through the different formats.

  The current time at the upper right of the screen and all of the time fields in the Locator panel change to the new format.

SMPTE time code is displayed in non-drop mode (30 frames per second) by default. To change to other SMPTE modes (drop-frame, 25- or 24-frames per second):

1. Select the Settings command from the Commands panel.

   The Settings dialog appears in the Dialog panel with the SMPTE mode switch on the right side.

2. Set the SMPTE mode switch to the desired SMPTE mode.

Entering edit times

You can enter an edit time in any of the time display formats.

1. Click on the edit time value to be changed.
2. Enter a new value in one of three ways.
   - Drag a value from a memory button or another time display.
   - Step a segment of the time display to the desired value.
   - Type in a new value.

When typing in time values, zeros to the right of the decimal point may be omitted. Zeros to the left of a colon may be omitted where indicated below. Colons may always be omitted.

format	default value	enter value
beat	1.00	[beat #] [period] [fraction]
*meas/beat	0:1.000	[meas #] [space] [beat #] [period] [fraction]
**SMPTE	00:00:00:00.00	[hours] [min] [sec] [frames] [period] [bits]
***feet/frames	0:00.00	[feet] [space] [frames] [period] [fraction]
seconds	0.000	[seconds] [period] [fraction]

* If beat or click 1 is desired, enter only the measure number.

** Zero values for hours and minutes can be omitted.

*** Zero value for feet can be omitted.

New Commands

Edit Filter—*Defining the scope of editing changes*

When executing certain editing commands, you can use the Edit Filter to define the pitches, durations or real-time effects to be affected by the editing.

For example, if the loudness of a timbre is controlled by velocity, you can increase the volume of only the softest notes in a passage by setting the Edit Filter so that the Change Velocity command affects only those notes with velocity values below a certain level.

The Edit Filter works with the following commands:

command	active filter settings
Change Duration	pitch, velocity, duration
Change Velocity	pitch, velocity, duration
Cut	pitch, velocity, duration, real-time effects, controller values
Transpose	pitch, velocity, duration

Each of the above commands has a Filter switch at the lower center of the Dialog panel. By default, the switch is set to OFF.

Using the Edit Filter is a two-step procedure.

1. Set the Edit Filter according to instructions on the opposite page.

2. Select the command with which it is to be used and toggle the Filter switch to ON.

When the command is executed, the designated pitches, velocities, durations and/or real-time effects are filtered.

When you use the Edit Filter with a cut command, **everything** is cut from the designated region, but only pitches, velocities, durations and/or real-time effects defined in the Edit Filter are placed onto the clipboard or in the designated file.

When you use the Edit Filter with a move command, only those pitches, durations and/or real-time effects defined in the Edit Filter are moved to the clipboard or designated file.

Setting the Edit Filter

1. Click on Edit Filter in the Commands panel.

   The Edit Filter dialog appears in the Dialog panel.

   The filter is set by default to allow all pitches, all velocities, all durations and all controller values to be affected by the selected operation.

2. Step each of the items in the Dialog panel to view the available options.

3. Type in values as needed, or step them higher or lower.

   At any time you can click the RESET FILTER button at the bottom of the Dialog panel to reset all filter items to their default settings.

4. When finished, click DONE at the bottom left of the Dialog panel or another command from the Commands panel.

   The filter settings are stored for use when an editing command is executed.

Change Duration—Changing the length of notes

You can adjust the duration of all the notes or sounds of any selected track or region. You can set the duration of each note in the selected region to a single value, or you can scale the notes longer or shorter. You can add a value to each note; or, you can assign increasing or decreasing values throughout the region. Values are displayed in the selected time display format.

1. Select a region for change by setting Start and End times.

2. Solo the track(s) to be changed.

3. Click on Change Duration in the Commands panel.

   The Change Duration dialog appears in the Dialog panel with the Duration change field (the word "durations") in the upper left corner.

4. Step to the desired selection in the Duration change field as shown on the opposite page.

5. Set the values by typing them in or stepping each one up or down.

6. Set minimum or maximum values if desired.

7. If you want to use the Edit Filter, toggle the Filter switch at the bottom of the Dialog panel to ON. (See "Edit Filter" above.)

8. Click the CHANGE DUR. button at the lower left of the Dialog panel or the CANCEL button to quit.

   The changes are made on the region and tracks selected.

   If a minimum value is set, all notes with lower values are raised to the minimum. If a maximum value is set, all notes with greater values are reduced to the maximum.

Duration change field selections

selection	result
Set durations to	Duration of each note set to constant value.
Scale durations by	Durations of notes scaled up or down a percentage of the current values with minimum or maximum values if desired.
Add to current value	A value is added to the duration of notes with minimum or maximum values if desired. (The default minimum and maximum values of 0.000 allow any duration value to pass.)
Slope from: to:	Increasing or decreasing values are assigned to the duration of notes.

Change RTE—*Changing real-time effects values*

You can edit selected real-time effects with the Change RTE command.

1. Select a region for change by setting Start and End times.

2. Solo the tracks to be changed.

3. Click on Change RTE in the Commands panel.

   The Change RTE dialog appears in the Dialog panel with the default RTE to change (Pedal 1) in the upper left corner and the RTE change field just below it.

4. Step or scroll Pedal 1 to select another real-time effect to change.

   Selections include Pedal 1, Pedal 2, Mod Wheel, Breath Controller, Pitch Bend and Ribbon.

5. Step to the desired type of change in the RTE change field as shown on the opposite page.

6. Set values for change by typing them in or by stepping each one up or down.

7. Set minimum or maximum values if desired.

8. Click the CHANGE RTE button at the lower left of the Dialog panel or the CANCEL button to quit.

   The changes are made on the region and tracks selected.

   If a minimum value is set, all notes with lower values are raised to the minimum. If a maximum value is set, all notes with greater values are reduced to the maximum.

RTE change field selections

selection	result
Set RTE to	Level of the selected RTE set to a constant value.
Scale RTE by	Levels of the selected RTE scaled up or down a percentage of the current values with minimum or maximum values if desired.
Add to current value	A value is added to the levels of the selected RTE with minimum or maximum values if desired.
Slope from: to:	Increasing or decreasing values are assigned to the real-time effect.

Change Velocity—Changing velocity values

Velocity values of selected notes or sounds can be adjusted using the Change Velocity command.

1. Select a region for change by setting Start and End times.

2. Solo the tracks to be changed.

3. Click on Change Velocity in the Commands panel.

   The Change Velocity dialog appears in the Dialog panel with the Velocity change field (the word "Velocities") in the upper left corner.

4. Step to the desired change on the Velocity Change field as shown on the opposite page.

5. Set values for change by typing them in or by stepping each one up or down.

6. Set minimum or maximum values if desired.

7. If you want to use the Edit Filter, toggle the Filter switch at the bottom of the Dialog panel ON. (See "Edit Filter" above.)

8. Click the CHANGE VEL. button at the lower left of the Dialog panel to make the desired changes, or the CANCEL button to quit.

   The changes are made on the region and tracks selected.

   If a minimum value is set, all notes with lower values are raised to the minimum. If a maximum value is set, all notes with greater values are reduced to the maximum.

Velocity Change field selections

selection	result
Set velocity to	Velocity set to a constant value.
Scale velocity by	Velocity scaled up or down a percentage of the current values with minimum or maximum values if desired.
Add to current value	A selected value is added to current velocity values with minimum or maximum values if desired.
Slope from: to:	Increasing or decreasing values are assigned to velocity.

Cut/Paste—Pasting to any track

When cutting and pasting, you can now paste the notes of any track to any other track. That is, you can cut a section of one track, placing the notes on the clipboard or in a designated file, and then paste that section onto another track of the same or a different sequence.

Before you execute the Paste, Fill or Merge command you must solo a destination track or tracks. If you do not, a message appears:

ERROR: Tracks must be soloed for paste.

If you solo more tracks than you cut, the additional tracks are filled by repeating part or all of the paste beginning with the first track.

If you solo fewer tracks than you cut, only the soloed tracks are filled, and the additional tracks in the clipboard or file are ignored.

Fit to time—Fitting a sequence to a selected length of time

You can expand or compress any section of the current sequence to fit a designated length of time. You can leave the durations of the individual sounds or notes unchanged, letting them overlap if the sequence is compressed or inserting silence between them if the sequence is expanded. Or you can choose to have them scaled to match the time adjustment.

When you use this feature, the starting times of all sounds in the selected region are adjusted. However, the click of the internal digital metronome remains at its original setting and speed.

If you want to use the sequence where the relationship of click to sound is important, you should create a click track of quarter notes justified to the original beat before doing the fit-to-time operation. (See the section "Meter, time and tempo" in the *Memory Recorder* manual.) The clicks of the click track will be affected by the fit-to-time operation along with the other tracks in the selected region. Thus a click generated by the click track maintains its relationship to the sequence sounds.

1. Select a region by setting Start and End times in the Locator panel.

2. Click on Fit to Time in the Commands panel.

   The Fit-to-Time dialog appears in the Dialog panel.

3. Enter a new End Time, a new Region Length or a percentage as shown below.

option	**result**
new End Time	Changes End Time set in Locator panel. The Region Length is automatically adjusted to fit the new End Time.
new Region Length	Changes the Region Length. The End Time set in the Locator panel is automatically adjusted to fit the new Region Length.
percentage to scale	Changes the Region Length by a percentage of the Region Length defined by the Start and End times in the Locator panel. The Start Time remains the same and the End Time changes to fit the new Region Length.

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Fit to Time—Fitting a sequence to a selected length of time (con't)

4. If you want a gradual change, toggle Fit Instantly to Fit Gradually. (See fit-to-time options on the opposite page.)

5. If you want the durations of the notes or sounds to be scaled to match the adjustment, toggle the Scale Durations field to YES. (See fit-to-time options on the opposite page.)

6. If you want the change to continue beyond the selected region, toggle the Stay at new speed switch to YES.

7. Click the FIT TO TIME button on the Dialog panel.

   The speed and length of the region are adjusted according to the options selected.

8. Listen to the sequence. Use the Undo button to return to the previous version if the results are not what you expected.

Fit-to-time options

option	result
Fit Instantly	Selected changes occur exactly at the Edit Start time set in the Locator panel.
Fit Gradually	Sound starting times are adjusted gradually over the entire edit region, speeding up if time is compressed or slowing if time is expanded.
Scale Durations: Yes	The duration of each sound is scaled to the selected time compression or expansion so that no silences or overlaps occur.
Scale Durations: No	The duration of each sound is unchanged from the original. When time is compressed, sounds may overlap; when time is expanded, gaps may occur between sounds.
Stay at new speed: Yes	The rest of the sequence after the changed region continues at the new speed.
Stay at new speed: No	The sequence returns instantly to the original speed at the end of the changed region.

Justify—Justifying a region

With the Sequence Editor Justify command, you can justify notes or sounds that have been recorded slightly ahead or behind the beat. The command allows you to justify some notes without justifying others, so that the "live" rhythmic feeling is not lost. For example you might leave notes close to the beat unjustified while justifying notes further off the beat.

1. Select a region for change by setting Start and End times.

2. Solo the tracks to be changed.

3. Click on Justify in the Commands panel.

   The Justify dialog appears in the Dialog panel.

4. Set a Click Multiplier.

   Inaudible clicks are added to subdivide each click by the selected number. Notes are justified to each of these subdivisions.

5. Set justification values by typing them in or by stepping each one up or down. See the information and illustrations opposite.

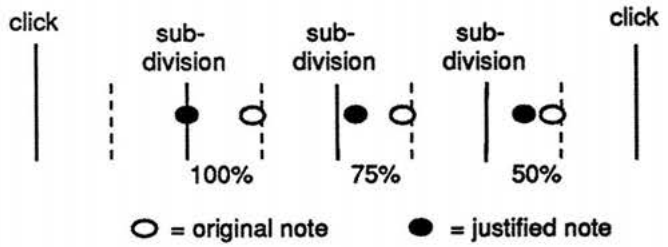
6. If you want to use the Edit Filter, toggle the Filter switch at the bottom of the Dialog panel ON. (See "Edit Filter" above.)

7. Click the JUSTIFY button at the lower left of the Dialog panel to make the desired changes, or the CANCEL button to quit.

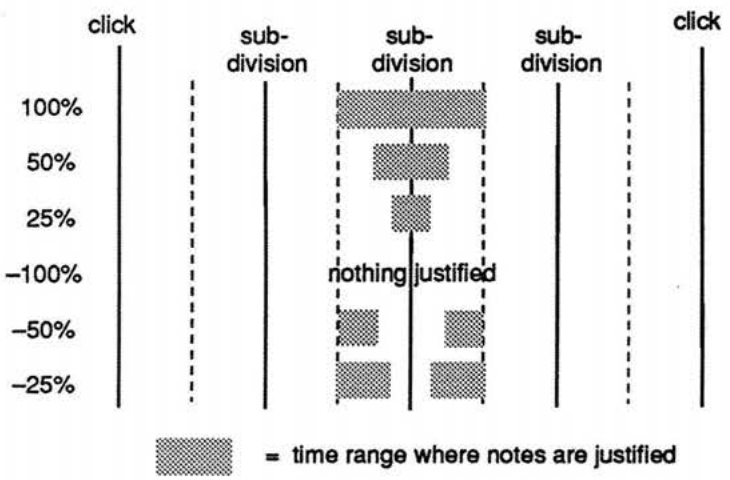
   The changes are made on the region and tracks selected.

Justification values

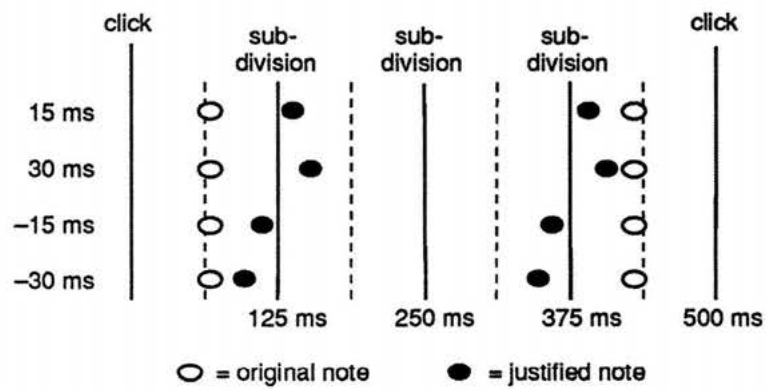
Percent to Justify (1-100%)
Sets the amount of justification to be applied.



Effective Range (–100% to 100%)
Selects the time range in which notes or sounds are to be justified.



Grid Offset (–1000 ms to 1000 ms)
Selects an offset for justification in relation to the click.



Sequence Files—Managing sequence files

The Sequence File command on the Commands panel sets up a sequence file management dialog in the Dialog panel. You use this dialog to save the current sequence to any catalog or device on your system. You also use this dialog to recall or to erase any sequence in your system so long as the sequence file type is a sync file. (See the section "Files, catalogs and devices" in the *Organizing and Storing Sounds* manual.)

1. Click on Sequence Files in the Commands panel.

   The Sequence Files dialog appears in the Dialog panel with Recall Sequence as the default Sequence field setting.

2. Step to the desired function on the Sequence field. Options include Save Sequence, Unsave Sequence or Recall Sequence.

3. Name the sequence to be saved, unsaved or recalled. Click on a sequence number at the top of the Dialog panel or type in the filename or treename of the sequence file.

4. Click the SAVE, UNSAVE or RECALL SEQUENCE button at the lower left of the Dialog panel to initiate the selected function.

   The selected sequence is saved, unsaved or recalled.

   If you are saving a sequence to an existing file of the same name, the SAVE SEQUENCE button is replaced by REPLACE SEQ. and a message appears:

   WARNING: File already exists, saving will replace it.

   Click the REPLACE SEQ. button.

   The selected sequence is replaced.

5. If you want to cancel the operation, click the CANCEL button or another item from the Commands panel to quit the Sequence Files dialog.

Saving a sequence

When you save a sequence file, you can give it a name or you can assign it to one of the eight numbered sequence files. If you give it a name of your choice, spaces and the following characters cannot be used.

? ! : ; , / \ < > + = % & * | @

If you want to save it as a numbered sequence, click one of the eight numbered buttons at the top of the Dialog panel. These buttons correspond to sequence file names and buttons on the Synclavier keyboard control panel as shown below.

filename	keyboard sequence button #	as it appears in Sequence Directory
.sq0data	1	<SEQ #1>
.sq1data	2	<SEQ #2>
.sq2data	3	<SEQ #3>
.sq3data	4	<SEQ #4>
.sq4data	5	<SEQ #5>
.sq5data	6	<SEQ #6>
.sq6data	7	<SEQ #7>
.sq7data	8	<SEQ #8>

If you designate only a name when you save a sequence, the sequence is saved to the current catalog. If you want to store it in another catalog, type in the entire treename. (Treenames are explained in the section "Files, catalogs and devices" in the *Organizing and Storing Sounds* manual.)

When you save a sequence from the Sequence Editor, a sequence file the size of the current sequence is created. A pre-existing sequence file is not required.

When you replace a numbered sequence file that is too small for the current sequence, the file is enlarged to fit the sequence as long as there is enough room in the current catalog. The existing sequence file is not reduced in size if the current sequence is smaller.

NOTE: When saving from the Synclavier keyboard, pre-existing sequence files of adequate size are still required.

The Direct-to-Disk system

Direct-to-Disk outputs

You can now route Direct-to-Disk tracks and cuelists (sequence tracks containing cues) to Direct-to-Disk outputs. This is done from the Multichannel Display, the Track Display or the Audio Event Editor's Sequence Editor and Project Manager panels.

Routing to outputs

All recorded material on the Direct-to-Disk is routed to Direct-to-Disk outputs for playback. This includes Direct-to-Disk tracks as well as cuelists. A Direct-to-Disk recording cannot be routed to a Multichannel output. Only notelists recorded on the Synclavier or a MIDI device can be routed to Multichannel outputs.

Both Direct-to-Disk and Multichannel routing can be done from the Multichannel Display. The routing assignments of Direct-to-Disk tracks and cuelists appear enclosed by asterisks (*) to differentiate them from Multichannel outputs.

Direct-to-Disk tracks can also be routed to Direct-to-Disk outputs from the Track Display or the Audio Event Editor's Project Manager panel. Cuelists can be routed to Direct-to-Disk outputs from the Sequence Editor panel.

The number of available Direct-to-Disk outputs depends on the number of Direct-to-Disk voices in your system. More voices can be added.

Cuelist routing assignments are saved with the sequence. Direct-to-Disk track routing assignments are saved with the project. When you recall a project or sequence, the routing information saved with each is recalled.

Source	Make routing assignments from these locations	Type of output
Direct-to-Disk tracks	Multichannel Display Track Display Project Manager panel Keyboard control panel	Direct-to-Disk
Cuelists	Multichannel Display Sequence Editor panel Keyboard control panel	Direct-to-Disk
Notelists	Multichannel Display Keyboard control panel	Multichannel

Routing Direct-to-Disk tracks from the Multichannel Display

In the upper right corner of the Multichannel Display, the instructions list the number of Direct-to-Disk outputs (**DTD Outputs**) in your system.

Direct-to-Disk tracks are listed in the lower right corner of the Multichannel Display as L1–L16. They have a default routing of L1 to Output 1, L2 to Output 2, etc.

You can change this default routing.

1. Select the Multichannel Display from the Main Menu.

   The display appears on the screen. An asterisk (*) automatically appears on either side of the Direct-to-Disk output number. If no routing has been specifically assigned to the track, the default routing is shown.

   Direct-to-Disk track names appear, but they can only be changed from the Track Display or the Audio Event Editor's Project Manager.

2. Click the output number (left or right) for a given Direct-to-Disk track (L1–L16).

   The number lights.

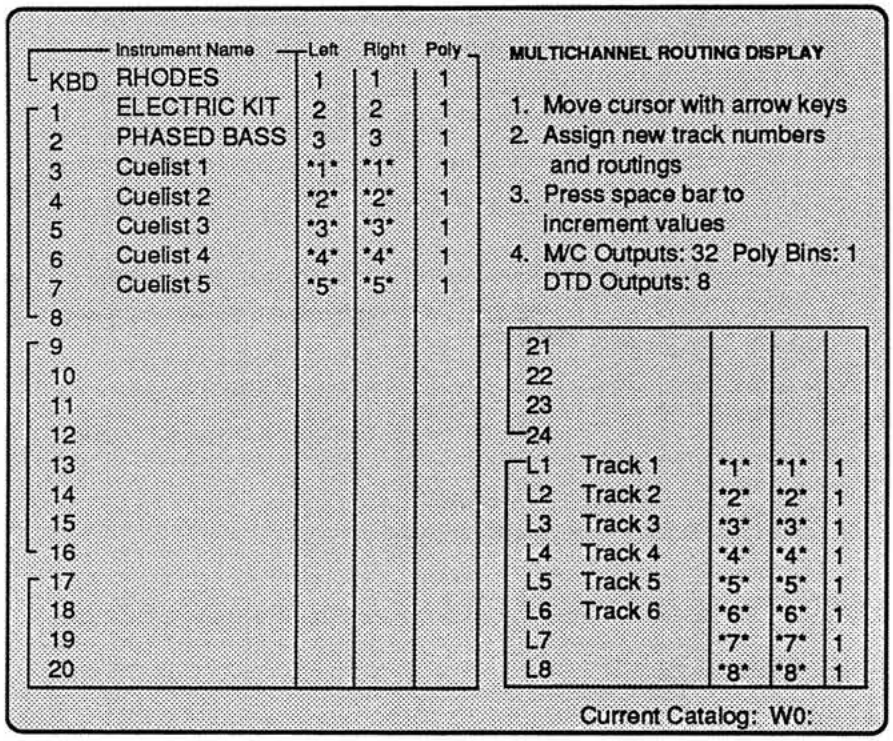
3. Type the number of the desired Direct-to-Disk output.

4. Press Return.

   The Direct-to-Disk track is assigned to the selected output. The left and right outputs always appear with same number. This assignment also appears on the Track Display and the Project Manager panel.

   Any track previously assigned to the selected output now appears on the display with no output assigned to it.

The Multichannel Display



Routing Direct-to-Disk tracks

The Track Display and The Project Manager panel have changed in several significant ways. The changes pertaining to routing are discussed in this section. Note that the location of some columns has changed. Other Track Display changes are discussed in the section "The Track Display." Other Project Manager changes are discussed in the section "The Project Manager panel."

The Track Display the Show Project mode of the Project Manager panel list the Direct-to-Disk tracks in your system. There are two sections: TRACKS and OUTPUTS. (These are labelled on the Track Display, but not on the Project Manager.) The new column labelled "Out" lists the Direct-to-Disk output through which each track is routed. The default routing is Track 1 to Output 1, Track 2 to Output 2, etc.

You can route a track to an output using the Out column.

1. Select the Track Display or the Audio Event Editor from the Main Menu.

   The display appears on the screen.

2. If you selected the Audio Event Editor, display the Project Manager panel in the Show Project mode.

3. Click the output number (or space, if no number is shown) under the Out column for a given Direct-to-Disk track.

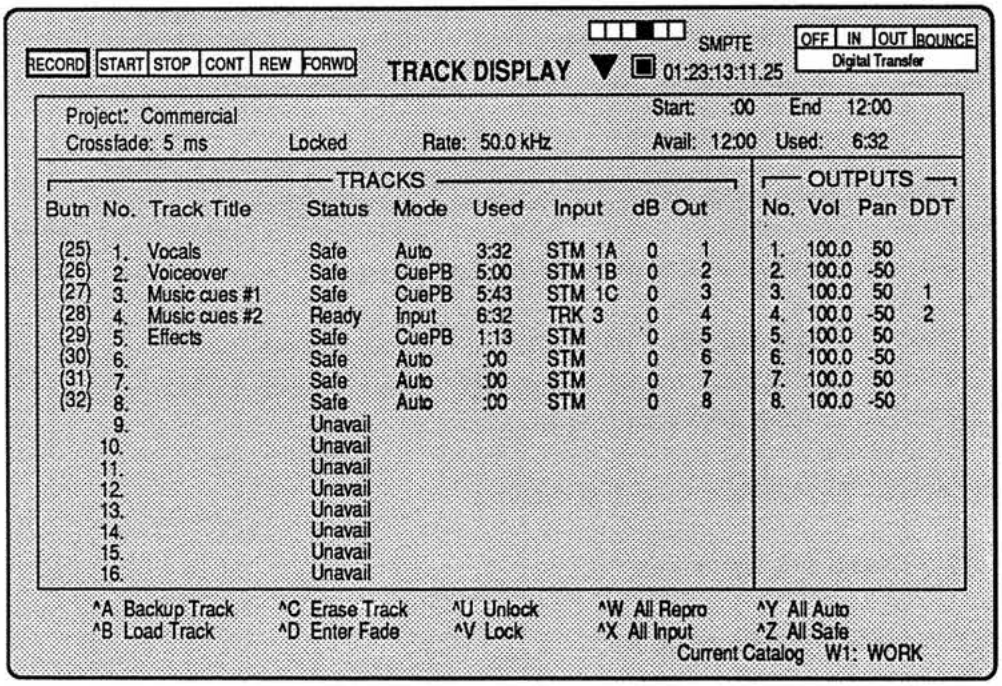
   The number (or space) lights.

4. Type the number of the desired Direct-to-Disk output.

5. Press Return.

   The track is assigned to the selected output. Any track previously assigned to the selected output now appears on the display with no output assigned to it.

The Track Display



The Project Manager panel

PROJECT MANAGER

Proj **1. Commercial 7/11/88** | Start **0:00** | End **5:23** | Rate **50.0** | Unlocked | **M**

No.	Track Title	Status	Mode	Used	Input	dB	Out
1.	**Announcer 1**	**Safe**	**Auto**	**5:00**	**STM 1A**	**1.0**	**1**
2.	**Announcer 2**	**Safe**	**Auto**	**4:23**	**STM 1B**	**1.0**	**2**
3.	**Announcer 3**	**Safe**	**Auto**	**4:10**	**OUT 2**	**1.0**	**3**
4.	**Music Intro**	**Safe**	**Auto**	**1:23**	**TRK 3**	**1.0**	**4**
5.	**Music 1**	**Ready**	**Auto**	**1:23**	**DIG 1**	**1.0**	**5**
6.	**Music 2**	**Safe**	**Auto**	**0:45**	**STM**	**1.0**	**6**
7.	**Music Finale**	**Safe**	**Auto**	**1:54**	**STM**	**1.0**	**7**
8.							**8**

No.	Vol	Pan	DDT
1	**100.0**	**-50**	**2**
2	**100.0**	**+50**	
3	**100.0**	**-50**	
4	**100.0**	**+50**	
5	**100.0**	**-50**	
6	**100.0**	**+50**	
7	**100.0**	**-50**	
8			

Show All | ALL: Repro : Input : Auto : Cue PB : Safe | Lock | Unlock | Erase | Size: 8

Routing cuelists from the Audio Event Editor

You can route cuelists to Direct-to-Disk outputs from the Sequence Editor panel of the Audio Event Editor. In the default setting, each cue i a cuelist is routed through the output(s) of the Direct-to-Disk track(s) from which the cue originated. Asterisks (**) at the top of the column mean that the cuelist is set to the default routing.

A cuelist can be assigned a routing other than the default output.

1. Open the Audio Event Editor's Sequence Editor panel.

   The panel appears on the screen. When ten or fewer columns are displayed, the column number appears. When six or fewer columns are displayed, the column title and routing appear.

2. Click the asterisks (**) at the top of the cuelist.

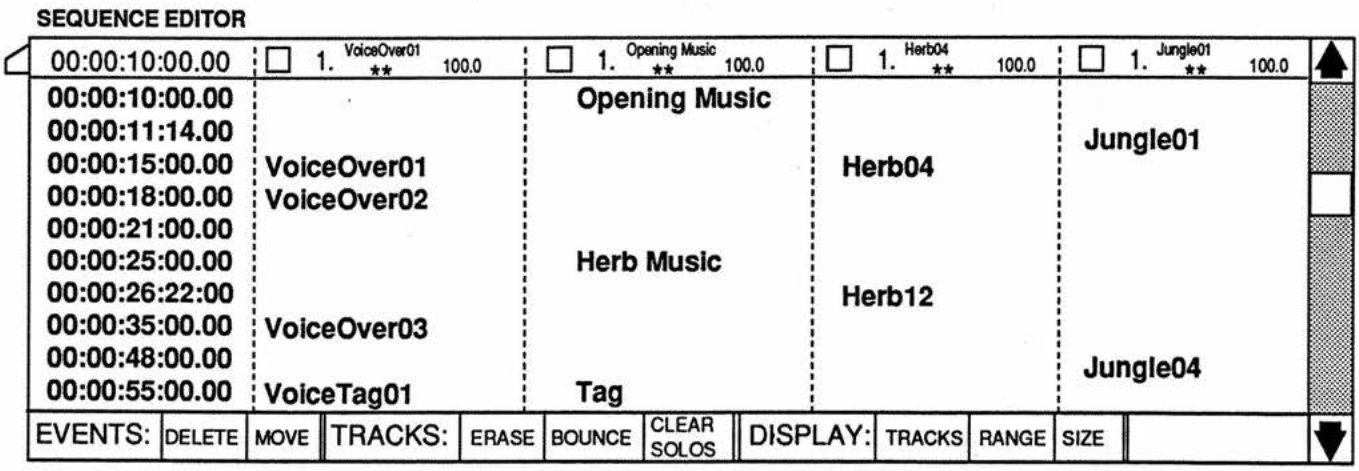
   A box appears around the asterisks.

3. Type the appropriate output number.

4. Press Return.

   The cuelist is routed to the selected output.

The Sequence Editor panel



Routing cuelists from the Multichannel Display

Cuelists appear in the Multichannel Display on the numbered sequence tracks (1-200) to which they were assigned in the Audio Event Editor's Sequence Editor. Their routing assignments appear with an asterisk (*) on either side of the output number. In the default setting, no routing assignment appears; each cue in the cuelist is routed through the output of the track(s) from which it originated.

You can assign a cuelist to a Direct-to-Disk output from the Multichannel Display.

1. Select the Multichannel Display from the Main Menu.

   The display appears on the screen. Cuelists appear on the sequence tracks to which they were assigned from the Sequence Editor of the Audio Event Editor.

2. Click in the left or right column for a given cuelist.

   The space lights.

3. Type in the number of the desired Direct-to-Disk output.

4. Press Return.

   The cuelist is assigned to the selected output. The left and right columns always appear with same output number.

Track splitting

A Direct-to-Disk track can be blocked into cues and the track routed to more than one output, with no perceptible delay between cue triggers. A three–millisecond crossfade between outputs is performed immediately prior to the second cue trigger. During the crossfade, audio from the Direct-to-Disk track appears at both outputs.

More than one cuelist can be routed to one output. A 30-millisecond interval between cuelists allows for track switching. If the second cuelist overlaps the first cuelist, the first cuelist is cut off before the start of the second.

Multitrack cues

If a single cue placed in a cuelist contains audio from more than one Direct-to-Disk track, audio from the first track is routed through the chosen output, and audio from subsequent tracks is routed through the next consecutively numbered outputs. For example, if a cue using Direct-to-Disk tracks 1, 3 and 5 is routed to output 4, track 1 is routed to output 4, and tracks 3 and 5 are routed to outputs 5 and 6. If you run out of outputs, the tracks which have no outputs do not play.

Any cue played from the Cue Directory or Cue Editor is routed through the output of the Direct-to-Disk track(s) from which it originated. Any cue manually triggered from the Sequence Editor is either routed through the assigned cuelist output (with the above restrictions) or the default output.

Output volume control

There are two Direct-to-Disk volume settings: cuelist volume and output volume. The interaction of these settings can be manipulated to control the final mixed volume.

Controlling the final mixed volume

The volume setting in the Sequence Editor panel is used to control the individual cuelist volume. The volume setting in the Track Display or Project Manager panel is used to control the volume of each Direct-to-Disk output. When a cue is triggered through a particular output, the cuelist volume is multiplied by the output volume to get a final mixed volume.

Mixed Volume = Cuelist Volume X Output Volume

For example, if the cuelist volume in the Sequence Editor is set to 50%, and the output volume in the Track Display or Project Manager panel is set to 50%, the final mixed volume is 25%.

Mixed Volume = 50% X 50% = 25%

Adjusting a cuelist volume

You can control the playback volume of each cuelist from the Sequence Editor panel of the Audio Event Editor. Any value from 0.0 to 100.0 percent can be entered at the top of each cuelist. The default setting is 100.0. All cues triggered in a particular cuelist play back at the specified volume.

1. Display the Sequence Editor panel.

   The panel appears on the screen. When four or fewer tracks are displayed, the track volume appears to the right of the output number.

2. Click on the volume setting.

   A box encloses the volume number.

3. Type the appropriate volume setting.

4. Press Return.

   The volume for the cuelist is set.

Note: You cannot set the volume of an empty cuelist.

Adjusting output volume and pan

Each output in your system is listed in the OUTPUTS sections on the far right side of the Track Display and the Show Project mode of Project Manager panel. The first column labelled "No." lists each output in numerical order.

You can adjust the volume and pan settings for each individual output.

1. Select the Track Display or the Audio Event Editor from the Main Menu.

   The display appears on the screen.

2. If you selected the Audio Event Editor, display the Project Manager panel in the Show Project mode.

3. Click the volume or pan column for the selected output.

   The column lights.

4. Enter the volume or pan setting.

5. Press Return.

   The volume or pan is set.

Direct-to-Disk inputs

You can select the source of input and the input channel from the Track Display or the Project Manager.

Setting the input source and channel

The Input column of the Track Display or the Show Project mode of the Project Manager has been expanded to two columns. The left column lists the input source, and the right column lists the input channel associated with the selected source. See the opposite page for a list of the possible input sources and their channels.

You can set the input source.

1. Click the left column under Input of the selected track.

   The column lights.

2. Step through the selections.

   The track is now set to receive input from the selected source.

You can set the input channel.

1. Click the right column under Input of the selected track.

   The column lights.

2. Step through the selections until you reach the desired input channel.

   The track is now set to receive input from the selected source and channel.

Input sources and their channels

Input sources	Input channels	Use
STM	1A–4D	For live recording (using STM inputs)
TRK	1–16 tracks	To bounce tracks.
OUT	1–16 outputs	To bounce cuelists.
DIG	1 or 2	For digital transfer.

Setting the input gain

The input gain column header has been changed to **dB**. Any integer value between -3 and +28 can be entered. Regardless of whether you have an old or a new STM module installed in your system, all gain settings now appear in dB. A setting of zero is unity gain.

1. Click the dB column for the selected track.

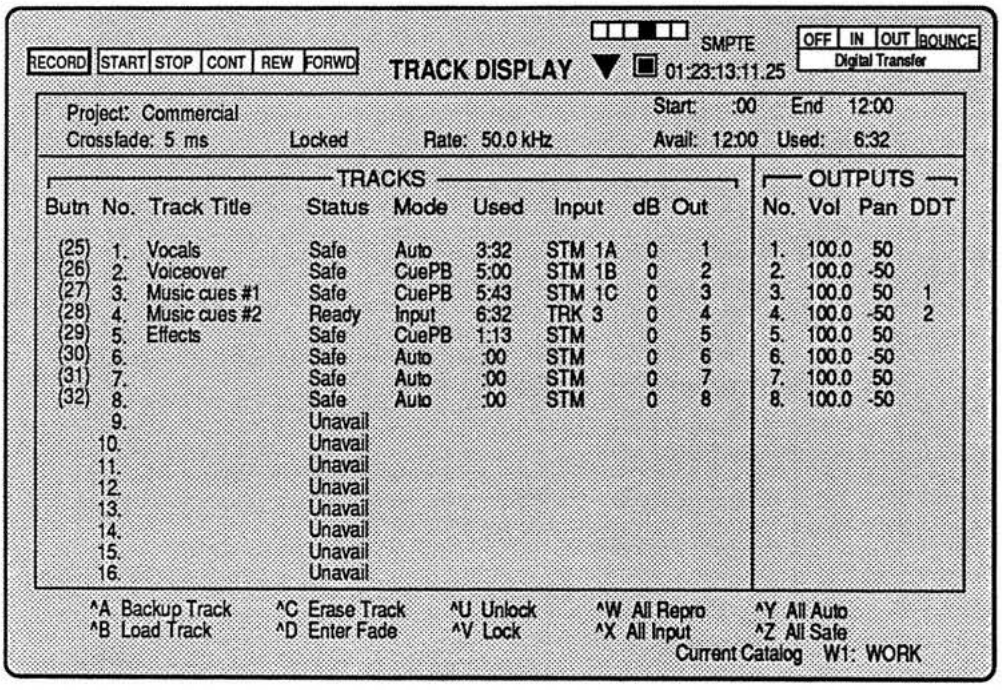
   The dB column lights.

2. Enter the appropriate input gain value. Negative gain settings provide attenuation. (If you have an old STM module, entering a negative value has the same effect as entering 0 dB.)

3. Press Return.

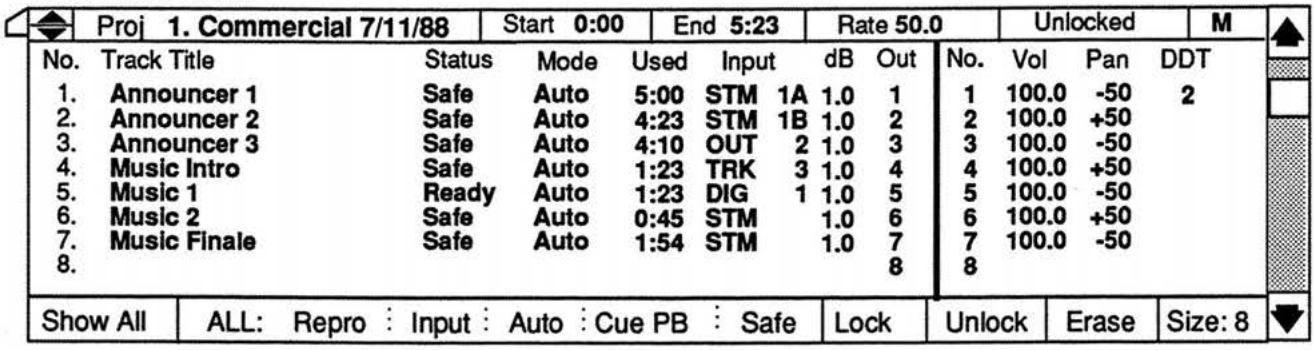
(For more information on input gain, see the sections "Sample-to-Memory module" and "Sound File Editor.")

The Track Display



The Project Manager panel

PROJECT MANAGER



Bounce

You can bounce Direct-to-Disk tracks and cues onto other tracks of the Direct-to-Disk using the Track Display or the Audio Event Editor. Before attempting to use the bounce feature, familiarize yourself with the concepts of Direct-to-Disk routing, setting track parameters and creating a cuelist. Information on these topics is available in this section and the manual*Audio Editing*.

Bouncing tracks and cues

You can bounce audio from one Direct-to-Disk track to another Direct-to-Disk track. Up to two tracks can be bounced at a time.

If you place cues into a cuelist and route them to an output, you can bounce the cuelist to a single Direct-to-Disk track. In this way you can save your best cues and then erase the other tracks to make room for more recording.

When bouncing tracks and cues, the bounced audio remains in the digital domain and retains its original recorded quality. There is no delay recording to the track when bouncing audio. (There will be an delay hearing the output if you record and bounce at the same time.)

The bounce mechanism can be turned off and on, the advantage being that you can set up your routing and then turn the bounce routings off and on, instead of having to enter new values.

You use the Input column of the Track Display or the Show Project mode of the Project Manager to set up for a track or a cuelist bounce.

Input source	Input channel	Use
TRK	1–16 tracks	Use when bouncing tracks.
OUT	1–16 outputs	Use when bouncing a cuelist to a track.

Note: A multitrack cue cannot be mixed down onto one track. For instance, a cue containing audio from two tracks must be bounced to two tracks.

You can bounce tracks and cuelists using either the Track Display or the Audio Event Editor. From either location the procedure follows similar steps. Each of the steps outlined below is described in more detail on the following pages.

Summary of track bounce

1. Turn on digital bounce.
2. Set the source and destination track parameters.
3. Start recording to start the bounce.
4. Stop recording to stop the bounce.
5. Turn off digital bounce.

Summary of cuelist bounce

1. Turn on digital bounce.
2. Route the cuelist to a Direct-to-Disk output.
3. Set the destination track parameters.
4. Start recording to start the bounce.
5. Stop recording to stop the bounce.
6. Turn off digital bounce.

Setting up to bounce a track from the Track Display

You can bounce tracks or cues using the Track Display. When bouncing from the Track Display the source of audio and the destination track always remain synchronized in a one-to-one relationship.

1. Select the Track Display from the Main Menu.

   The display appears on the screen.

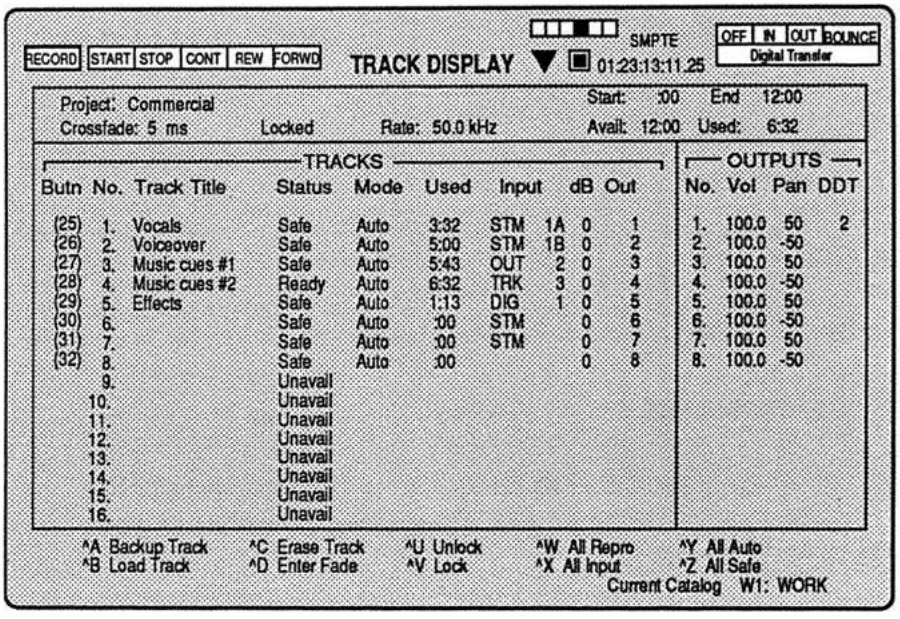
2. Click the Digital Transfer BOUNCE button in the upper right corner of the display to turn on bounce.

   The BOUNCE button lights.

3. Set the following parameters for source and destination tracks.

	Status	Mode	Input source	Input channel
Source track	Safe	Repro		
Destination track	Ready	Input	TRK	1–16

The Track Display



Setting up to bounce cues from the Track Display

You use the Track Display with the Multichannel Display when setting up to bounce a cuelist.

1. Click the Digital Transfer BOUNCE button in the upper right corner of the Track Display to turn on bounce.

   The BOUNCE button lights.

2. Select the Multichannel Display from the Main Menu.

   The display appears on the screen.

3. In the Left or Right column, type the output number next to the cuelist you want to bounce. (For more information on setting a cuelist output see the section "Direct-to-Disk outputs.")

   This is the output through which all the cues in the cuelist will be played.

4. Press Return.

5. Press Enter.

   The Main Menu appears on the screen.

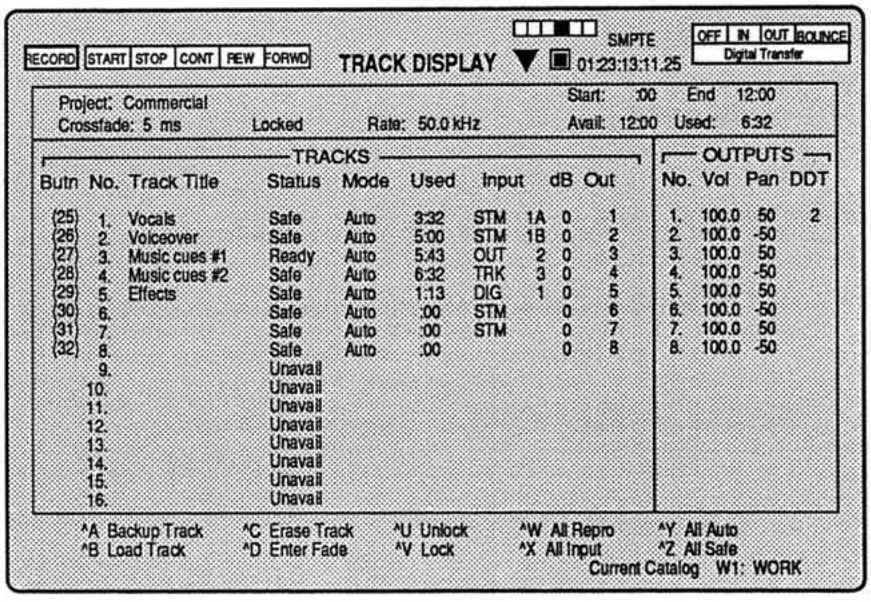
6. Select the Track Display from the Main Menu.

   The display appears on the screen.

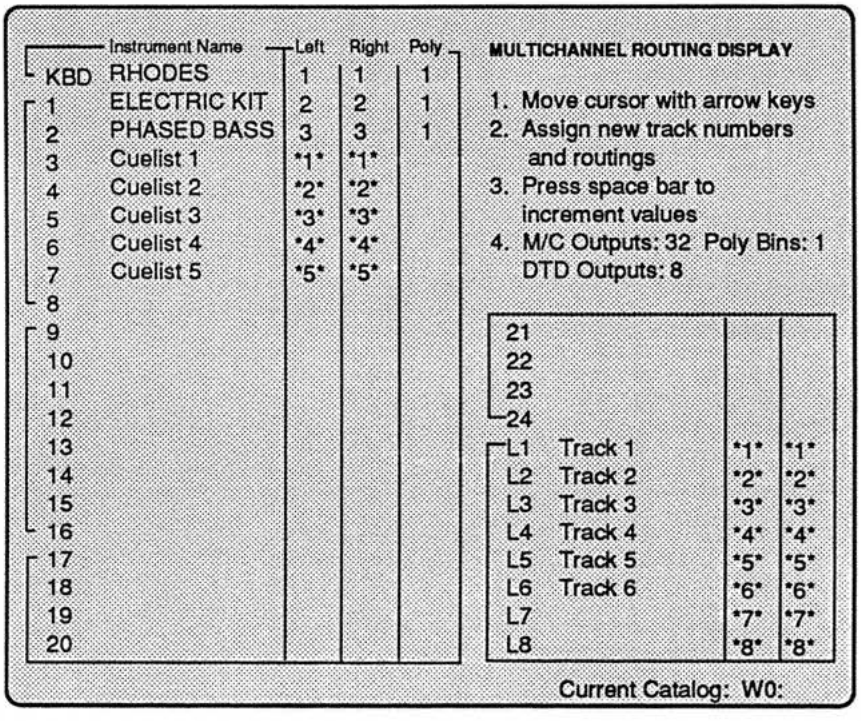
7. Set the following parameters for the destination track.

	Status	Mode	Input source	Input channel
Destination track	Ready	Input	OUT	1–16

The Track Display



The Multichannel Display



Bouncing tracks or cues from the Track Display

You are now ready to start the digital bounce.

1. Click RECORD on the motion controls in the upper left corner of the Track Display.

   The RECORD and START buttons light and the track or cuelist plays.

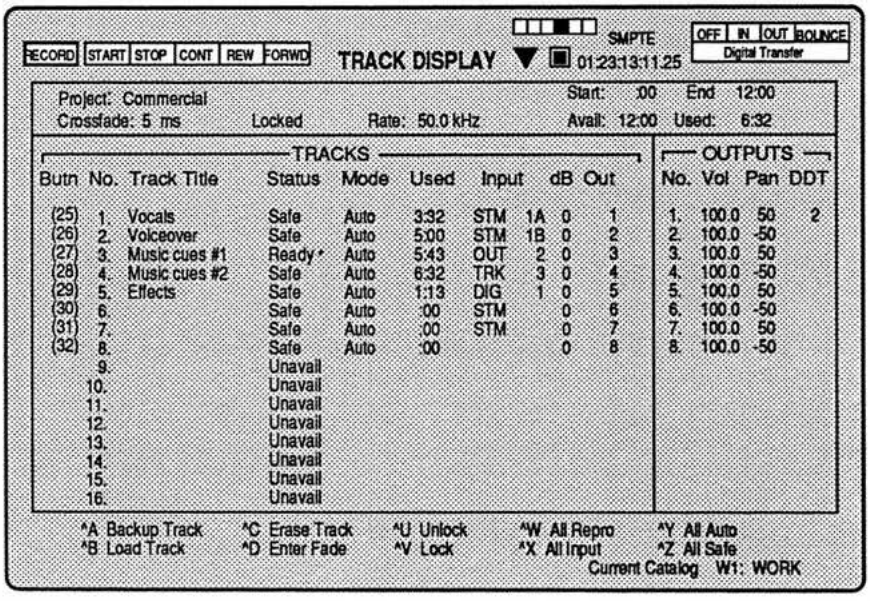
   When bouncing a track, the source track is recorded onto the destination track.

   When bouncing a cuelist, the cuelist output is recorded onto the destination track.

2. Click STOP when you want to stop the bounce.

3. Click Digital Transfer OFF in the upper right corner of the display to turn off bounce.

The Track Display



Setting up to bounce a track from the Audio Event Editor

When you bounce tracks or cues using the Audio Event Editor, you use the Project Manager, the Record Control, the Sequencer Motion Control and the Sequence Editor panels.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Click the Digital Transfer BOUNCE button in the Selection panel to turn on digital bounce.

   The BOUNCE button lights.

3. Display the Project Manager, the Sequencer Motion Control and the Record Control panels.

4. Click the Show Proj button at the bottom left of the Project Manager if the panel is not in Show Project mode.

5. Set the following parameters for the source and destination tracks.

	Status	Mode	Input source	Input channel
Source track	Safe	Repro		
Destination track	Ready	Input	TRK	1–16

6. Set the Record Control panel's Mode and Trigger switches for the type of recording you want to do. (For more information on setting these switches see the manual *Audio Editing*.)

The Project Manager panel

PROJECT MANAGER

Proj 1. Commercial 7/11/88	Start 0:00	End 5:23	Rate 50.0	Unlocked	M

No.	Track Title	Status	Mode	Used	Input		dB	Out
1.	Announcer 1	Safe	Auto	5:00	STM	1A	1.0	1
2.	Announcer 2	Safe	Auto	4:23	STM	1B	1.0	2
3.	Announcer 3	Safe	Auto	4:10	STM		1.0	3
4.	Music Intro	Ready	Input	1:23	TRK	3	1.0	4
5.	Music 1	Safe	Auto	1:23	DIG	1	1.0	5
6.	Music 2	Safe	Auto	0:45	STM		1.0	6
7.	Music Finale	Safe	Auto	1:54	STM		1.0	7
8.								8

No.	Vol	Pan	DDT
1	100.0	-50	2
2	100.0	+50	
3	100.0	-50	
4	100.0	+50	
5	100.0	-50	
6	100.0	+50	
7	100.0	-50	
8			

Show All	ALL: Repro ⋮ Input ⋮ Auto ⋮ Cue PB ⋮ Safe	Lock	Unlock	Erase	Size: 8

The Sequencer Motion Control panel

SEQUENCER MOTION CONTROL

START	STOP	CONT	REW	FORWD	MIDI RECRD	MIDI PUNCH	MIDI LOCATE	TRACK	DELETE	RENAME	STORE	RECALL	Name:	P

01	02	03	04	05	06	07	08	09	10
11	12	13	14	15	16	17	18	19	20

LOCATOR STORE ON/OFF 00:00:00:00.00

The Record Control panel

RECORD CONTROL

READY	Mode **Allocate**	Trk Start **00:00:00:00.00**	Trig Start **00:00:00:00.00**
REHEARSE	Trig **Manual**	Trk Stop **00:00:00:00.00**	Trig Stop **00:00:00:00.00**
STOP	Rec **Single**	Tracks 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16	

Cue: Take 02	Retake		Cfade: 5	

Setting up to bounce cues from the Audio Event Editor

You bounce a cuelist by routing it to a Direct-to-Disk output that is the source of input for the destination track.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Click the Digital Transfer BOUNCE button in the Selection panel to turn on digital bounce.

   The BOUNCE button lights.

3. Click the PROJECTS, RECORD, MOTION and SEQ EDIT boxes to open the Project Manager, the Record Control, Sequencer Motion Control and the Sequence Editor panels.

4. In the Sequence Editor, select the asterisk (*) at the top of the column and type the number of the cuelist output.

5. Press Return.

6. In the Project Manager, click the Show Proj button at the bottom left if the panel is not in the Show Project mode.

7. Set the following parameters for the destination track.

	Status	Mode	Input source	Input channel
Destination track	Ready	Input	OUT	1–16

8. Set the Record Control panel's Mode and Trigger switches for the type of recording you want to do. (For more information on setting these switches see the *Audio Editing Manual.*)

The Project Manager panel

PROJECT MANAGER

Proj 1. Commercial 7/11/88	Start 0:00	End 5:23	Rate 50.0	Unlocked	M

No.	Track Title	Status	Mode	Used	Input	dB	Out
1.	Announcer 1	Safe	Auto	5:00	STM 1A	1.0	1
2.	Announcer 2	Safe	Auto	4:23	STM 1B	1.0	2
3.	Announcer 3	Ready	Input	4:10	OUT 2	1.0	3
4.	Music Intro	Safe	Auto	1:23	TRK 3	1.0	4
5.	Music 1	Safe	Auto	1:23	DIG 1	1.0	5
6.	Music 2	Safe	Auto	0:45	STM	1.0	6
7.	Music Finale	Safe	Auto	1:54	STM	1.0	7
8.							8

No.	Vol	Pan	DDT
1	100.0	-50	2
2	100.0	+50	
3	100.0	-50	
4	100.0	+50	
5	100.0	-50	
6	100.0	+50	
7	100.0	-50	
8			

Show All	ALL: Repro : Input : Auto : Cue PB : Safe	Lock	Unlock	Erase	Size: 8

The Sequencer Motion Control panel

SEQUENCER MOTION CONTROL

START	STOP	CONT	REW	FORWD	MIDI RECRD	MIDI PUNCH	MIDI LOCATE	TRACK	DELETE	RENAME	STORE	RECALL	Name:	P

01	02	03	04	05	06	07	08	09	10	LOCATOR		00:00:00:00.00
11	12	13	14	15	16	17	18	19	20	STORE	ON/OFF	

The Record Control panel

RECORD CONTROL

READY	Mode **Allocate**	Trk Start **00:00:00:00.00**	Trig Start **00:00:00:00.00**
REHEARSE	Trig **Manual**	Trk Stop **00:00:00:00.00**	Trig Stop **00:00:00:00.00**
STOP	Rec **Single**	Tracks 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16	

Cue: Take 02	Retake		Cfade: **5**	

The Sequence Editor panel

SEQUENCE EDITOR

00:00:10:00.00	1. VoiceOver01 ** 100.0	1. Opening Music ** 100.0	1. Herb04 ** 100.0	1. Jungle01 ** 100.0
00:00:10:00.00		Opening Music		
00:00:11:14.00				Jungle01
00:00:15:00.00	VoiceOver01		Herb04	
00:00:18:00.00	VoiceOver02			
00:00:21:00.00				
00:00:25:00.00		Herb Music		
00:00:26:22:00			Herb12	
00:00:35:00.00	VoiceOver03			
00:00:48:00.00				Jungle04
00:00:55:00.00	VoiceTag01	Tag		

EVENTS:	DELETE	MOVE	TRACKS:	ERASE	BOUNCE	CLEAR SOLOS	DISPLAY:	TRACKS	RANGE	SIZE

Bouncing tracks or cues from the Audio Event Editor

You are now ready to start the digital bounce.

1. Click READY on the Record Control panel.

   READY begins blinking.

2. Click RECORD on the Record Control panel.

   Recording begins if you are set to Manual Mode in the Record Control panel. If you are set to Sequencer Mode, recording does not begin until the next step.

3. Click START on the Sequencer Motion Control panel.

   When bouncing a track, the source track is recorded onto the destination track.

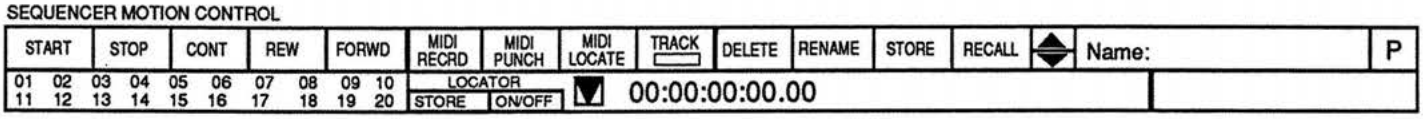
   When bouncing a cuelist, the cuelist output is recorded onto the destination track.

4. Click STOP on the Record Control panel when you want to stop recording.

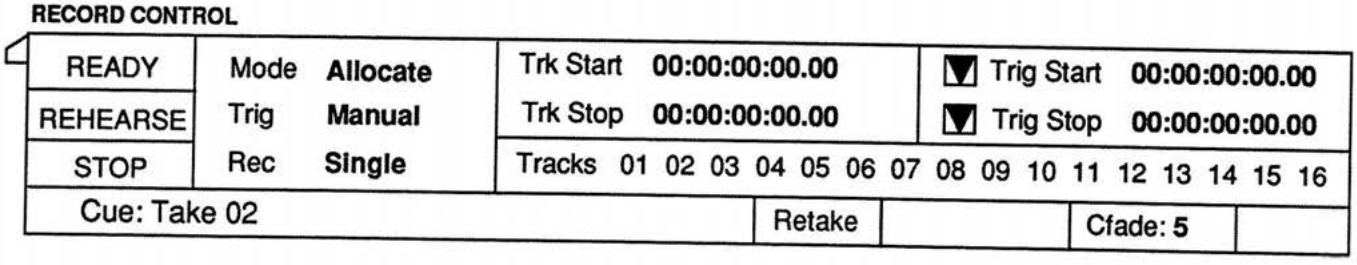
5. Click STOP on the Sequencer Motion Control panel when you want to stop the bounce.

6. Click Digital Transfer OFF in the Selection panel to turn off digital bounce.

The Sequencer Motion Control panel



The Record Control panel



Digital transfer

You can transfer digital audio between a Mitsubishi digital tape recorder and the Direct-to-Disk, without leaving the digital domain and while retaining the original recorded quality. Before performing a digital transfer, you should be familiar with the concepts of Direct-to-Disk routing and setting track parameters. Information on these topics is available in this section and the manual *Audio Editing*.

Introduction

If you have purchased the digital transfer hardware, you can transfer up to two tracks of audio at a time between the Direct-to-Disk and the following five models of Mitsubishi tape recorder: X-80, X-86, X-400, X800 and X-850.

Digital transfer is useful for backing up Direct-to-Disk tracks to digital tape or for transferring audio from tape onto Direct-to-Disk tracks for editing. Your routings are saved even when you turn off digital transfer. When you are ready to use digital transfer again, all you have to do is turn it on and the parameters are set.

Before attempting to perform a digital transfer, your tape recorder should be properly connected for sending or receiving audio. The two available digital transfer channels DIG 1 and DIG 2 are Mitsubishi channels left and right, respectively. The digital transfer hardware supports the two channel standard. Volume and pan settings have no affect on the digital transfer.

Monitoring tracks

Although there is never a delay recording to the track, a delay can be heard in two instances when monitoring a digital transfer.

- Digital input is routed directly to a Direct-to-Disk output.
- A track receiving input from an STM module is simultaneously routed to a digital transfer output.

In these cases, there is a 75 msec delay in the output, which increases if you have a crossfade greater than 10 msec.

Setting the sampling rate

When transferring audio between a digital tape recorder and the Direct-to-Disk, the sampling rate of both systems should be set to 44.1, 48 or 96 kHz. In the Direct-to-Disk this is done by setting the sampling rate of the entire project to 44.1, 48 or 96 kHz from the Project Directory or the Audio Event Editor's Project Manager panel.

When SMPTE synchronization is being used, the Direct-to-Disk matches its digital sampling rate to the SMPTE signal. For example, if a sampling rate of 44.1 kHz is being used with Drop-frame SMPTE, the system creates exactly 44,100 samples for every 29.97 SMPTE frames. Many digital tape recorders set to phase lock to Drop-frame SMPTE in reality are acting as though they were locked to Non-drop (30 fps) SMPTE. The resulting sampling rate is actually less than 44.1 kHz.

If your machine operates in this way, a special sampling rate must be used when synchronizing digital transfer to Drop-frame SMPTE. The following project sampling rates can be used to translate to the correct sampling rate.

Project sampling rate	Actual sampling rate
44.0	44.0559 (for use with 44.1 kHz)
47.9	47.9520 (for use with 48.0 kHz)
95.9	95.9040 (for use with 96.0 kHz)

(For more information on setting the sampling rate, see the manual *Audio Editing for the Direct-to-Disk.*)

SMPTE synchronization

Certain precautions must be taken when synchronizing digital transfer with SMPTE.

- When you are striping SMPTE onto tape, the digital tape recorder must be phase locked to the house sync video signal.

- When one or more audio or video tape recorders is being used, the master SMPTE signal should be the SMPTE signal recorded on the digital tape recorder.

When using SMPTE to control digital transfer, the system waits for an incoming SMPTE signal before beginning the transfer.

(For information on using special sampling rates with Drop-frame SMPTE, see "Setting the sampling rate" above.)

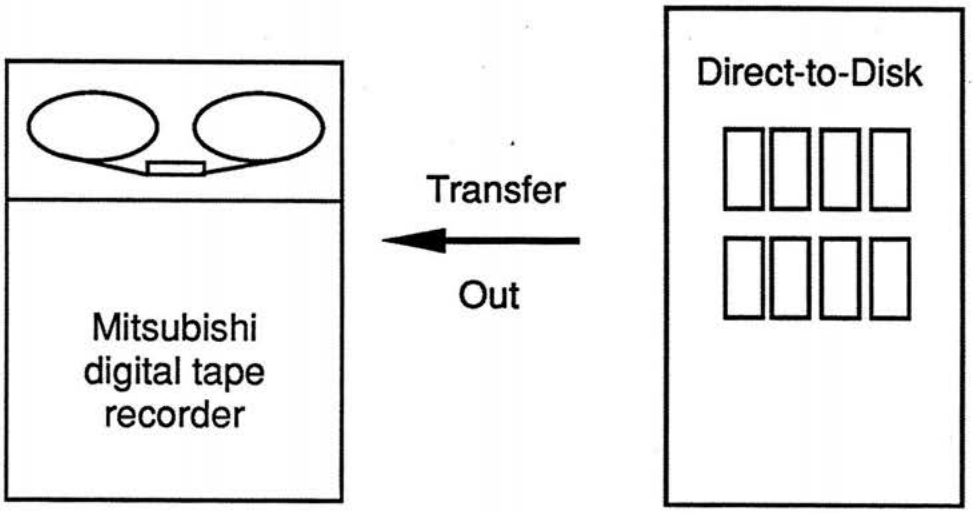
You can digitally transfer between the Direct-to-Disk and a Mitsubishi digital tape recorder using the Track Display or the Audio Event Editor. From either display, the procedure follows similar steps. Each of the steps outlined below is described in more detail on the following pages.

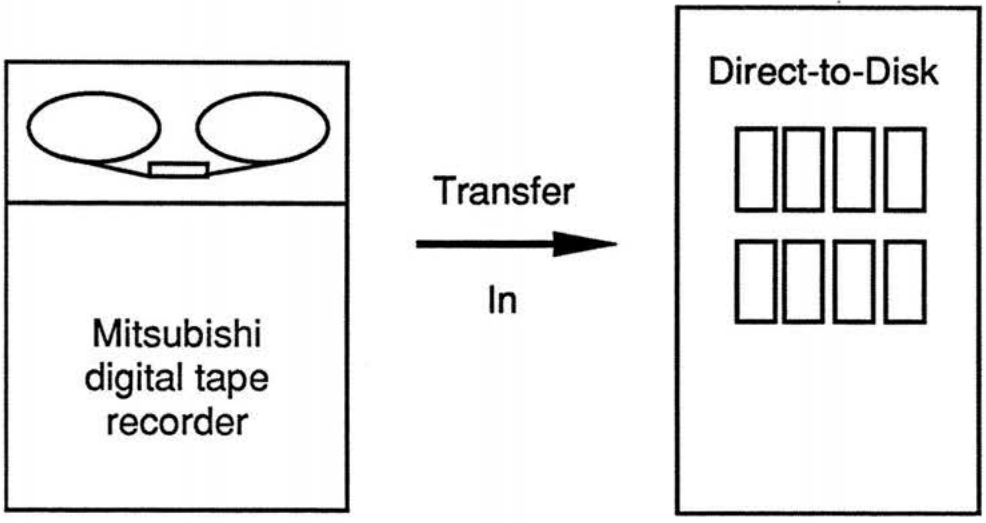
Summary of transferring out

1. Turn on digital transfer.
2. Set the source track parameters.
3. Set the Direct-to-Disk output.
4. Set the digital transfer (DDT) channel.
5. Set up the digital tape recorder.
6. Start recording on the digital tape recorder.
7. Start playback on the Direct-to-Disk to start the transfer.
8. Stop playback and recording to stop the transfer.
9. Turn off digital transfer.

Summary of transferring in

1. Turn on digital transfer.
2. Set the destination track parameters.
3. Set up the digital tape recorder.
4. Start recording on the Direct-to-Disk.
5. Start playback on the digital tape recorder to start the transfer.
6. Stop playback and recording to stop the transfer.
7. Turn off digital transfer.


Direct-to-Disk
Transfer
Out
Mitsubishi
digital tape
recorder


Direct-to-Disk
Transfer
In
Mitsubishi
digital tape
recorder

Setting up to transfer a track out from the Track Display

You can transfer audio between a Mitsubishi digital tape recorder and the Direct-to-Disk using the Track Display. When transferring from the Track Display, the Direct-to-Disk track always remains synchronized to the tape recorder.

When you transfer out, Direct-to-Disk audio is sent to a digital tape recorder on two channels. You must set the parameters for each Direct-to-Disk source track before the transfer can take place.

1. Select the Track Display from the Main Menu.

   The display appears on the screen.

2. Click the Digital Transfer OUT button in the upper right corner of the display to turn on digital transfer.

   The OUT button lights.

3. Set the following parameters for each source track.

	Status	Mode	Output
Source track	Safe	Repro	1–16

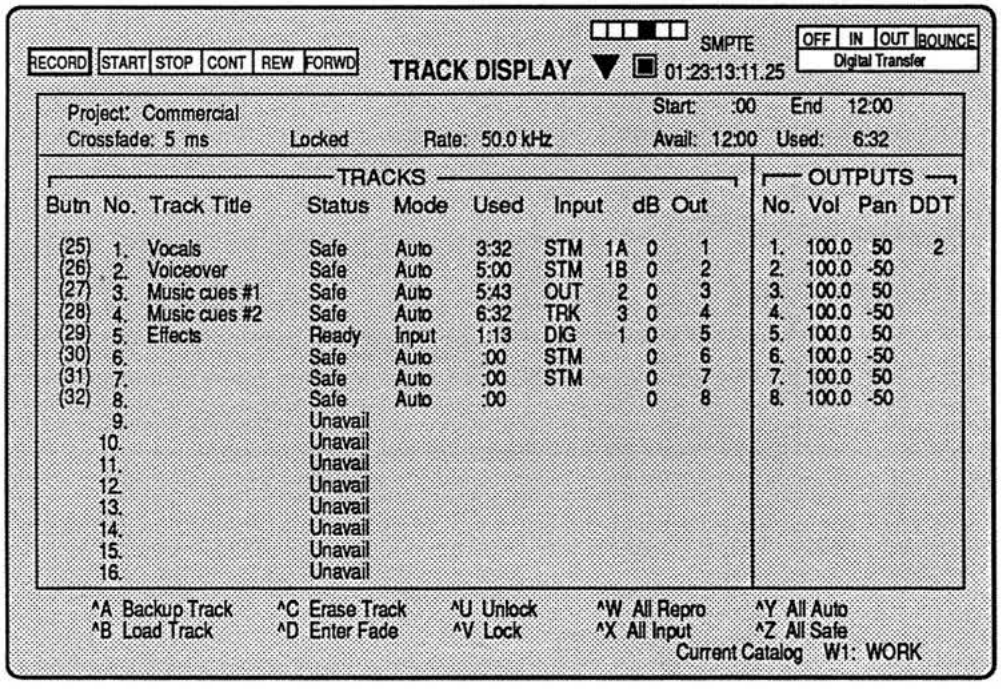
4. In the Outputs section on the right side of the display, enter the digital transfer channel by typing 1 or 2 in the DDT column of the selected output.

   Audio from the selected output is routed to the digital transfer channel.

5. Press Return.

You can also transfer cues triggered from the Cue Directory by routing the track that contains the cues to a particular output. This output is then routed to a digital channel, as above. When you trigger the cues from the Cue Directory, they are routed through the digital transfer channel to the tape recorder.

The Track Display



Setting up to transfer a cuelist out from the Track Display

You use the Track Display with the Multichannel Display when setting up to transfer a cuelist out.

1. Select the Multichannel Display from the Main Menu.

   The display appears on the screen.

2. In the Left or Right column, type the output number next to the cuelist you want to transfer. (For more information on setting a cuelist output see the section "Direct-to-Disk outputs.")

   This is the output through which all the cues in the cuelist will be played.

3. Press Enter.

   The Main Menu appears on the screen.

4. Select the Track Display.

   The Track Display appears on the screen.

5. Click the Digital Transfer OUT button in the upper right corner of the to turn on digital transfer.

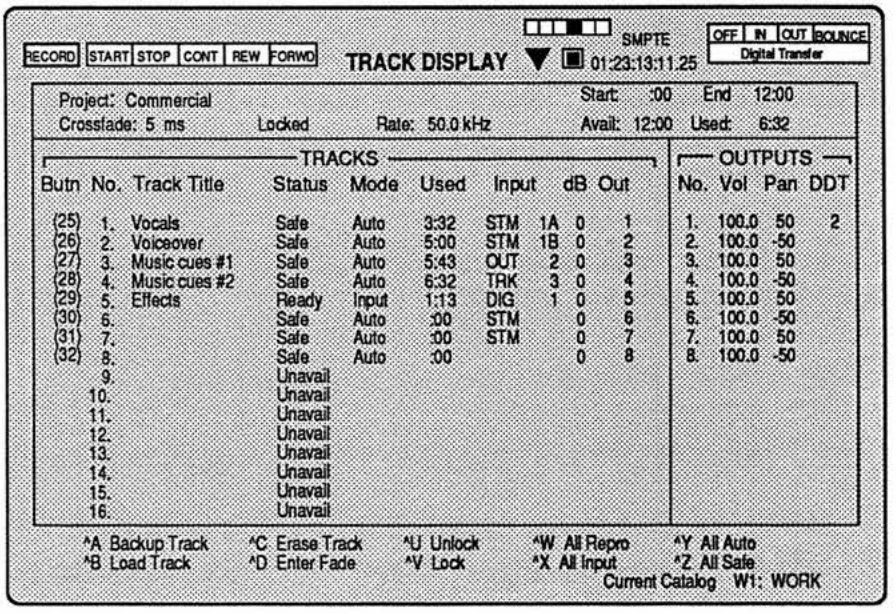
   The OUT button lights.

6. In the Outputs section on the right side of the display, enter the digital transfer channel by typing 1 or 2 in the DDT column of the cuelist output.

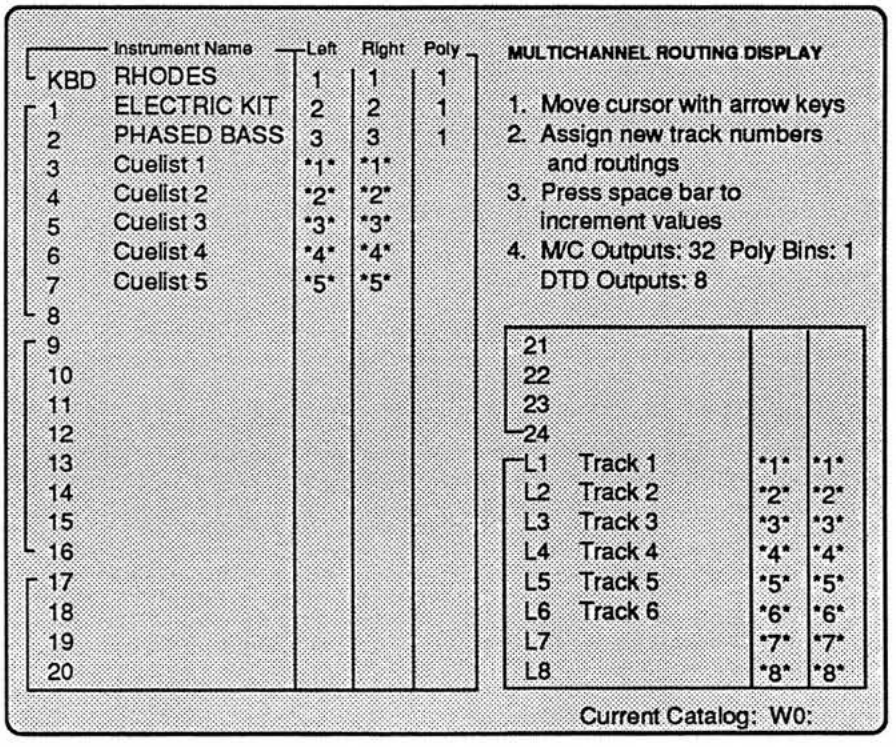
   Audio from the selected output is routed to the digital transfer channel.

7. Press Return.

The Track Display



The Multichannel Display



Transferring tracks and cues out from the Track Display

You are now ready to start the digital transfer.

1. Start recording on the digital tape recorder.

2. Click START on the Track Display.

   The START button lights. The Direct-to-Disk track or cuelist routed to the digital transfer channel is recorded onto tape.

3. Click STOP on the Track Display when you want to stop playback.

4. Stop the tape recorder when you want to stop recording.

5. After completing all digital transfer tasks, click the Digital Transfer OFF button in the upper right corner of the display to turn off digital transfer.

Setting up to transfer in from the Track Display

When you transfer in, the Direct-to-Disk records audio sent by a digital tape recorder on two channels. You must set the parameters for each Direct-to-Disk destination track before the transfer can take place.

1. Select the Track Display from the Main Menu.

   The display appears on the screen.

2. Click the Digital Transfer IN button in the upper right corner of the display to turn on digital transfer.

   The IN button lights.

3. Set the following parameters for each destination track.

	Status	Mode	Input source	Input channel
Destination track	READY	Input	DIG	1 or 2

Transferring in from the Track Display

You are now ready to start the digital transfer.

1. Click RECORD on the Track Display.

   The RECORD and START buttons light and recording begins on the track.

2. Start playing back the tape recorder.

   Digital transfer begins. Audio is recorded onto the appropriate Direct-to-Disk track.

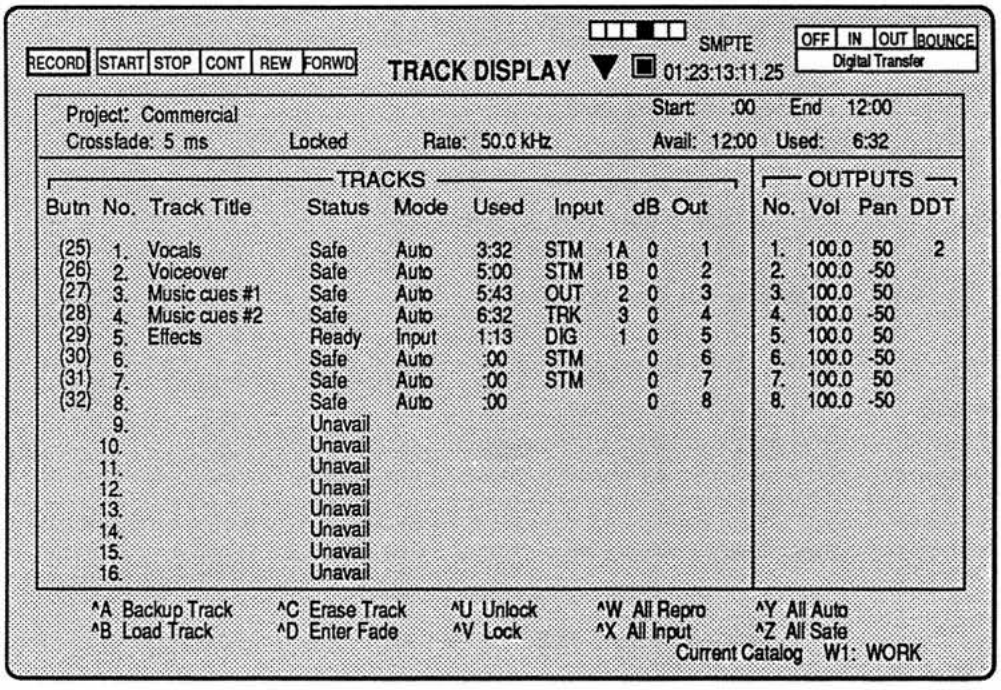
3. Stop the tape recorder when you want to stop playback.

4. Click STOP on the Track Display when you want to stop recording.

   The RECORD and START buttons unlight.

5. After completing all digital transfer tasks, click Digital Transfer OFF in the upper right corner of the display to turn off digital transfer.

The Track Display



Setting up to transfer out a track using the Audio Event Editor

You can transfer audio between a Mitsubishi digital tape recorder and the Direct-to-Disk using the Audio Event Editor. When you transfer out, Direct-to-Disk audio is sent to a digital tape recorder on two channels. You must set the parameters for each Direct-to-Disk source track before the transfer.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Click the Digital Transfer OUT button in the Selection panel to turn on digital transfer.

   The OUT button lights.

3. Display the Project Manager and the Sequencer Motion Control panels.

4. Click the Show Proj button at the bottom left of the Project Manager if the panel is not in Show Project mode.

5. In the Project Manager, set the following parameters for each source track.

	Status	Mode	Output
Source track	Safe	Repro	1–16

6. On the right side of the display, set the digital transfer channel by typing 1 or 2 in the DDT column of the selected output.

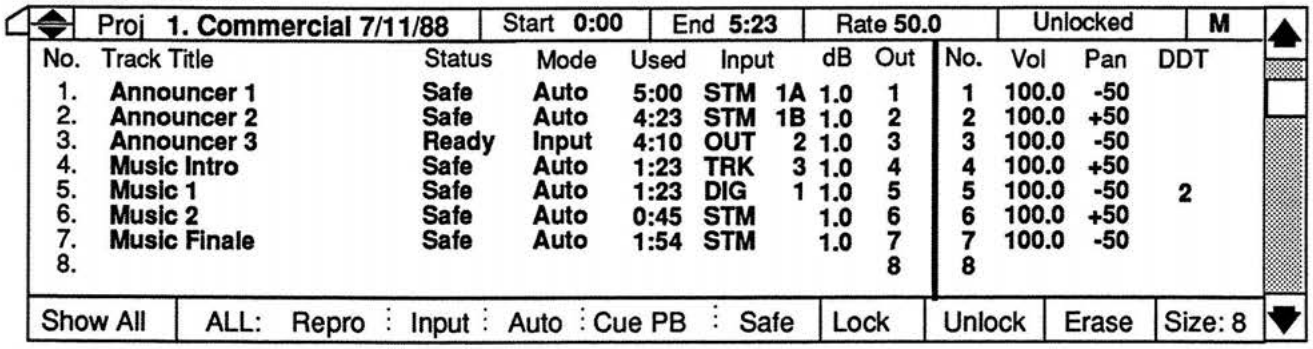
   Audio from the selected output is routed to the digital transfer channel.

7. Press Return.

You can also transfer cues triggered from the Cue Directory by routing the track that contains the cues to a particular output. This output is then routed to a digital transfer channel, as above. When you trigger the cues from the Cue Directory, they are routed through the digital transfer channel to the tape recorder.

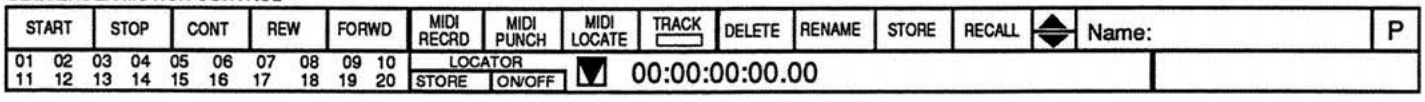
The Project Manager

PROJECT MANAGER



The Sequencer Motion Control panel

SEQUENCER MOTION CONTROL



Setting up to transfer out cues from the Audio Event Editor

You can transfer cues to a digital tape recorder by routing a cuelist to a Direct-to-Disk output and routing the output to a digital transfer channel.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Click the Digital Transfer OUT button in the Selection panel to turn on digital transfer.

   The OUT button lights.

3. Display the Project Manager, the Sequencer Motion Control and the Sequence Editor panels.

4. In the Sequence Editor, type the output number at the top of the selected cuelist.

   This is the output through which all of the cues in the cuelist are routed.

5. Click the Show Proj button at the bottom left of the Project Manager if the panel is not in Show Project mode.

6. On the right side of the panel, set the digital transfer channel by typing 1 or 2 in the DDT column of the selected cuelist output.

   The cuelist is routed to the selected digital transfer channel.

7. Press Return.

The Project Manager

PROJECT MANAGER

Proj 1. Commercial 7/11/88	Start 0:00	End 5:23	Rate 50.0	Unlocked	M

No.	Track Title	Status	Mode	Used	Input	dB	Out
1.	Announcer 1	Safe	Auto	5:00	STM 1A	1.0	1
2.	Announcer 2	Safe	Auto	4:23	STM 1B	1.0	2
3.	Announcer 3	Safe	Auto	4:10	OUT 2	1.0	3
4.	Music Intro	Safe	Auto	1:23	TRK 3	1.0	4
5.	Music 1	Ready	Input	1:23	DIG 1	1.0	5
6.	Music 2	Safe	Auto	0:45	STM	1.0	6
7.	Music Finale	Safe	Auto	1:54	STM	1.0	7
8.							8

No.	Vol	Pan	DDT
1	100.0	-50	2
2	100.0	+50	
3	100.0	-50	
4	100.0	+50	
5	100.0	-50	
6	100.0	+50	
7	100.0	-50	
8			

Show All | ALL: Repro : Input : Auto : Cue PB : Safe | Lock | Unlock | Erase | Size: 8

The Sequencer Motion Control panel

SEQUENCER MOTION CONTROL

START | STOP | CONT | REW | FORWD | MIDI RECRD | MIDI PUNCH | MIDI LOCATE | TRACK | DELETE | RENAME | STORE | RECALL | Name: | P

01 02 03 04 05 06 07 08 09 10
11 12 13 14 15 16 17 18 19 20

LOCATOR STORE ON/OFF 00:00:00:00.00

The Sequence Editor panel

SEQUENCE EDITOR

00:00:10:00.00	1. VoiceOver01 ** 100.0	1. Opening Music ** 100.0	1. Herb04 ** 100.0	1. Jungle01 ** 100.0
00:00:10:00.00		Opening Music		
00:00:11:14.00				Jungle01
00:00:15:00.00	VoiceOver01		Herb04	
00:00:18:00.00	VoiceOver02			
00:00:21:00.00				
00:00:25:00.00		Herb Music		
00:00:26:22:00			Herb12	
00:00:35:00.00	VoiceOver03			
00:00:48:00.00				Jungle04
00:00:55:00.00	VoiceTag01	Tag		

EVENTS: DELETE | MOVE | TRACKS: ERASE | BOUNCE | CLEAR SOLOS | DISPLAY: TRACKS | RANGE | SIZE

Transferring out from the Audio Event Editor

You are now ready to start the digital transfer.

1. Start recording on the digital tape recorder.

2. Click START on the Sequencer Motion Control panel.

   The START button lights. The Direct-to-Disk track or cuelist routed to the digital transfer channel is recorded onto tape.

3. Click STOP on the Sequencer Motion Control panel when you want to stop playback.

4. Stop the tape recorder when you want to stop recording.

5. After completing all digital transfer tasks, click Digital Transfer OFF in the Selection panel to turn off digital transfer.

Setting up to transfer in from the Audio Event Editor

When you transfer in, the Direct-to-Disk records audio sent by a digital tape recorder on two channels. You must set the parameters for each Direct-to-Disk destination track before the transfer can take place.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Click the Digital Transfer IN button in the Selection panel to turn on digital transfer.

   The IN button lights.

3. Display the Project Manager, the Record Control and the Sequencer Motion Control panels.

4. Click the Show Proj button at the bottom left of the Project Manager if the panel is not in Show Project mode.

5. In the Project Manager, set the following parameters for each destination track.

	Status	Mode	Input source	Input channel
Destination track	READY	Input	DIG	1 or 2

6. Set the Record Control panel's Mode and Trigger switches for the type of recording you want to do. (For more information on setting these switches, see the manual *Audio Editing*.)

Transferring in from the Audio Event Editor

You are now ready to start the digital transfer.

1. Click READY on the Record Control panel.

   READY begins blinking.

2. Click RECORD on the Record Control panel.

   Recording begins if you are set to Manual Mode in the Record Control panel. (If you are set to Sequencer Mode, recording does not begin until you also click START on the Sequencer Motion Control panel.)

3. Start playing back the tape recorder.

   Digital transfer begins. Audio is recorded onto the appropriate Direct-to-Disk track.

4. Stop the tape recorder when you want to stop playback.

5. Click STOP on the Record Control panel when you want to stop recording.

6. After completing all digital transfer tasks, click Digital Transfer OFF in the Selection panel to turn off digital transfer.

The Project Manager

PROJECT MANAGER

Proj 1. Commercial 7/11/88	Start 0:00	End 5:23	Rate 50.0	Unlocked	M

No.	Track Title	Status	Mode	Used	Input	dB	Out
1.	Announcer 1	Safe	Auto	5:00	STM 1A	1.0	1
2.	Announcer 2	Safe	Auto	4:23	STM 1B	1.0	2
3.	Announcer 3	Safe	Auto	4:10	OUT 2	1.0	3
4.	Music Intro	Safe	Auto	1:23	TRK 3	1.0	4
5.	Music 1	Ready	Input	1:23	DIG 1	1.0	5
6.	Music 2	Safe	Auto	0:45	STM	1.0	6
7.	Music Finale	Safe	Auto	1:54	STM	1.0	7
8.							8

No.	Vol	Pan	DDT
1	100.0	-50	2
2	100.0	+50	
3	100.0	-50	
4	100.0	+50	
5	100.0	-50	
6	100.0	+50	
7	100.0	-50	
8			

Show All	ALL: Repro : Input : Auto : Cue PB : Safe	Lock	Unlock	Erase	Size: 8

The Record Control panel

RECORD CONTROL

READY	Mode **Allocate**	Trk Start **00:00:00:00.00**	Trig Start **00:00:00:00.00**
REHEARSE	Trig **Manual**	Trk Stop **00:00:00:00.00**	Trig Stop **00:00:00:00.00**
STOP	Rec **Single**	Tracks 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16	

Cue: Take 02	Retake		Cfade: **5**	

The Sequencer Motion Control panel

SEQUENCER MOTION CONTROL

START	STOP	CONT	REW	FORWD	MIDI RECRD	MIDI PUNCH	MIDI LOCATE	TRACK	DELETE	RENAME	STORE	RECALL	Name:	P

01 02 03 04 05 06 07 08 09 10	LOCATOR		00:00:00:00.00	
11 12 13 14 15 16 17 18 19 20	STORE	ON/OFF		

The Track Display

Several new features have been added at the top of the Track Display: motion controls, a mark point, a time display and Digital Transfer buttons. (For information on routing from the Track Display, see the sections "Direct-to-Disk outputs" and "Direct-to-Disk inputs." For more information on Digital Transfer and bounce, see the sections "Bounce" and "Digitial Transfer.")

The motion controls

At the top left side of the display are six motion control buttons.

START	Begins playback at the beginning of the sequence or at the mark point.
STOP	Click once to stop sequence playback and Direct-to-Disk recording. Click twice to go to the mark point, if set, or to the beginning of the sequence, if mark point is not set.
CONT	Continues sequence playback at the current location.
REW	Click once to rewind the sequence in twice normal speed; press twice for eight times normal speed; click three times for 32 times normal speed.*
FORWD	Click once to fast forward the sequence in twice normal speed; click twice for eight times normal speed; click three times for 32 times normal speed.*
RECORD	Starts recording at the current Direct-to-Disk track location if the sequencer is running. Otherwise, recording starts from the beginning of the track or the current mark point.

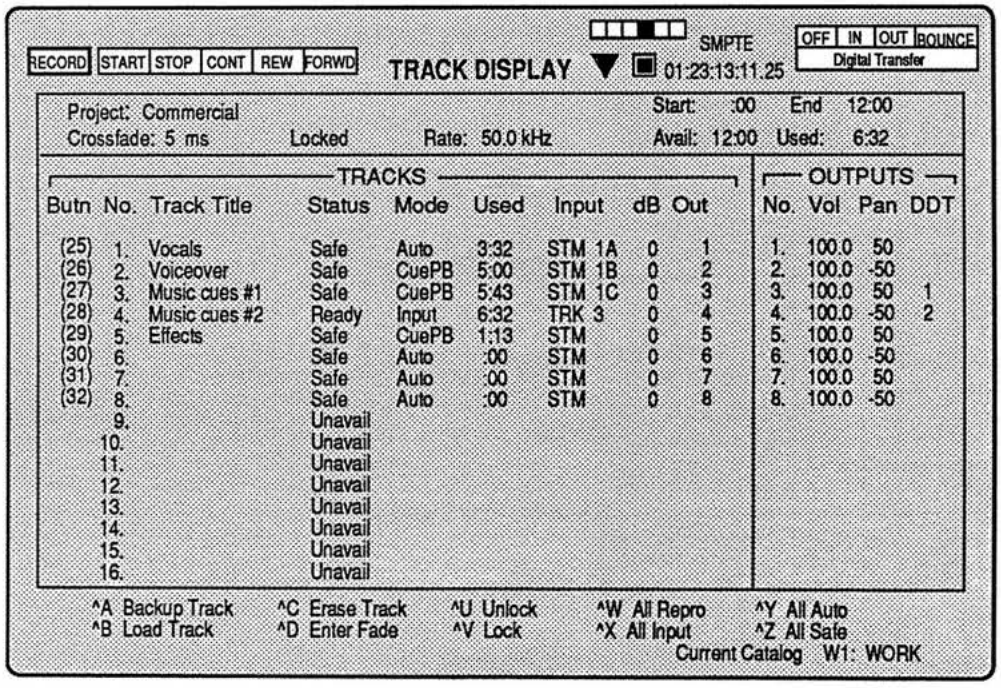
To activate a motion control button

- Click on the button.

  The button lights and the function is activated.

* When moving forward or backward at speeds greater than twice normal speed, the movement can be slowed by pressing the opposite button. For example, clicking REWIND while moving forward at 32 times normal speed causes the forward movement to drop to 8 times normal speed.

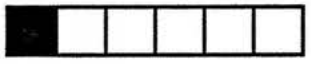
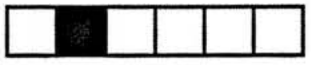
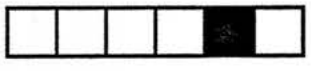
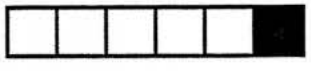
The Track Display



Choosing a time display

At the top middle of the Track Display is a time display which can show sequence time in six formats. You select these times using the horizontal row of boxes directly above the time display.

Each box selects a different time display.

Box	Time Displayed
	Seconds
	Beats
	Measures/Beats
	SMPTE
	Feet:Frames
	Minutes:Seconds

- Click one of the time display boxes.

  The box lights. The time format and the display label change.

Activating the mark point

To the left of the time display at the top of the Track Display are two buttons. The triangular button on the left is a Take button. It takes the time in the time display and stores it as the mark point.

- Click the Take button.

  The time displayed at the time of the click is stored as the mark point.

The button to the right of the Take button toggles the mark point off and on.

- Click on the box.

  The mark point is turned off and on. If the box is lighted, the mark point is on. If the box is unlighted, the mark point is off.

  When the mark point is turned on, the sequence plays from the mark point when you click START once or when you click STOP twice.

You cannot see your current mark point until you start the sequence and the mark point appears in the time display.

The Selection panel

The Selection panel now contains a set of Digital Transfer buttons similar to the Digital Transfer buttons in the Track Display.

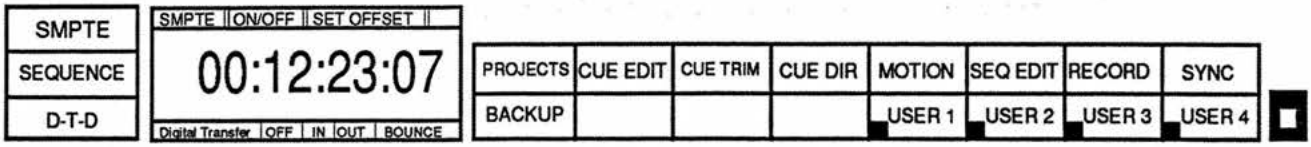
Digital Transfer buttons

There are four new buttons pertaining to digital transfer in the Selection panel.

Button	Use
OFF	Turn digital transfer off.
IN	Transfer digital audio from a Mitsubishi digital tape recorder onto the Direct-to-Disk
OUT	Transfer digital audio from the Direct-to-Disk to a Mitsubishi digital tape recorder.
BOUNCE	Bounce Direct-to-Disk tracks and cuelists to a Direct-to-Disk track.

(For more information, see the sections "Digital transfer" and "Bounce.")

The Selection panel



The Project Manager panel

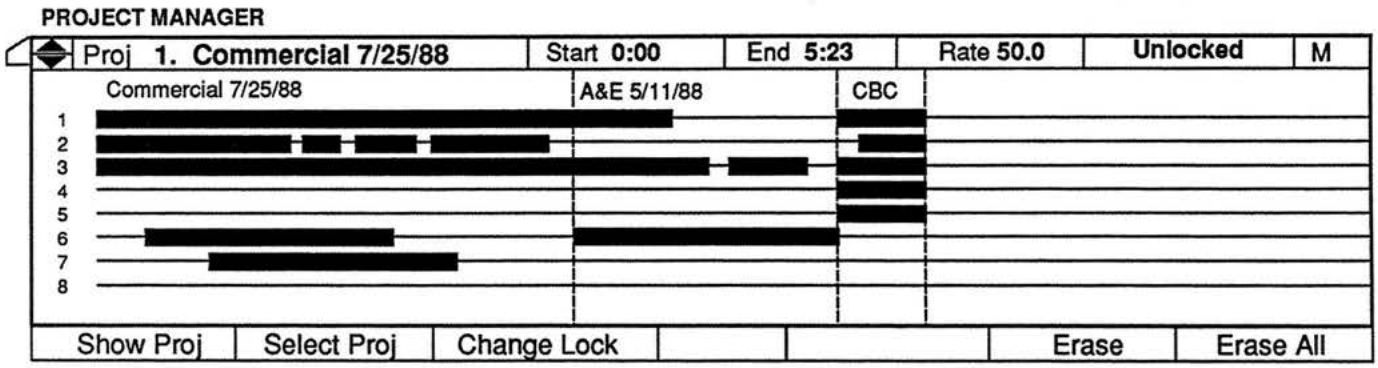
Several new features have been added to the Project Manager in the Show Project and the Show All mode. In the Show Project mode, the Project Manager now resembles the Track Display, and in many cases duplicates the layout and functionality of that display.

General enhancements to the Show All mode

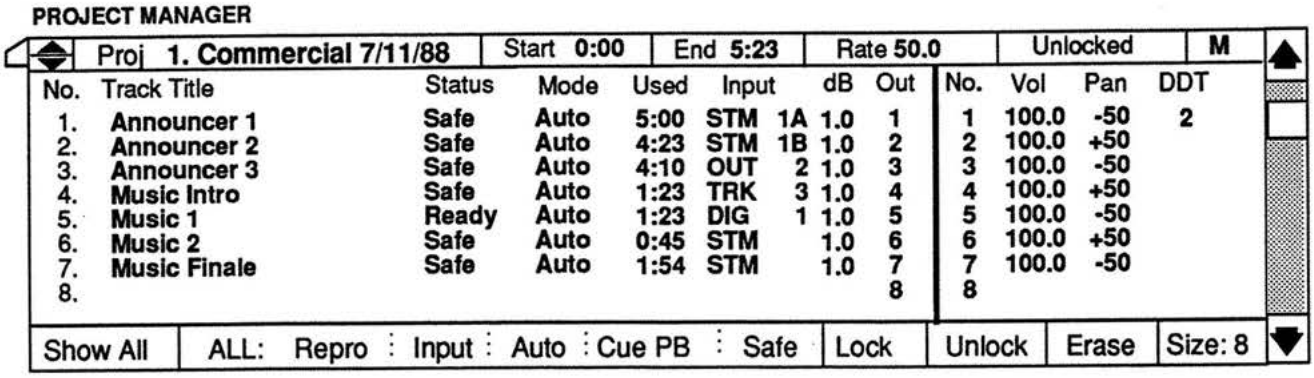
The Project Manager in the Show All mode displays all tracks and projects available to the system. Several enhancements have been made to the panel.

- The Mod button in the upper right corner of the display now appears as a single M.
- The command Erase Project at the bottom of the panel now appears as Erase. It erases the recorded material on all tracks of a selected project. It does not delete the project.
- The command Erase All at the bottom of the panel erases all recorded material on all projects. It does not delete the project the way the Erase All command on the Project Directory does.
- Scroll arrows for selecting and creating projects have been added at the top left of the panel. (See "Creating a new project.")

The Project Manager in Show All mode



The Project Manager in Show Project mode



Creating a new project

The creation of a new project in the Audio Event Editor has been simplified. It can now be done entirely from the Project Manager panel.

1. Select the Audio Event Editor from the Main Menu.

   The Selection panel appears on the screen.

2. Display the Project Manager panel.

3. Use the scroll arrows next to the Proj field to scroll to an empty project.

   OR

   Step the number in the Proj field to an empty project.

   The project and track parameters for the new project can now be entered.

General enhancements to the Show Project mode

The Project Manager in the Show Project mode displays all track information for the selected project. The display has been redesigned for greater functionality and several new features have been added. Many of these features are explained in greater detail elsewhere in the documentation.

- The panel is divided into two functional areas. The left two-thirds of the panel relates to track parameters. The right third of the panel pertains to the Direct-to-Disk outputs and digital transfer. (See "Output routing" and the sections "Digital transfer" and "Digital bounce.")

- The Gain column has been changed to **dB**. (See the section "Sample-to-Memory module.")

- The **Input** column now displays the input source, on the left, and the input channel, on the right. (See "Input routing.")

- The new **No.** column lists the Direct-to-Disk outputs in numeric order. (See "Output routing.")

- The new **DDT** column is used for digital transfer between the Direct-to-Disk and a Mitsubishi digital tape recorder on two channels. (See the section "Digital transfer.")

- The command Erase Track has been shortened to **Erase**. Its functionality has not changed.

- Double-clicking the **All** command automatically changes all tracks to the selected track Mode.

- A **Size** command has been added. It changes the number of tracks displayed by the Project Manager. Stepping the numeric column next to the command resizes the entire display.

The Cue Editor panel

The Audio Event Editor's Cue Editor panel has two new features. The shuttle bar can display a waveform representing the current cue for easier editing. The new SLIDE command lets you drag an edit segment to a new location in the cue.

Using the signal display

The **scan bar** (previously called the coarse bar) and the **scrub bar** (previously called the fine bar) are located below the shuttle bar of the Cue Editor panel. These bars operate the same as in the previous release. In addition, each bar now can display an optional **signal display**. This waveform represents the sound you are editing on the shuttle bar. In this mode you can visually locate and play a particular area of audio.

The scan signal display (the top bar) displays a waveform representing the entire shuttle bar. When you recall a different cue, the waveform is redrawn.

The scrub signal display (the bottom bar) can display 0.5, 2.0 or 5.0 seconds of the shuttle bar, centered on the anchor box in the scan bar. Each time you move the anchor box in the scan bar, the scrub signal is redrawn. The number of seconds displayed is selected at the left of the scrub signal display.

- Click the scan bar SHOW WAVE button.

  The button lights. The signal display for the entire shuttle bar is displayed. The following message appears.

  Calculating wave . . .

- Click the scrub bar SHOW WAVE button.

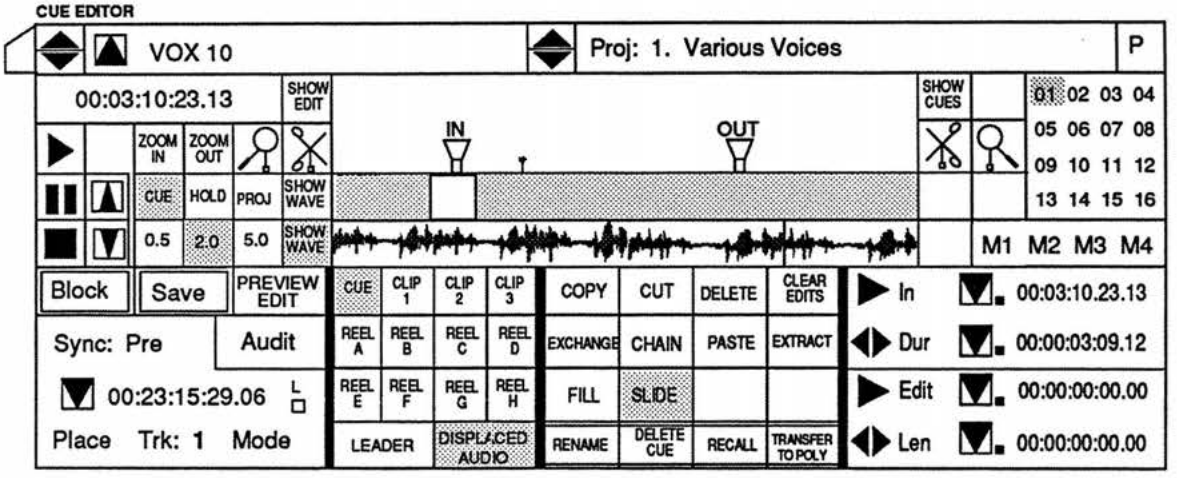
  The button lights. The signal displayed represents an area of audio around the anchor box in the scan bar. The selected number of seconds displayed is centered on this anchor box. The following message appears.

  Calculating wave . . .

- To turn off the signal display, click either lighted SHOW WAVE button.

  The button unlights, and the cross-hatched bar returns with no signal display.

The Cue Editor panel



SLIDE—Dragging edit segments

You can drag an edit segment, the area between the edit points, to a different location in the cue. For example, two words can be nudged together in a dialog edit. The same two words could be slid to a different location in the cue and inserted, without erasing any audio.

Sliding is similar to cutting and pasting. The difference is that when you slide an edit segment, the duration of the cue and its synchronization remain unchanged.

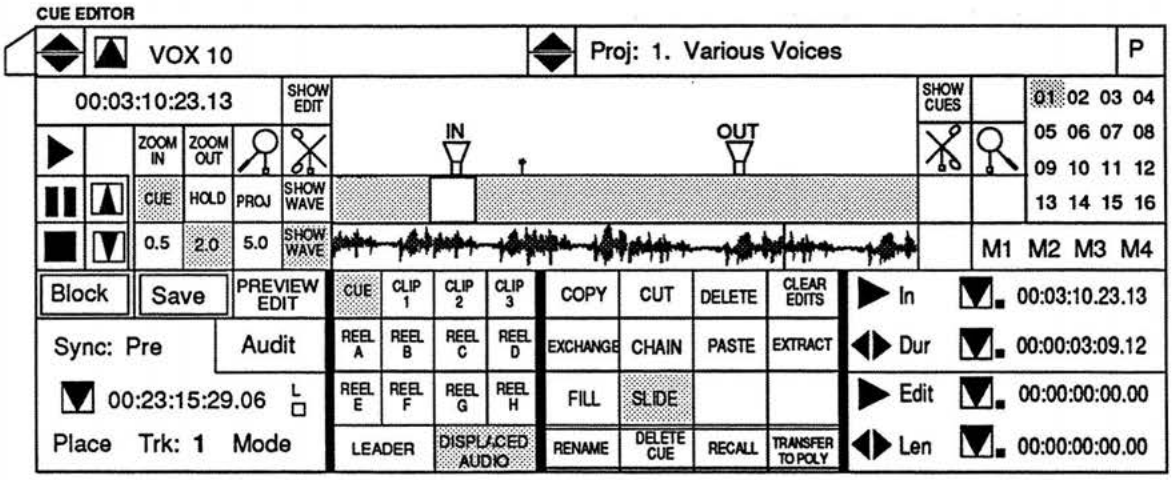
The SLIDE command, located below the signal display of the Cue Editor panel, is used to drag the edit segment.

There are two ways you can slide an edit segment.

Displace Cuts an edit segment from its present location and drags it to a new location where it is pasted in. No audio is erased or replaced.

Fill Drags an edit segment to a new location and replaces the gap left behind with LEADER or the contents of a CLIP or REEL button. The duration of the cue does not change. This is the default SLIDE mode.

The Cue Editor panel



SLIDE—Displacing an edit segment

When you choose to slide an edit segment using the displace mode, no audio is erased. It is only moved. This is similar to a cut and paste function.

1. Select an edit segment on the shuttle bar.

2. Click the SLIDE command.

   When you select the SLIDE command, the duration of the cue is automatically frozen while you are sliding. The buttons **DISPLACED AUDIO** and **PREVIEW SLIDE** appear next to the LEADER button.

   The following message appears.

   Click again to SLIDE, and paste with CLIPBOARD 1. [CANCEL]

3. Click the DISPLACED AUDIO button.

   The button lights. The following message appears.

   Click again to SLIDE, and paste DISPLACED AUDIO. [CANCEL]

4. Drag the edit segment by one of its edit points or boxes to the desired location.

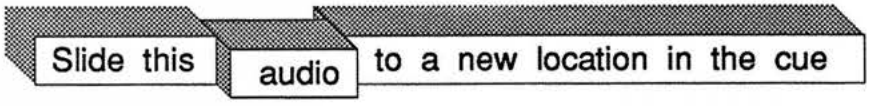
   The cue plays in the scrub mode as you drag.

5. When you are satisfied with the edit, click the SLIDE command again.

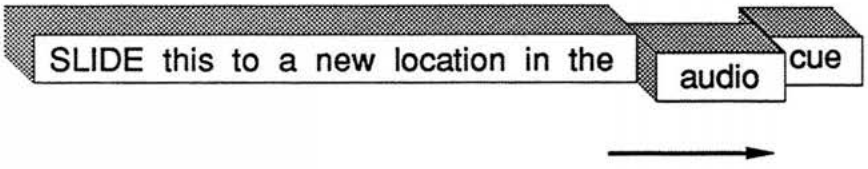
   The edit segment is cut from its former location and pasted in at its new location. No audio is deleted. The duration of the cue does not change.

Displacing an edit segment

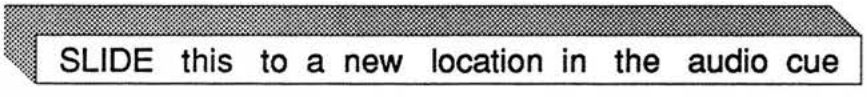
1. Designate an edit segment.



2. SLIDE the edit segment.



3. RESULT: Edited Cue. Cue duration remains unchanged.



SLIDE—Filling an edit

When you slide using the default SLIDE mode, you can fill the gap left behind, after moving the edit segment, with audio from a CLIP or REEL button. In this way, you can slide over words you want to delete, and then fill the gap left behind with room tone or other audio.

1. Select an edit segment on the shuttle bar.

2. Click the SLIDE command.

   When you select the SLIDE command, the duration of the cue is automatically frozen while you are sliding.

   The following message appears.

   Click again to SLIDE, and fill gap with CLIPBOARD 1 [CANCEL]

3. Drag the edit segment by one of its edit points or boxes to the desired location.

   The cue plays in the scrub mode as you drag.

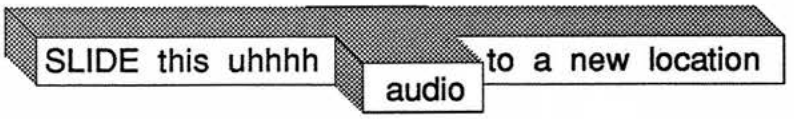
4. If you want to fill the gap left behind with something other than the contents of CLIP 1, click on the desired CLIP or REEL button or the LEADER button.

   A message appears confirming your selection.

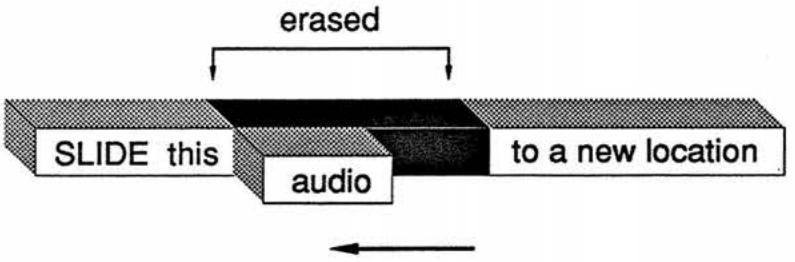
5. When you are satisfied with the edit, click the SLIDE command again.

   The audio which the edit segment slid over is erased. The edit segment is placed at the new location and the gap left behind it is filled with the contents of the selected storage button.

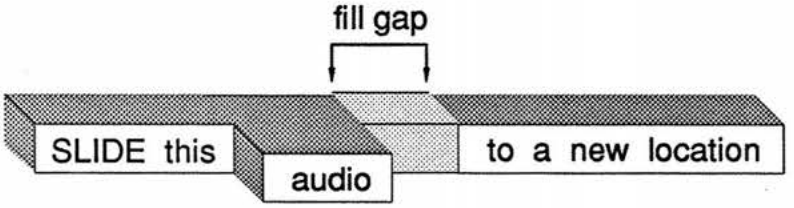
1. Designate an edit segment.



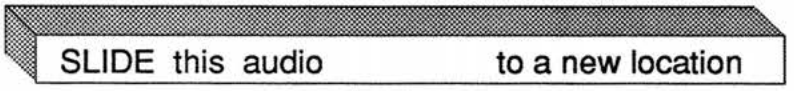
2. SLIDE edit.



3. Fill gap left behind with audio from CLIP 1 or other source.



4. RESULT: Edited cue. Cue duration remains unchanged.



Previewing an edit

You can preview a SLIDE edit before making the actual edit.

1. Select an edit segment on the shuttle bar.

2. Click the SLIDE command.

   The PREVIEW SLIDE command appears to the left of the shuttle bar. The following dialog appears.

3. Drag the edit segment to the desired location.

4. Click the PREVIEW EDIT button to the left of the shuttle bar.

   Edit flags appear at the potential edit points and the cue plays in its edited form. You cannot move the edit points. You can play the cue by clicking in the shuttle bar or by using the scrub and scan boxes below the shuttle bar.

5. If you want to perform additonal edits before completing the SLIDE, click the PREVIEW EDIT button again to turn off the preview function.

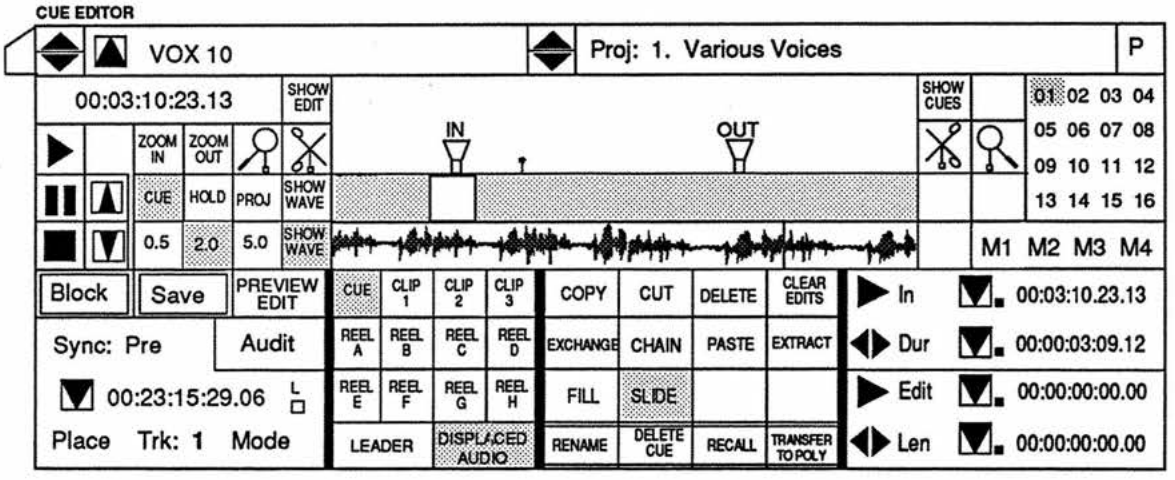
   The edit flags disappear, and the cue can be further edited.

6. Repeat Steps 3–5 until you are satisfied with the edit.

7. Click the SLIDE command again.

   The edit is performed.

The Cue Editor panel



Editing and playing cues from the terminal keyboard

Function keys on the terminal keyboard can now be used to automatically select cue and edit times, and to play any portion of a cue. All terminal keyboard commands are given in relation to the new terminal. Old terminal equivalents are given in parentheses.

Locking to a time

Depressing one of the function keys F5–F8 (PF20–PF23) on the terminal keyboard automatically selects, or **locks**, onto a cue or edit time. (See the table on the opposite page.) Thus, you do not need to click on the actual time or icon to select it.

- Press one of the F5–F8 (PF20–PF23) keys.

  The associated time field in the lower right corner of the Cue Editor panel highlights. The shuttle bar lights, with the associated icon highlighted. A message at the bottom of the panel confirms your locked status. The cursor is temporarily disabled.

  You can enter a new time, if desired, or press another F5–F8 (PF20–PF23) key to move to a different time field.

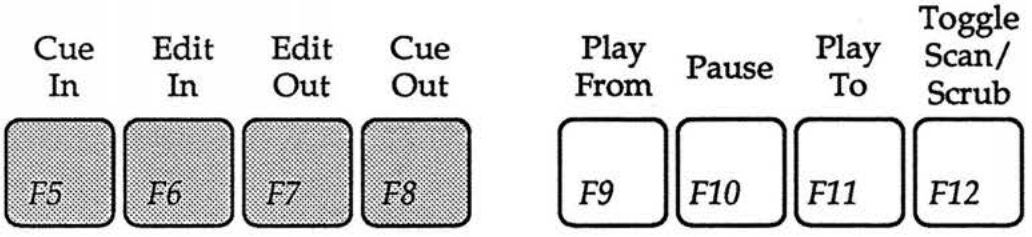
When locked to a cue or edit time, you temporarily do not have access to the other operations on the Cue Editor panel.

You can toggle the locked status off and on by pressing the currently selected key again.

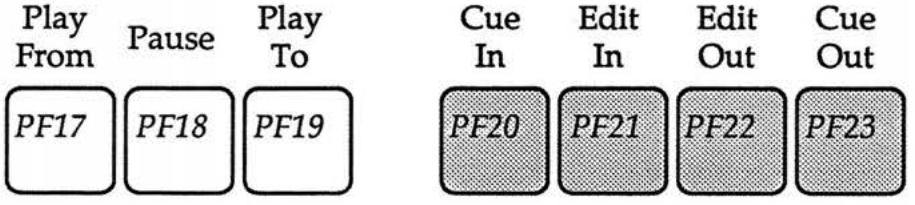
- Press the currently selected function key again.

  The shuttle bar unlights. The cursor returns to normal operation. You have access to all functions on the Cue Editor panel.

NEW TERMINAL



OLD TERMINAL



Selecting a cue or edit icon

When locked to a cue or edit time, you can select the icon on the shuttle bar without having to click on the icon.

You use the large or small button on the trackball to automatically select the highlighted icon on the shuttle bar. (For more information on using the trackball buttons, see the sections "Starting the System" and "Using the trackball in the RTP system.")

If you are operating an old terminal, the middle mouse button can be used to select an icon on the shuttle bar.

1. Press one of the F5–F8 (PF20–PF23) keys to lock to a time.

   The shuttle bar and cue or edit time field light. A message appears confirming your locked status.

2. Press the large or small trackball button (middle mouse button) to select the cue or edit icon.

   The trackball (mouse) selects the highlighted shuttle icon, just as if you had clicked on it.

3. Drag the trackball (mouse).

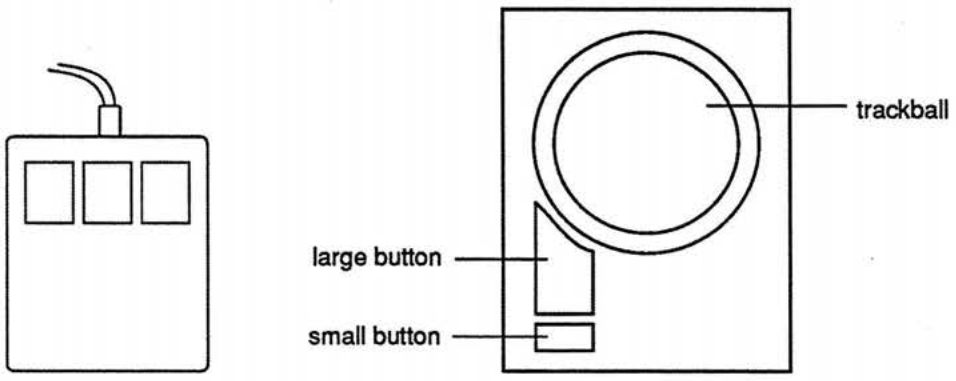
   The icon moves with the trackball (mouse) and plays in either scrub or scan mode.

3. Release the trackball (mouse) button.

   The time field is updated. The icon is released.

There is one exception to the above example. If you select an edit icon that is "parked," when you drag it onto the shuttle bar it first plays in scan mode. This enables you to quickly move the edit icon to the desired location.

Selecting a cue or edit icon



Mouse **Trackball**

Keyboard Button Equivalents

New	Old	Time Field	Shuttle Bar Icon
F5	*PF20*	Cue In	IN
F6	*PF21*	Edit In	
F7	*PF22*	Edit Out	
F8	*PF23*	Cue Out	OUT

Toggling between scan and scrub mode

You can toggle between the scan or scrub mode using the F12 key. (If you have an old terminal, you can toggle between scan and scrub using the left and right mouse buttons.)

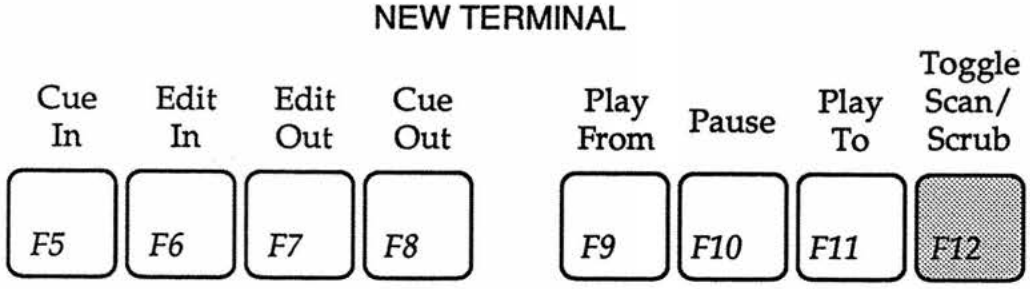
1. Select a cue or edit icon with the trackball.

2. Press F12.

   The play mode is toggled between scan and scrub each time you press F12.

You can toggle any of the cue or edit icons to play in scan or scrub mode using the trackball with the F12 key. The icon remains in that mode until you change it.

Toggling between scan and scrub



Playing the cue

You can use the function keys F9–F11 (PF17–PF19) to play the cue. (See the opposite page for keyboard equivalents.)

Any selected cue or edit time can be played using these function buttons.

Button	Function
Play From	Plays from the selected time.
Play To	Plays to the selected time, starting two seconds before.
Pause	Stops playback. Continues playback.

To play from a time

1. Select the time you want to play from.
2. Press the Play From key F9 (PF17).

   The cue plays from the selected time.

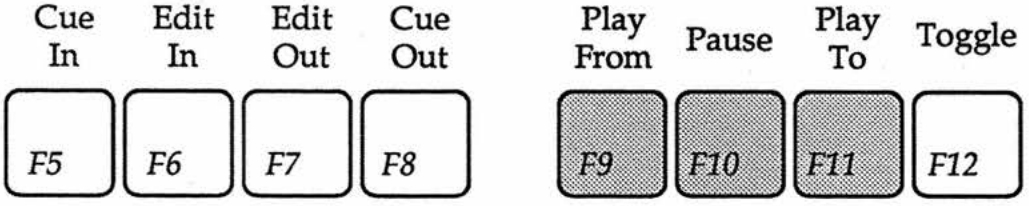
To play to a time

1. Select the time you want to play to.
2. Press the Play To key F11 (PF19).

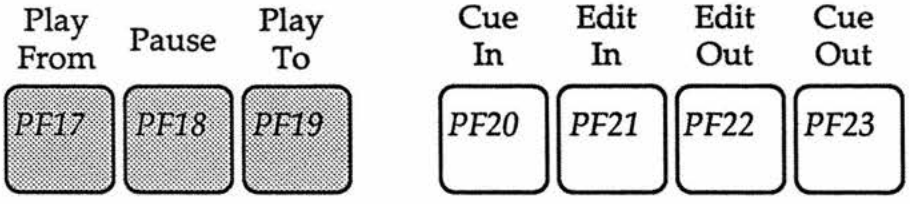
   The cue plays to the selected time, starting two seconds before.

Playing a cue or edit

NEW TERMINAL



OLD TERMINAL



Using the Pause key

You can use the Pause key F10 (PF18) at any time to stop or continue cue playback while locked to a time.

1. Select a cue or edit time.
2. Press F9 or F11 (PF17 or PF19).

   The cue plays.

2. Press F10 (PF18).

   The cue stops playing.

3. Press F10 (PF18) again.

   The cue continues playing from the point at which it was stopped.

You can toggle the Pause key back and forth, stopping and continuing as the cue plays.

If you are dragging the icon when you press the Pause key, you can only stop playback; you cannot use the continue part of its function.

Listening to an edit

You can use the Play From and Play To keys while moving the icon. Thus, you can easily listen to your edits while you are making them.

1. Select a cue or edit icon.

2. Move the trackball (mouse).

   The cue plays in your current playback mode as you move the trackball (mouse).

4. Press F9 (PF17).

   The cue plays from the current icon position.

5. Press F11 (PF19).

   The cue plays up to the icon position, starting a few seconds before.

In this way, you can listen to the edit as you move the icon, without having to release the trackball (mouse) button.

Using the arrow keys to nudge times

The arrow keys on your terminal keyboard can be used to nudge the cue and edit icons. You use the up and down arrow keys to nudge plus or minus ten pixels. You use the right and left arrow keys to nudge plus or minus one pixel.*

1. Select a cue or edit icon.

2. With the button down, or locked, press one of the arrow keys to nudge the icon.

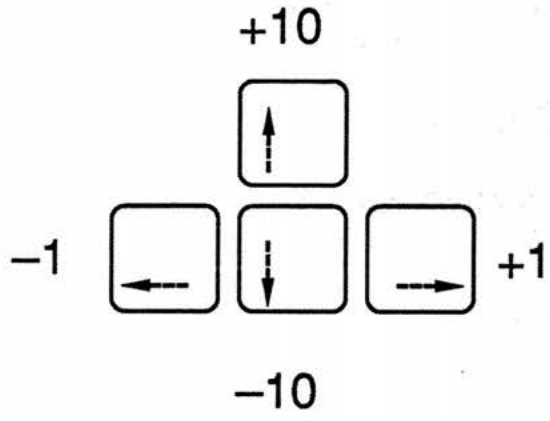
   The icon moves the specified number of pixels. You can use any of the keys F9–F11 (PF17–19) to play the cue.

4. Release the icon.

   The cue or edit time field is updated.

* The amount of time that a pixel equals varies with the shuttle bar resolution and cue length. A single pixel is approximately equal to less than a frame. Ten pixels are approximately equal to a frame. This feature is currently under development; the use of a pixel for measurement is temporary.

Using the arrow keys to nudge an icon



Remote control units

There are two new remote control units available for the Direct-to-Disk and Synclavier. The Portable Motion Control Unit is a five-button box with motion controls. The Custom Console Control includes hardware for connecting switch inputs to your console.

The Portable Motion Control Unit

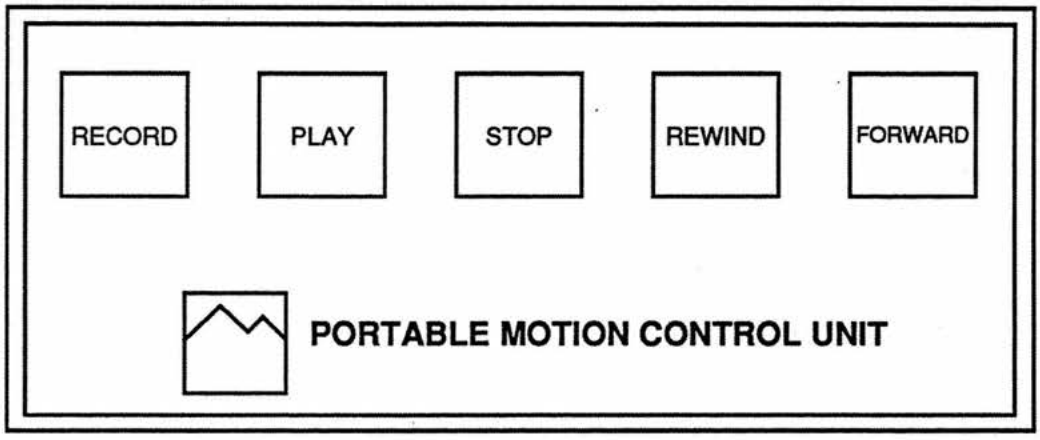
The Portable Motion Control Unit is a small box with five buttons—RECORD, PLAY, STOP, REWIND and FORWARD. You use these to remotely record on Direct-to-Disk tracks and to play back a sequence that contains cues, MIDI information or Synclavier timbres. Their functions are described in more detail below.

PLAY	Begins playback of the sequence at the current location. Acts as a continue button.
STOP	Stops sequence playback and Direct-to-Disk recording.
RECORD	Begins recording at the current Direct-to-Disk track location.
REWIND	Press once to rewind the sequence in twice normal speed; press twice for eight times normal speed; press three times for 32 times normal speed.*
FORWARD	Press once to fast forward the sequence in twice normal speed; press twice for eight times normal speed; press three times for 32 times normal speed.*

Refer to *The Portable Motion Control Unit Installation Manual* for separate installation instructions.

* When moving forward or backward at speeds greater than twice normal speed, the movement can be slowed by pressing the opposite button. For example, pressing REWIND while moving forward at 32 times normal speed causes the forward movement to drop to 8 times normal speed.

The Portable Motion Control Unit



Operating the Portable Motion Control Unit

The Portable Motion Control Unit works when the Track Display or the Audio Event Editor is active.

- Select the Track Display from the Main Menu.

  The Track Display opens on the screen. All of the PMCU controls are active, except RECORD. The record function is only active when a sequence is activated.

- Select the Audio Event Editor from the Main Menu.

  The Audio Event Editor's Selection panel opens on the screen. All of the PMCU controls are active, except for RECORD. The record function is only active when the Record Control panel is active and the READY button has been clicked.

The Custom Console Control

The Custom Console Control allows you input/output access to the Direct-to-Disk from a film-style recorder panel. The switch inputs are grouped as follows.

- 8 track INPUT/AUTO mode switches
- 8 track SAFE/READY status switches
- 8 RECORD IN switches
- 8 RECORD OUT (STOP) switches
- 8 motion control switches:
  MASTER RECORD, MASTER RECORD OUT (MASTER STOP), MASTER INPUT, MASTER AUTO, PLAY, STOP, REWIND and FAST FORWARD.

Refer to The Custom Console Control Installation Manual for separate installation instructions.

Operating the Custom Console Control

The Custom Console Control works when the Track Display or the Audio Event Editor is active.

- Select the Track Display from the Main Menu.

  The Track Display opens on the screen. All motion controls are active, except for RECORD. The record function is only active when a sequence is activated.

- Select the Audio Event Editor from the Main Menu.

  The Audio Event Editor's Selection panel opens on the screen. All functions are active, except for RECORD. The record function is only active when the Record Control panel is active and the READY button has been clicked.

The Custom Console Control operates the same regardless of whether you are using the Track Display or the Audio Event Editor, except for the exceptions explained above.

The INPUT switch toggles the track mode between INPUT and AUTO. The ARM switch toggles the track status between SAFE and READY. The screen display changes as you toggle between selections.

The basic motion control functions (MASTER INPUT, MASTER OUTPUT, PLAY, STOP, REWIND and FAST FORWARD) operate in a straightforward manner. The individual record buttons as well as the MASTER RECORD and MASTER RECORD OUT (MASTER STOP) buttons only function when a sequence is activated. The PLAY button functions as continue, causing the system to start playing forward from its current position.

A locate feature can be activated.

1. Press and hold the STOP button.

2. Press the PLAY button.

   The system locates to either the start of the track or the currently selected mark start position.

The 64–voice poly system

Introduction

With a 64-voice poly system, you can record sequences that have 64 voices sounding simultaneously. If you also have 32 FM voices, you can record sequences with up to 96 voices.

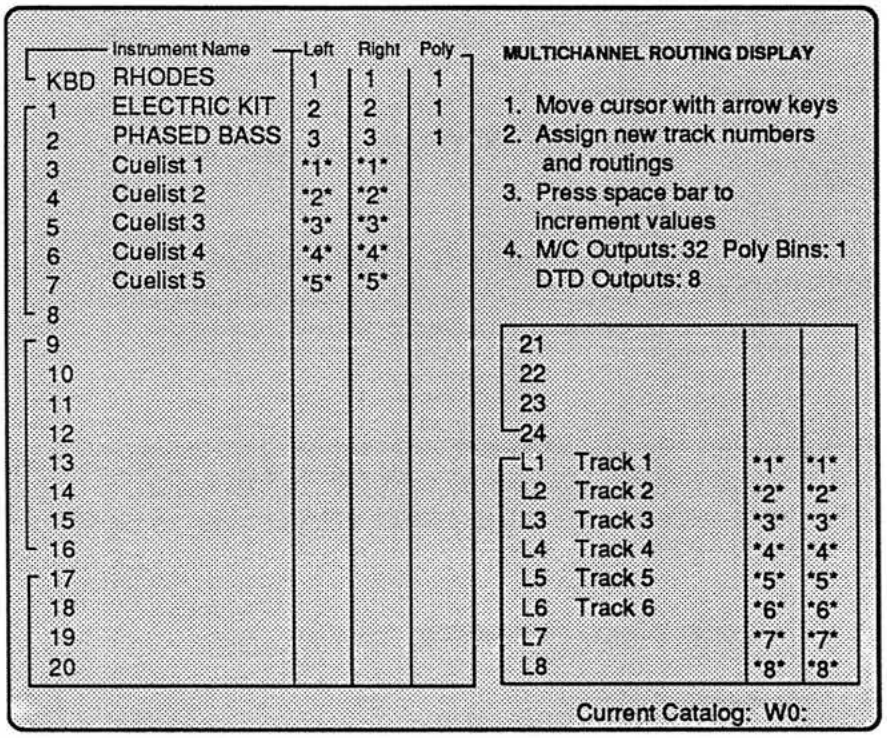
64 poly voices

The 64 voices in a 64-voice poly system are stored in two separate poly bins. Each bin can hold up to 32 poly voices. A sound file can be loaded into one bin or the other, but not both.

Each of the two poly bins has a pair of composite outputs. There is no composite output for all 96 voices. Multichannel outputs are assigned from the Multichannel Display.

In the upper right corner of the Multichannel Display, the instructions list the number of poly bins in your system. The Poly column shows the number of the poly bin assigned to the keyboard and track timbres listed.

The Multichannel Display



Sound file loading

When you recall a timbre, all of the sound files associated with it are loaded into the poly bin assigned to the keyboard. When you recall a sequence, all of the sound files associated with each track timbre are loaded into the poly bin assigned to each track. (Assigning timbres to poly bins is discussed in the section "Assigning poly bins.")

As sound files associated with the keyboard timbre or a track timbre are loaded into their assigned poly bins, previously loaded sound files not part of the current sequence or the keyboard timbre are deleted from poly memory as more room is required.

If previously loaded sound files are deleted and the memory in the assigned poly bin is still insufficient for a given timbre, the sound file is loaded into the other poly bin. The assigned poly bin number remains the same, even if the sound file was forced into the other poly bin.

If there is no room in either poly bin, an error message appears.

Out of Room in Sample Memory

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

Recalling timbres

If the first timbre you recall to the keyboard is assigned to Poly Bin 1, its sound files are loaded into Poly Bin 1. If you then recall another timbre to the keyboard that is assigned to Poly Bin 2 and the sound files associated with it are the same as the sound files from the first timbre, the sound files remain in Poly Bin 1 unless you delete them from poly memory before recalling the second timbre.

Similarly, if you recall a sequence that has the same timbre recorded on two tracks and the tracks are assigned to different poly bins, the sound files associated with the timbre are loaded into one bin only—the bin assigned to the lowest numbered track.

If a sound file associated with a timbre has already been loaded into one poly bin, loading a second timbre that uses the same sound file but assigned to the other poly bin does not affect the location of the sound file. It remains in its current bin and does not move to the new bin assignment.

Viewing sound file poly bin assignments

You can see the current bin location of a sound file from the Sound File Directory.

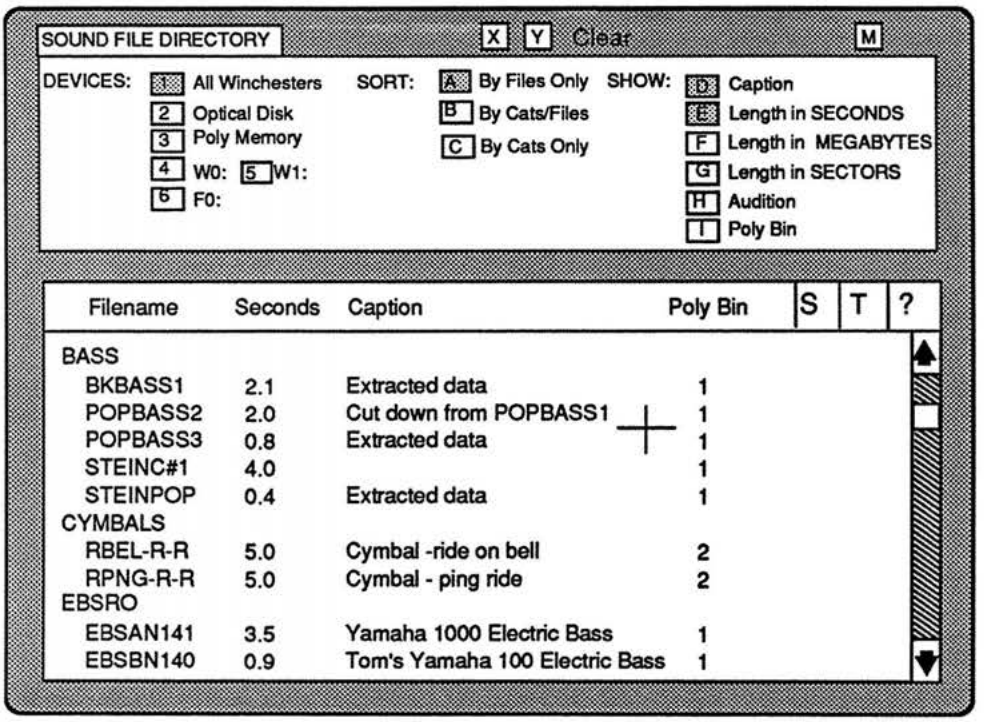
1. Select the Sound File Directory.

2. Select the Poly Memory Display.

3. Under the Show option, select Poly Bin, or type H.

   The sound files in the Directory are shown, each with its poly bin number following it. (The Poly Bin option may be selected in combination with other options.)

The Sound File Directory



Making sure sound files are recalled to the assigned poly bins

To avoid having the sound files of any timbre in the wrong poly bin, you should erase all currently loaded files from poly memory before recalling the timbre or sequence.

1. Recall the Extra System Commands screen from the Main Menu.
2. Select the Erase All Sound Files from Poly Memory command.

   All sound files are erased from poly memory. When you recall a sequence, the sound files for each track timbre are loaded into their assigned poly bins.

You can also delete individual sound files from either poly bin.

1. Select the Sound File Directory.
2. Select the sound file.

   The sound file is highlighted.

3. Select the Sound File Editor.

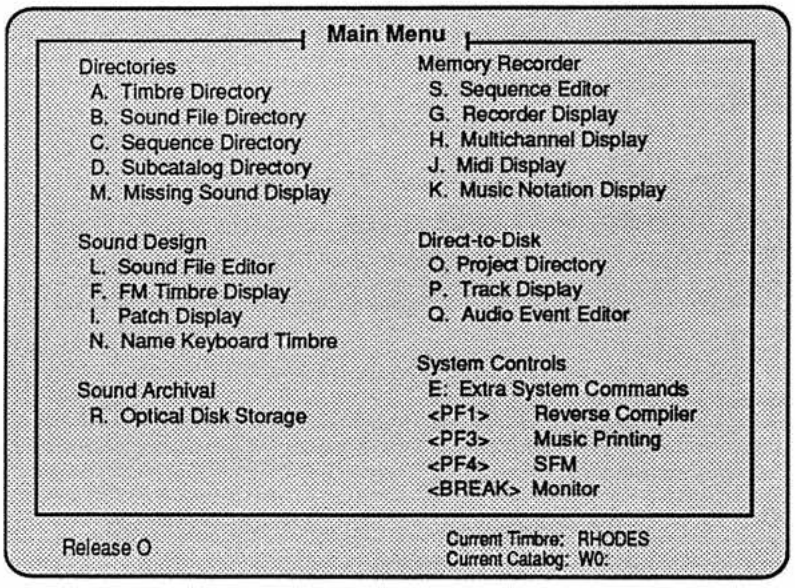
   The Sound File Editor appears on the screen displaying the selected sound file.

4. Select Store/Recall menu.
5. Select the Unsave command.

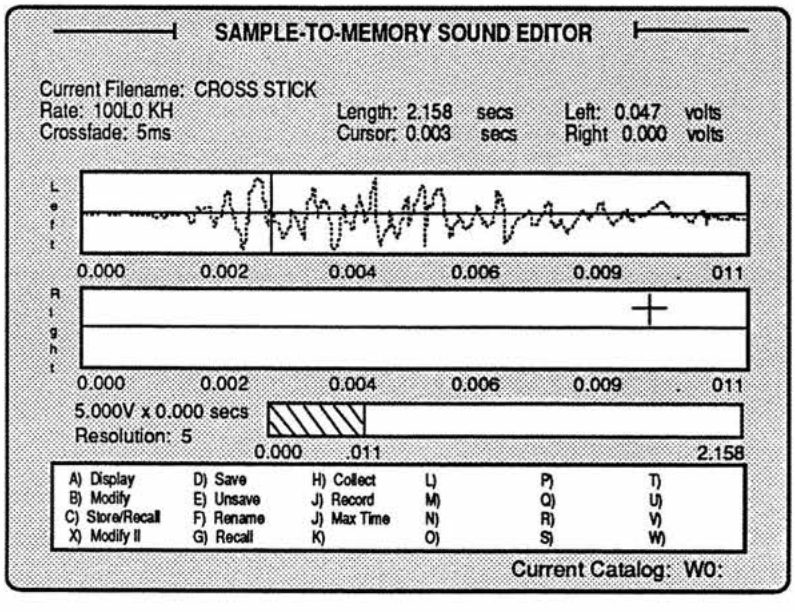
   The sound file is deleted.

> WARNING: Be sure all wanted sound files are backed up before using the Erase All Sound Files from Poly Memory command.

The Main Menu



The Sound File Editor



Assigning poly bins

You can assign a keyboard or track timbre to a poly bin before or after recording.

Making poly bin assignments

When you record a sequence, the poly bin assigned to the keyboard timbre becomes the poly bin assigned for the recorded track. Thus, before recalling a timbre to the keyboard to record a track, you should use the Multichannel Display or the TRACK ROUTING button to assign the sound files of the keyboard timbre to the desired poly bin.

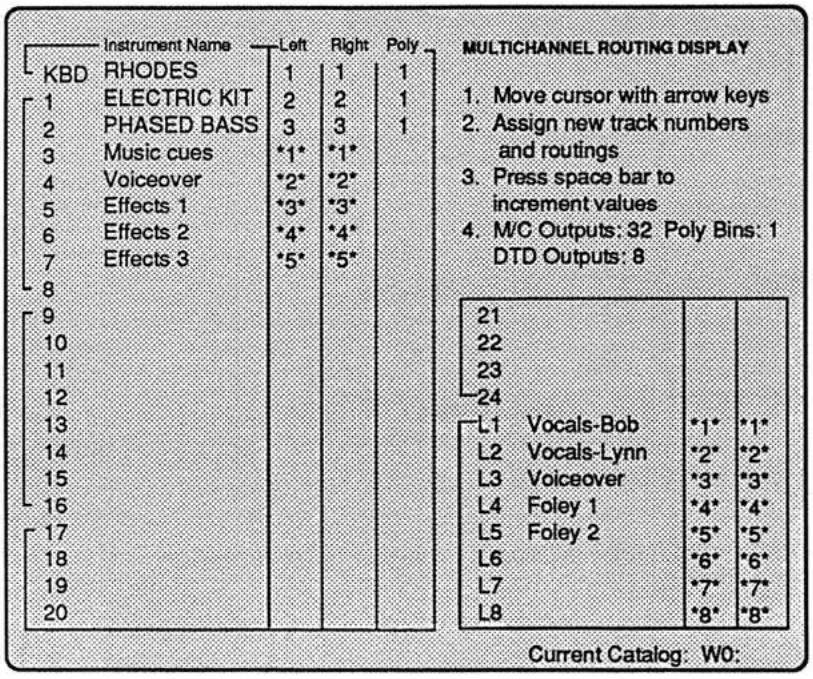
When you bounce notes from one track to another, the poly bin assignment is also bounced.

If you record a sequence with the keyboard timbre in its default assignment, you can change the poly bin assignments for the recorded tracks after the sequence is recorded. You can also change poly bin assignments for sequences recorded with systems with only one poly bin, which have all tracks assigned to Poly Bin 1.

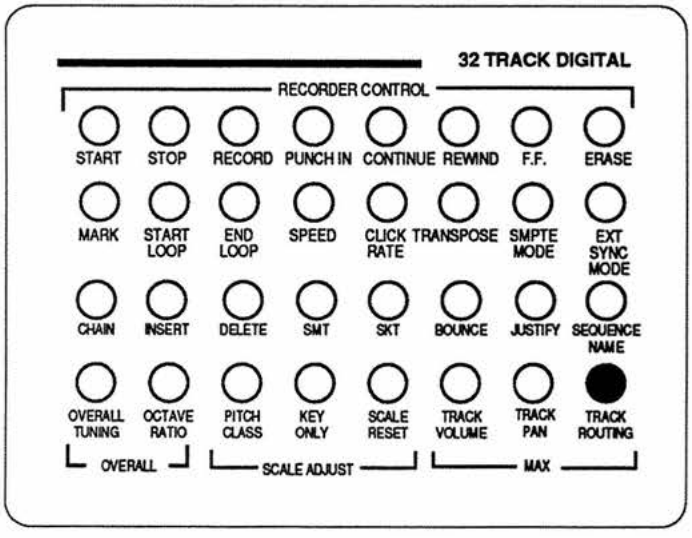
When you store the sequence, the poly bin assignment for each track is stored with the sequence. If you do not assign a poly bin to a track, it is automatically assigned to Poly Bin 1.

Note: To actually move the sound files from one bin to the other, you must erase the sequence, erase the sound files from poly memory and recall the sequence again.

The Multichannel Display



Panel 2
Track routing button



Assigning the keyboard timbre to a poly bin

You can use either the Multichannel Display or the TRACK ROUTING button to make poly bin assignments for the keyboard timbre.

To make the poly bin assignments from the Multichannel Display:

1. Select the Multichannel Display.
2. Type "1" or "2" in the Poly column for the keyboard.

To make poly bin assignments using the TRACK ROUTING button:

1. Press and hold the TRACK ROUTING button.

   The button lights. The first and second numbered buttons under TIMBRE/SEQUENCE STORAGE blink.

2. Press any key on the keyboard.

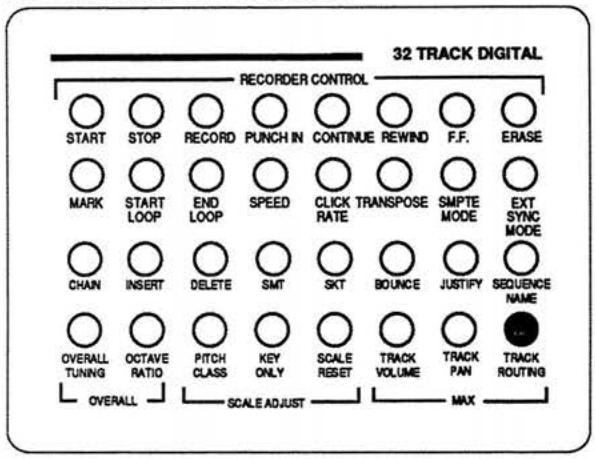
   The first and second numbered buttons under TIMBRE/SEQUENCE STORAGE continue to blink.

3. Press the numbered button corresponding to the bin to which you want the keyboard timbre assigned.

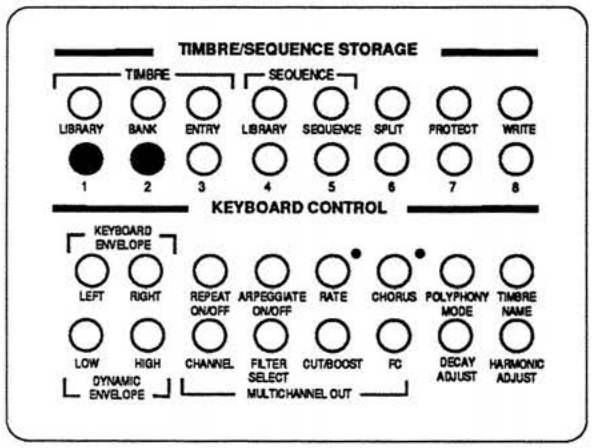
   The selected bin appears on the second line of the keyboard display window.

The assignments do not affect the current keyboard timbre. Any timbre recalled to the keyboard after you make the assignments are loaded into the assigned bins.

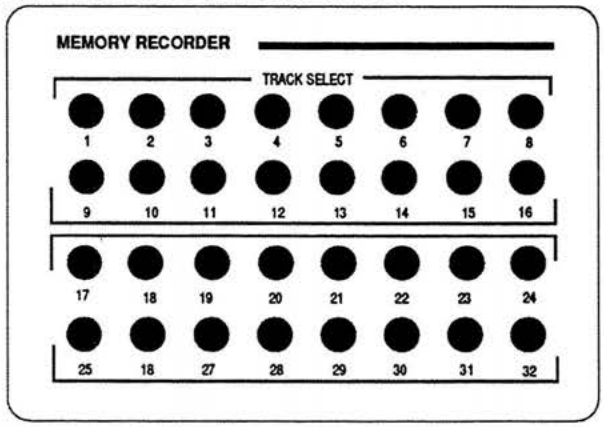
Panel 2
TRACK ROUTING button



Panel 4
Buttons 1 and 2



Panel 3
The TRACK SELECT buttons



Assigning a track timbre to a poly bin from the keyboard control panel

You can also use the TRACK ROUTING button on the Synclavier keyboard control panel to assign a poly bin to each track timbre of the current sequence.

1. Recall the sequence to the Memory Recorder.

2. Press and hold the TRACK ROUTING button on the keyboard control panel.

   The button lights. The first and second numbered buttons under TIMBRE/SEQUENCE STORAGE blink.

3. Press the TRACK SELECT button corresponding to the track you want to assign.

   The TRACK SELECT button lights. The first and second numbered buttons under TIMBRE/SEQUENCE STORAGE continue to blink.

4. Press the numbered button corresponding to the bin to which you want the track timbre assigned.

   The selected poly bin appears on the second line of the keyboard display window.

   Poly Bin: 1

Whenever the sequence is recalled to the Memory Recorder, the sound files associated with each track timbre are loaded into the assigned bin.

Assigning a track timbre to a poly bin from the Multichannel Display

You use the Multichannel Display to assign each track timbre of the current sequence to a poly bin.

1. Recall the sequence to the Memory Recorder.

2. Select the Multichannel Display.

3. Type "1" or "2" in the Poly column for each track.

   These are the selected poly bin assignments. The sound files are not actually recalled to these poly bins until the sequence is stored and recalled again.

4. Store the sequence using the Sequence store and recall buttons on the keyboard control panel.

   The poly bin assignments to the sound files of each track timbre are stored with the sequence. If you do not assign a poly bin to a track, Poly Bin 1 is automatically assigned.

Whenever the sequence is recalled to the Memory Recorder, the sound files associated with each track timbre are loaded into the assigned bin.

Sampling

You can sample directly in Poly Bin 1.

Recording a sample

All samples are recorded directly into Poly Bin 1. You cannot record into Poly Bin 2. If there is not enough room in Poly Bin 1 to record the sample, you can move existing sound files from Poly Bin 1 to Poly Bin 2.

1. Select the Store/Recall menu on the Sound File Editor.
2. Select the Record command from the Store/Recall menu.

   The following message appears.

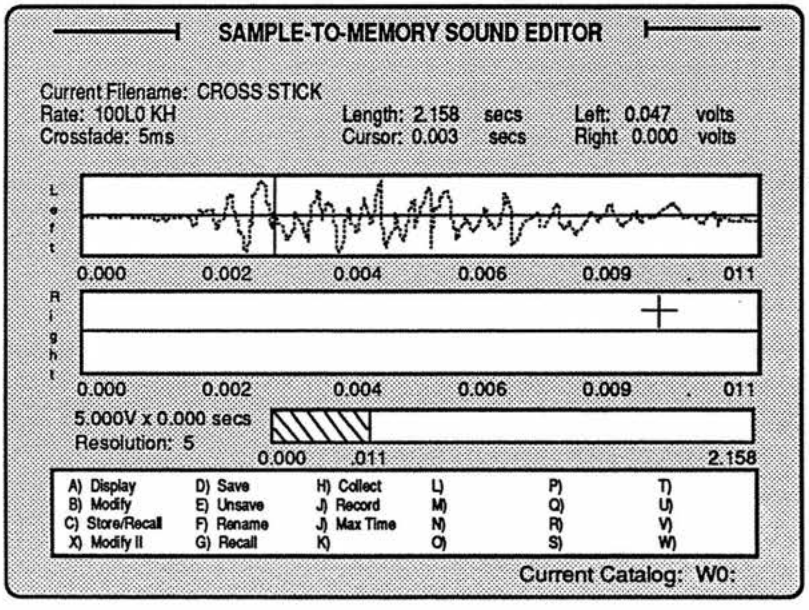
   Time available is [number] seconds.

3. If the time available for recording is insufficient, select the Max Time command.

   As many sound files as will fit into Poly Bin 2 are moved from Poly Bin 1.

4. Select the Record command and record your sound file.

   The sound file is recorded into Poly Bin 1 and remains there until it is erased from poly memory.


SAMPLE-TO-MEMORY SOUND EDITOR
Current Filename: CROSS STICK
Rate: 100L0 KH
Crossfade: 5ms
Length: 2.158 secs
Cursor: 0.003 secs
Left: 0.047 volts
Right 0.000 volts
Left
0.000 0.002 0.004 0.006 0.009 011
Right
0.000 0.002 0.004 0.006 0.009 011
5.000V x 0.000 secs
Resolution: 5
0.000 .011 2.158
A) Display
B) Modify
C) Store/Recall
X) Modify II
D) Save
E) Unsave
F) Rename
G) Recall
H) Collect
J) Record
J) Max Time
K)
L)
M)
N)
O)
P)
Q)
R)
S)
T)
U)
V)
W)
Current Catalog: W0:

ADDENDUM
TO THE
MUSIC PRINTING OPTION REFERENCE MANUAL

Revision F.4

Introduction

About this addendum

This document describes the changes, new features, and special considerations which pertain to revisions up to and including F.4 of the Music Printing software. While the conceptual differences between Rev D.3 and F.4 are few, there are a number of new features which greatly increase the power of the editor and the quality of the final printed page.

This addendum is designed to be used with the **Music Printing Option Reference Manual, Revision D.3**. If you do not have this document, call or write New England Digital and we will supply one.

Revision F.4 of Music Printing supports the Macintosh II as a high performance terminal.

Music Printing can now print music at any output resolution. This means that a number of different output devices can be used, and that the quality can vary from letter quality on a laser printer (300 dots per inch) to engraving quality on a laser typesetter (1300 to 2600 dpi). The software also prints at any page size and will scale the music by any reduction or enlargement factor. Text may be added in a proportionally spaced, publishing quality typeface, in any of four styles.

In addition to these major improvements, there have been many new commands and enhancements that make the system more effective and easier to use.

Installation of Software

Your new Music Printing Revision F.4 software comes on one disk. This disk contains the Music Printing system files and four utility files. The system files should be installed on your Winchester disk using the Installation program. This is normally done as you install the other software. For users with floppy based systems, the software is on the Music Printing Real-Time System disk.

The four utility files, located on the top-level of W0:, assist in the use of your Music Printing software and your printer.

LASERCOM is a Laser Communications program which allows you to talk to the laser printer and to send PostScript page descriptions to it for printing. The use of this program is described fully in the "The Laser Communicator" section.

SYMED is a Symbol Editor which allows you to design custom symbols that can be placed on the music. The use of this program is described fully in your Reference Manual.

FRAMED is a utility which allows you to create and edit guitar chord frames used in the Music Printing program. Its use is described in the "The Guitar Frame Editor" section.

If your system has a Model B processor, you will need to replace the **.SPLT-7** file with the **SPLT-B** file, or the Music Printing software will not function. If you do not know which processor you have, you probably have a Model C and this step will not be necessary. If you have a Model B or if the Music Printing program fails to operate, and you do not know how to make this change, please call customer service.

Macintosh Terminal

Instructions for setting up and using the Macintosh are in *Release O* and the *Quick Tour*. The Macintosh terminal offers several enhancements over the old terminal which are specific to Music Printing.

- Plotting time is 3 to 5 times faster on the screen.
- Text fonts now represent exactly what will be printed.

Printers

Printer Selection

If you have been using a laser printer, then you have a recent version of the software (Revision E.1, F.1, F.2 or F.3) and an earlier version of this document. Please look this over carefully anyway, since there are a number of important improvements that have been made to Revision F.4.

There are a number of printers available that are compatible with the Music Printing program, and this number is growing. Several representative printers are described here: both xerographic laser printers and laser typesetters. These printers all accept the PostScript page description language and all support a standard RS232 interface. They are summarized as follows:

Manufacturer	*Model*	*Resolution*	*Page*	*Price*
Agfa-Gevaert	P400PS	406	8.5 x 14	?
Apple	LaserWriter	300	8.5 x 11	5000
Apple	LaserWriter II NT	300	8.5 x 11	5000
Dataproducts	LZR-2665	300	11.0 x 17	23,000
Digital Equipment Corp.	PrintServer 40	300	11.0 x 17	35,000
Linotype Company	Linotronic 100 w/PostScript	1270	12.0 x 25	30,000
	Linotronic 300 w/PostScript	2540	12.0 x 25	50,000
Quality Micro Systems	QMS-PS800	300	8.5 x 14	5000
Quality Micro Systems	QMS-PS810	300	8.5 x 14	5000
Varityper	VT-600	600	8.5 x 14	18,750

Resolutions are in dots per inch. Page sizes are in inches. Prices are approximate retail value for quantity one, not including discounts. The Linotype machines are typesetters and require additional equipment to process the photographic paper. New England Digital does not guarantee the accuracy of these specifications, or the availability of these printers.

These are some of a rapidly expanding choice of Post Script printers. Each has different capabilities and applications, so a careful choice should be made. To facilitate in the selection process, several of these printers are described individually. New England Digital does not sell or service any of these printers, but we will help you select the correct printer for your needs and find a suitable local supplier.

Printer descriptions

The LaserWriter

This printer is the standard around which the system was developed. It prints on 8 1/2" x 11" and 8 1/2" x 14" paper, but does not image a full page at 8 1/2" x 14". This printer is the most readily available and the least expensive with discounts.

The QMS-PS800

This printer is exactly like the LaserWriter except that it can image a full page at 8 1/2" x 14". It also comes with a larger RAM area which improves printing speed somewhat. Because of these advantages, it is the best choice if a small, economic printer is desired.

The LZR-2665

This printer is a 24 page per minute industrial grade printer. It will image a full 11" x 17" page, and comes with two paper bins. Unlike the smaller printers this printer is designed to operate a heavy duty cycle. Note that the higher print speed *does not* mean that it will print music much faster, as this speed is determined by the rate at which the image can be formed, not the speed of the inking process. This printer had not been tested with the system at the time of this printing.

The Linotype Machines

These are laser typesetters which expose opaque or transparent film with a laser. The film is then chemically processed in a separate processor (also available from Linotype). As the resolution suggests, the results from this machine are of superlative quality; exceeding even the best engraving. These machines will image a page 12" wide and at least 25" long, so any practical size music can be accommodated without paste up. These machines are the clear choice for the serious publisher.

Printer Operation

This section describes the use of some of the aforementioned printers with the Synclavier and the Music Printing system. For information on the care and operation of the printer itself (i.e. paper loading, etc.) refer to the manual that comes with the printer. In the case of the LaserWriter or PS800, this is very simple, but in the case of the Linotype machines it is a more involved process. Once you have loaded your printer with paper and toner (if necessary), follow the appropriate instructions below.

The LaserWriter and PS800

To use Music Printing with one of these machines, you will need to set the input selector switch to the 9600 baud, RS232 position. This is the position marked **9600** on the LaserWriter and position **1** on the PS800. Connect the printer to the **Printer** port on the output panel of your Synclavier with a male-to-male, RS232, 25 pin D-connector cable. (This cable should come with your Music Printing Rev F.2 software. If you are making your own, be sure pins 2, 3, and 7 are connected straight through.)

The Linotype Series 100

To use Music Printing with the Linotronic 100 or the Linotronic 300 typesetters, you will need a Series 100 PostScript raster image processor. This must be connected to your Linotronic, and to your Synclavier **Printer** port with a male-to-female RS232, 25 pin D-connector cable. (This cable is the same as the cable used to connect the system to a dot matrix printer. If you do not have such a printer, the cable should come with your software. If you are making your own, be sure pins 2, 3, and 7 are connected straight through.) Set the thumb switch on the image processor to position **1** (position **3** will work also, but will produce a test pattern on startup). The resolution of the system must be set according to the manufacturers instructions, and in the case of the L-300, the typesetter may need to be set up to use the external image processor. It is important to study the operation of the Linotype system carefully in order to ensure correct operation with the Synclavier. (Be sure also to read the page on **Printer Type** under "The Page Menu" in the section "Menu changes.")

For other postscript printers, consult the printer documentation for information about setting the baud rate. Use the setting for 9600 Baud and the RS 232 cable connection. For instructions on the use of low resolution dot matrix printers and other details see your other Synclavier manuals.

Menu Changes

There have been several changes to Music Printing menus to accommodate the increased capabilities of high resolution printers. They are described here along with suggestions on how to use them. A number of other changes not specifically related to high resolution printing have also been included.

Music can now be displayed or printed from any menu. Pressing Linefeed has the same effect as pressing Return from the Main Menu. When Enter is pressed or the printing finishes (depending on which Operation Mode you are in), the menu that was active when Linefeed was pressed returns.

The Main Menu

There have been two changes to the Main Menu. One is in the display of the memory space available for sequence storage This has been changed from **Notes Left** to **Sectors Available**. This value is based on the amount of external memory in your system, and is accurate and far more useful then **Notes Left**. When it reaches zero, no more notes may be added to the sequence, and no more editing may be entered. A sector can contain about 100 notes or edit entries. Be aware that well before this value reaches zero, the sequence will become unplayable. At this point you can still edit and print the music, or store and recall the sequence, but you cannot to return to the keyboard.

The other change is in the **Operation Mode**. The **Hardcopy** mode has been renamed **Print** mode, and a new mode has been added called **Extract**.

Press	To Select
TAB	Display
1	Edit
2	Print
3	Extract

Print

The operation of this mode depends on the setting of the **Printer Type** entry on the Page Menu.

When the **Printer Type** is **80 column** or **132 column,** the system works as described in the manual except that double wide pages are now supported. If the **Page Width** is greater than the image width of the printer specified by **Printer Type,** the page will be printed in two halves on separate sheets. Twice the image width is the maximum size printable with this printer type (larger sizes will be printed at the maximum size).

Pages printed in two halves are marked with registration marks to facilitate paste-up. The second half is printed immediately following the first. The overlap will be equal to the difference between the maximum page width and the specified **Page Width.** An overlap of an inch or two is recommended to allow each staff to be cut at a point where it is free of complex symbols. See the description of **Printer Type** in the next section for more details.

When the **Printer Type** is set to one of the **laser** settings, operation is somewhat different. While the printing process is going on, there is a large sign on the screen saying **ENGRAVING.** No music appears on the screen during this process, so be patient. Nothing happens until the first page is ready to be printed. To interrupt the printing process, press the space bar and the main menu will reappear. Large pages are printed in pieces which can then be pasted together. For more details of operation in this mode see the description of **Overlap.**

If a message appears on the screen saying: "Waiting for printer to respond", either the printer is not warmed up yet (this takes about 90 seconds) or there is a communications problem. Common causes of trouble are the cable not plugged in or the switch in the wrong position.

If an error message appears near the bottom of the screen during the printing process, read it. It came from the printer and it may be trying to tell you something useful. A common error is "Out of paper." After an error has occurred, the main menu does not come back right away. Instead, when the system is ready, a message appears telling you to press Return to continue. If an error occurs that does not make obvious sense, it probably includes the remark that the remainder of the job will be ignored. If this happens, press the space bar and wait a few moments. When you return to the main menu, try again. If the error persists, call New England Digital.

Extract

This mode works in exactly the same way as **Print,** except that it causes each *selected* part to be printed in turn, as if it were the only part selected. If a part has the upper brace bit set then the next part will be included, thus printing grand staves as one "part." (If braces are used other than in pairs for grand staves, the **Extract** mode will probably not produce the results you expect.)

The Page Menu

The items on the lower portion of the page menu have been rearranged, and ten new items have been added. The format of the **Page Length** and **Page Width** items has been changed to be easier to use and consistent with the new items. The lower portion of this menu now reads as follows:

			Starting Page Number:	1
Left Margin	(inches):	0.250	Starting Measure Number:	1
Page Width	(inches):	7.500	Final Measure Number:	Off
Top/Bottom Margin	(inches):	0.500	Numbering Frequency:	Off
Page Length	(inches):	10.000	Measures per Line:	Off
Tile Overlap	(inches):	0.000	End of Piece:	On
Music Size Factor	(N/D):	1/1	Block Rests:	On
Note Spacing (1/2 note wth):		5	Printer Type:	8x11 laser
Spacing Percentage:		20	Orientation:	Portrait First
System Indent:		0	Paper Feed	Tray

The first five items specify the size of the page and the margins. They are measured in inches, and may be specified to the nearest .005". The maximum value for these items is 99.995".

Left Margin

This sets the distance that the music will be offset to the right from the left side of the imageable region of the paper. Note that on most printers the imageable region is somewhat smaller than the actual paper size. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Page Width

This sets the width of the music, including instrument names and such. To determine the right margin, subtract the **Page Width** and the **Left Margin** from the width of the paper. Pressing TAB at this setting will set a default equal to the largest width that can be imaged without tiling by the printer defined by **Printer Type.**

Top/Bottom Margin

If **Orientation** is set to **Portrait** then this sets the distance that the music will be offset up from the bottom of the imageable region of the paper. If **Landscape** is used, this sets the offset down from the top of the imageable region. Note that on most printers the imageable region is somewhat smaller than the actual paper size. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

The Page Menu (con't)

Page Length

This sets the length of the music, including titles and such. To determine the bottom or top margin, subtract the **Page Length** and the **Top/Bottom Margin** from the length of the paper. Note that this measurement is somewhat inexact due to the fact that music varies quite a bit in vertical excursion about the staff. On the first page, however, the distance from the top of the page number to the bottom of the copyright line will be correct. Pressing TAB at this setting will set a default equal to the largest length that can be imaged without tiling by the printer defined by **Printer Type.**

Tile Overlap

This setting is used to create pages which exceed the size of the imageable area of the printer. If the **Overlap** is zero and the page is larger than the imageable area, only one sheet will be printed and the music will run off the page. (This will not harm the printer.)

If the **Overlap** is non-zero and the **Page Width** + (2 x **Left Margin**) is greater than the **Image Width,** or the **Page Length** + (2 x **Top/Bottom Margin**) is greater than the **Image Length** then several sheets, or *tiles,* will be printed for each page. These will each be a piece of the overall page, and can be trimmed and pasted together to create the final page. The **Overlap** sets the width of the band of music that will be repeated on each page (horizontally and/or vertically). This band allows easy alignment of the sheets and makes it possible to choose a place to make the cut where there are few symbols. See **Printer Type** for the image sizes of various printers. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Music Size Factor

This determines the size of the staff that will be used. A setting of 1/1 will produce a staff that is exactly .32" (app. 23 points) from the bottom line to the top line. Other sizes are set in terms of a fraction of this size. All symbols and text, including the titles, will be scaled by this factor, but it does not affect the page size or shape as defined by **Page Width,** etc. This is only used if **Printer Type** is set to one of the laser or typesetter settings.

Note that if you are using a medium resolution device (300dpi), there are some fractions which will look better than others. 1/4, 1/3, 3/8, 1/2, 5/8, 2/3, 3/4, and 7/8 all work well. When enlarging, this becomes less important, but again try to stick to simple fractions, like 5/4 or 3/2. If you need other sizes, try them out and examine them carefully. On higher resolution devices, any fraction should work satisfactorily.

The Page Menu (con't)

Spacing Percentage

This setting adjusts the percentage of full mathematical spacing at which the music is spaced. For example: if set to 100, a quarter note takes up twice as much horizontal space as an eighth note and half as much as a half note. If set to 0, a half note, quarter note, and eighth note take up the same amount of space.

First System Indent

You can set an indent for the first system of a part or score by an amount specified in standard units (1 unit = 1/2 note width).

If the first system of a score is indented, instrument names which precede each staff are right justified in a column the width of the longest name. (If the system is not indented, instrument names are left justified.)

Numbering Frequency

This setting dictates how often measure numbers appear. If set to **Off,** numbers appear at the beginning of every line save the first. If set to 1, numbers appear every measure, 2, every other measure, etc. Measure numbers start from measure 1, so if the **Numbering Frequency** is set to 5, measures 1, 6, 11,... are numbered.

The Page Menu (con't)

Printer Type

This setting specifies the physical attributes of the printer that you are using. This must be set correctly for the system to print successfully. *This is the only way that the system knows what kind of printer is connected; the system configuration does not contain settings for high resolution printers at this time.*

Press	To Specify	Imageable Area (Width X Length)
TAB	80 column	8.000" x ∞
1	132 column	13.200" x ∞
2	8x11 laser	8.000" x 11.000"
3	8x14 laser	8.000" x 14.000"
4	Typeset Hi	12.860" x 11.000"
5	Typeset Lo	25.735" x 11.695"

For any particular printer, you have a choice of two valid settings. If you are connected to a low resolution dot matrix printer, you *must* use one of the first two settings. If you are connected to a high resolution laser printer or typesetter, you *must* use one of the latter four.

This setting also tells the system what page sizes are too big to fit on one sheet of paper. The dimensions shown indicate the largest image in each direction which will fit without creating tiles. (That is, with the **Overlap** set to 0.)

If you are using a 132 column dot matrix printer with 80 column paper, you may wish to use the **80 column** setting.

If you are using an original Apple LaserWriter, you can use **8x14 laser**, but note that the size of the imageable area is only 6.720" x 13.000" (centered on the page). If you are using a laser printer with a larger area than 8" x 14", use either laser setting, and keep the **Overlap** at zero.

If you are using a typesetter, the setting must correspond to the resolution you plan to use. If you are using high resolution (2540 dots/inch) then select **Typeset Hi**. If you are using any other resolution (1270 dpi or less) then use **Typeset Lo**.

The Page Menu (con't)

Orientation

This setting indicates whether the paper is to be held with the largest dimension horizontal (**Landscape**) or vertical (**Portrait**). This applies to single sheet pages and to each piece of a multi-sheet page. This is only used if **Printer Type** is set to one of the laser or typeset settings.

Press	**To Specify**
TAB	Portrait
1	Landscape
2	Port Rev
3	Land Rev

In **Portrait** mode the music reads across the smaller dimension of the paper, the width. In **Landscape** mode, the music reads across the larger dimension, and the limits described above are reversed. When using a typesetter, **Portrait** mode orients the music so that pages are side by side along the galley; **Landscape** mode orients the music so that pages are one under the other along the galley. Since the maximum length along the galley is greater, **Landscape** mode is preferable when typesetting large scores.

The **Port Rev** and **Land Rev** modes produce reverse reading output in portrait and landscape orientations respectively. Reverse reading is used when printing negative images on transparent media. This capability makes it possible to eliminate the camera step of the printing process.

Paper feed

Paper Feed allows the selection of Tray or Manual feed modes for the laser printer. In manual feed mode the printer waits for each sheet of paper.

The Score and Part Menus

A new item has been added to these menus to allow block rest numbers to be switched on and off on a staff by staff basis. This is useful in piano parts, and in a score when everyone is resting and a number on every staff looks cluttered. If numbering is selected in a part with the lower half of the grand staff brace also selected, the number will be centered between that staff and the one above it. This item appears as the fifth item of the format section on the Score Menu, and the fifth item of the left format section of the Part Menu.

Press	symbol	to specify
TAB	# -	print numbers
1	blank space-	do not print numbers

On the Score Menu there is now a key to insert a part *below* the current position of the cursor. This functions analogously to the insert above function in that it will insert a default part or a saved part.

Press	To Specify
KP minus	Store part
PF 1	Insert part above
KP comma	Insert part below

On the Score Menu, press CTRL-L to display the sum of the vertical spacings of each part that has been selected for printing. This value is calculated when CTRL-L is pressed, and is not kept valid although it may remain on the screen. To check its current value, press CTRL-L again.

On either the Score or Part Menu, pressing TAB while the cursor is in the **Instrument Name** position enters the timbre name associated with the Synclavier track assigned to that part on the Part Menu. If there are two tracks assigned to the part (one for each voice) then the timbre name comes from the track assigned to the lower voice (stems down).

On the Score or Part Menus symbols for instrument names are obtained using the same conventions used for chord names.

character	symbol
#	sharp
$	flat
~	natural

The Score and Part Menus (con't)

Clef

A new clef may be selected from the Part Menu. Press **B** for the *tablature* clef. This causes the part to be printed in 6 line guitar tablature notation. As of this revision, the following limitations and considerations pertain:

For music entered from the keyboard or from the terminal, first position (frets 0 to 4) is always used. For music entered from the Synclavier guitar or a MIDI guitar, however, the music is notated as played. The system knows which string and fret was used for each note. There is a command (STRN) to change the string selection if desired.

Stems and beams are not printed, but ties are. A line of tablature must be accompanied by at least one line of actual notation of the same music (from the same track typically) in order for the spacing to be correct. This line can be above or below the tablature staff, or other parts could separate them. The tablature staff extends higher than the normal staff, so additional space should be allowed using the **Vertical Spacing** setting on the Part or Score Menu.

Track

The **Track** for a given part may now be any number from 0 to 127. Track 0 is used to assign rests to a part. The lower voice cannot be set to track 0 unless the upper voice is also set to track 0. A single voice must always be in the lower voice. Using this large number of tracks in the Memory Recorder eliminates the need for combining parts on one track and other track saving techniques described in the Reference Manual. Tracks 128 through 200 are *not* accessible from Music Printing.

The Keypad Menu

The Keypad Menu now allows access to the Extended Symbol Library as well as the System and User Libraries. The Extended Library contains the Shape Note note heads and finger numbers; its contents may be viewed using the Symbol Editor. (See below.) Six banks of keys may be set up for the Extended library as for the other two. The key which toggles the **Library** item from **System** to **User** to **Extended** is now KP 0. (This change was necessitated by the use of Linefeed to plot from any menu.)

Changes to the Editor

The most significant change to the editor is in its ability to enter text in several different fonts and several languages. This involves a new item in the display area and several new symbols. There are also a number of new commands which make various kinds of notation easier to handle.

The Display Area

The Display Area has been rearranged to accommodate a **Font** item, and to display the **Library** item more clearly.

Editor Control Keys

Several new control keys have been added to the Editor to accommodate new features and increase efficiency.

Extended Font Mode

Press **CTRL-U** to enter and exit Extended Font mode (EF mode).

EF mode allows access to various special symbols and non-English characters, and to the Extended Symbol Library. When in this mode, special characters can be combined with normal characters in the same word, so that French, Swedish, Spanish, and other languages may be easily used. Refer to the description of "Library" below and to the Extended Font Keyboard Chart at the end of this manual for more information.

Note: When in Extended Font mode, the cursor does not advance when a symbol is entered.

Editor Control Keys (con't)

Library

Press Linefeed to switch libraries.

The **Library** item indicates which symbol library will be accessed when a symbol is called for with the TAB procedure or from the keypad. **System** indicates the system library and **User** indicates the user library. Note: symbols from the user symbol library will look as they do on the screen. They will not be smoothed regardless of the resolution of the printer.

In Extended Font Mode, **Library** will indicate **EF Sys** or **EF Ext.** In EF System mode the keyboard, keypad, and TAB procedure work normally. In EF Extended mode the keyboard is reassigned and the keypad and TAB procedure access the Extended Symbol Library. The User Symbol Library is not accessible from Extended Font Mode.

Font

Press **CTRL-E** to switch fonts.

The **Font** item indicates which font is currently active. Any text typed appears in this font on a high resolution printer. The Pericom screen only supports the **Typewriter** font, all fonts are represented in this font on the screen. Because other fonts are proportionally spaced and **Typewriter** is not, they will look somewhat squashed on the screen, but they will look correct on the final printout. The Macintosh screen supports all of the fonts and they will appear on the screen as they will be printed. If you are using a low resolution printer, these fonts will produce unfortunate results; use the **Typewriter** font only in this case. The fonts available are as follows.

Font	**Example**
Standard	This is an example of the standard font
Italic	*This is an example of the italic font.*
Bold	**This is an example of the bold font.**
Bold Italic	***This is an example of the bold italic font.***
Typewriter	`This is an example of the typewriter font.`

Note that sequences made with Rev D.3 or earlier versions use **Typewriter** for all text entries. These sequences can be re-edited to include any of the above fonts.

Editor Control Keys (con't)

Large Symbols and Boxed Text

Press **CTRL-B** to toggle between **Big, Box,** and **Big-Box** modes.

BIG mode prints all typed-in characters and system symbols double size. The standard character set and system symbols actually appear double size on the screen. BIG mode is handy for large codas and breath marks (large commas). **BOX** mode places a box around any text string, and **BIG-BOX** mode is a combination that is nice for rehearsal letters. Commands such as NOTE or HPIN cannot be enlarged, only symbols.

Cursor Movement

Press **CTRL-T** to move cursor left one beat.

Press **CTRL-Y** to move cursor right one beat.

These keys help move the cursor around quickly when the **Edit Resolution** is set to a large value. They move the cursor one beat at a time in the desired direction. A beat is determined by the **Click Note.**

Centering text

Press **CTRL-N** for Center mode. In this mode, text is centered on the edit blockas each character is typed. When at least one character of the current entry has been typed, the F1-F4 keys move the word up, down, backward and forward for precise positioning.

Pericom key	**Macintosh key**	**movement**
F1	Clear	up
F2	=	down
F3	/	left
F4	*	right

Command changes and additions

There are several new commands and symbols available in this version. They are as follows:

ADD & PTCH

Pitch may now be entered with these commands in transposed pitch. That is, the pitch may be entered as it appears on the screen, not as it is played on the keyboard. In prior releases, the pitch entered had to be in concert pitch even when a transposition was in effect.

BMOF & BMON

These commands turn off the automatic beaming function of the program. BMOF prevents any beams from appearing automatically; BMON restores the beaming. At any point BMND can be used to override this feature. These commands are voice specific, so they must be used in the correct voice or in both voices if appropriate. Note that, like many Music Printing commands, if they are entered erroneously they should be removed rather than canceled with the opposite command.

CNAM

Replaces CHRD, but centers up to 12 characters on the current position. The first two characters name the chord and are changed automatically if the part is transposed. Characters used for symbols with CNAM are as follows:

character	**symbol**
#	sharp
$	flat
~	natural
@	major
^	diminished
%	half diminished

EBAR

Works exactly like DBAR except that it inserts an "end of piece" bar (thin, thick).

ENHR

This command works exactly like ACCD except that it does not *force* an accidental to appear. If several occur in the same measure on the same pitch, subsequent occurrences will not have unnecessary accidentals.

FLOF & FLON

Control the appearance of flags. FLOF prevents any flags from appearing automatically; FLON restores the flags. These commands are voice specific, so they must be used in the correct voice or in both voices if appropriate. Note that, like many Music Printing commands, if they are entered erroneously they should be removed rather than canceled with the opposite command. (Does not suppress beams. To suppress both, use BMOF and FLOF.)

GFRM

Causes a guitar chord frame from the Frame Library to be printed at the current location of the cursor. The prompt for a chord name follows the naming conventions described under CNAM. If the frame is not present in the library, a blank frame with a ? in it is printed. (See "Guitar Frame Editor" for information about entering new chords and editing chords in the Frame Library.)

HEAD

This command allows the shape of the note head to be changed by prompting for note head type. In addition to the standard note head shape, it offers a smaller note for cues and grace notes, X and diamond-shaped percussion notes, diamond shaped notes for harmonics and Shape-Note notation. The command is voice specific, and takes effect in the edit block into which it is placed. It may appear as often as every edit block.

press	to select	result
TAB	Standard	standard noteheads
1	Cue	cue noteheads, stems, flags, beams
2	Percussion	X noteheads for black notes, white notes have an X through them
3	7 Shape	standard seven-shape notation
4	4 Shape	standard four-shape notation
5	None	no noteheads at all
6	DiamPerc	X noteheads for black notes and white diamonds for half and whole notes
H	Harmonic	white diamonds for all noteheads
A	Alt Harmonic	white diamonds for the top note of chords
D, R, M, F, S, L, T	Do, Re, Mi, Fa, Sol, La, Ti	individual shape-note heads

INSR & REMV

The INSR and REMV commands are Sequence Editing commands. They add or delete time from the sequence or specified track or part and slide the notes and editing forward or backward. When time is removed, any notes or editing that occupied that block of time are deleted.

Both commands operate in the same way. Place the cursor on the first edit block of the material to be removed, or on the first block of the material to follow the inserted time. Invoke the command and enter the amount of time to insert or remove in note value form (count / note value). For example, a half note would be 1/2 and four measures would be 4/1. After pressing Return, you are asked to specify a track or a part. If either are set to a valid value, the time selected is inserted or removed at the position selected, but only on the track and/or part specified. If Return is pressed for each query and no value is entered, the time is inserted or removed from all tracks.

These commands have several limitations that should be considered. The numerator of the time fraction must be between 1 and 255, and the denominator between 1 and the **Edit Resolution.** If a block rest is in the affected area and visible on the screen, turn block rests off before using either command.

If a surrogate click track is in use (**Click Track** set to a track number) then these commands may not give the desired results unless all of the time to be inserted or removed is visible on the screen. When inserting, extra clicks will have to be added to the click track to fill the gap.

Note: The current position of the cursor does not specify a part or track; they must be specified by number.

LED

The LED command draws six ledger lines. After entering the command, you are prompted to enter direction. Press an up or down arrow key to draw the ledger lines above or below the cursor. If you want one ledger line above the staff, place the cursor on the lowest line of the staff and enter the ledger lines above the cursor. The first five ledger lines are hidden by staff lines and only the sixth appears as one ledger line above the staff.

MEAS

This command works as before except that it now prompts you to indicate whether the modified measure is to be a pickup measure or a cadenza. Pickup measures are *not counted* when calculating measure numbers, whereas cadenzas are. Pickup measures should normally be used only at the beginning of a piece. Note that in sequences edited with prior revisions of the software, measures modified with the MEAS command are pickup measures. These can be re-edited if desired.

MNOF & MNON

These commands turn the measure numbering off and on, starting with the measure following the measure in which they are placed. This is useful when a measure number is not positioned properly, and you would like to enter one from the editor. Place these commands in the first edit block.

NSLR

An extended function slur (New SLuR) which is shapelier and more controllable than the previous slur command. It functions without the use of a MID command and is quick and easy to use and position. This slur can also be "dotted." Ties now automatically make use of this new "slur" shape.

The basic procedure is similar to the SLUR command. Mark the beginning point by entering the command with the cursor in the correct edit block and at approximately the correct position. Enter the direction with the arrow keys. Move the cursor to the end point (correct edit block and approximate position) and enter an END command. Now the system enters the **slur adjust mode.** If the slur is as you want it, press Return or Enter to finalize it.

If the shape or position is not correct, the cursor keys can be used to move the end points or curve up, down, right, or left. There are five modes and three speeds of adjustment. When finished, press Return or Enter.

Press	**To**
Tab	Return to the default slur based on the end points.
1	Adjust the left end point.
2	Adjust the left side of the curve.
3	Adjust the right side of the curve.
4	Adjust the right end point.
5	Adjust both sides of the curve: Up moves both sides up (more curvaceous). Down moves both sides down (less curvaceous). Left moves sides apart (more bulbous). Right moves sides together (less bulbous).
C	Set for course increments, dX = 16, dY = 12.
F	Set for fine increments (default), dX = 4, dY = 3.
V	Set for very fine increments, dX = 1, dY = 1.
T	Set non-destructive or transparent mode (default). Use for large and medium slurs.
S	Set destructive or solid mode. Use for tiny slurs which cannot be seen in the transparent mode.
D	Set broken (dotted) mode.
R	Set continuous (regular) mode.

Note: If a large number of dotted slurs are used, the time to print the page on which the slurs appear increases noticeably. Each dotted slur can take 10 to 20 times as long to print as a comparable solid slur.

PBSP

This command works exactly like BSPC except that it is not automatically placed in the Master Edit List. It should only be used when you have separate sequences for score and parts. PBSP allows a different set of spacing commands in each part in the "parts" sequence. (If a score is then printed from these parts, the results are not likely to be what you want.)

PTCH (See ADD.)

RACC

Forces a redundant accidental that has been suppressed to be displayed. The command is used when a tied note with an accidental crosses a line boundary and the tied-to portion needs the redundant accidental. It functions in the edit block in which it appears only and is not voice specific. For other cases where a redundant accidental is needed you should still use the ACCD command.

REMV (See INSR and REMV)

ROFF

This command is voice specific and works as before except that a value of 0 causes the rest to disappear altogether. This is handy in some divisi situations where POFF and PON cannot be used because they are not voice specific.

RSOF & RSON

These commands turn rests off and on, starting with the current block. The music is not changed in any other way, but the rests become hidden. The effect is the same as entering an ROFF of 0 for every rest. This is useful when a measure is divisi for only part of the time, and unnecessary rests are a problem. These commands are voice specific.

SLUR

(SLUR has been replaced by NSLR and remains only for compatability with earlier Music Printing sequences.) In the Edit Mode, slurs have their mid-points marked with a small circle. This, like the marks that appear wherever there is editing, does *not* appear on the final printout or in Display Mode.

SPLT

The SPLT command has been left unchanged for compatibility, but the new TSPL command is always more desirable. (See below.)

STOF

Suppresses stems in the selected voice. (Does not suppress flags or beams. To get note heads only, use **STOF, BMOF** and **FLOF.**)

STON

Restores stems in the selected voice.

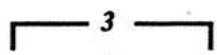
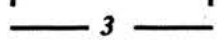
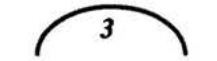
STRN

Allows entry of the guitar string number (1 = high E) for a given note. That note is then plotted on the desired string in tablature notation (guitar clef). If a string number is entered for a note that cannot be played on that string, an X appears in the tablature notation instead of a fret number. STRN is a sequence command like DUR or PITCH; it changes the sequence, but it is not saved with the sequence.

To return the note to the string it started on, enter another string command.

TBAR

This command works as before except that it now has an additional tuplet bar type which gives a slur-like symbol with the number under it.

Tuplet Type	*Looks Like*
0	
1	
2	
3	

TRAK

This command works as before, but now accesses tracks 0 through 127. Track 0 may now be selected for the lower voice as well as the upper, allowing the generation of bars rest. The lower voice cannot be set to track 0 unless the upper voice is also set to track 0. A single voice must always be in the lower voice.

TSPL

TSPL functions exactly like the SPLT command except that the pitch may be entered in transposed pitch. That is, if there is a transpose in effect, the pitch can be entered based on what appears on the screen. The only situation where the SPLT command can be used to advantage is where there are two voices from two separate tracks on the staff, and the transpositions of each are different. In this case the TSPL command will only look at the lower voice transposition.

The initial split point (before the first TSPL command, is always *concert* middle C, so if a transposition is in effect from the beginning and a split point is desired, a TSPL command will have to be issued at the beginning of the piece, even though it may be for a pitch of C3. Furthermore, the split point will not be changed by a TRAN command. If the transposition changes and a split point is in use, another TSPL command must be issued in the same edit block as the TRAN command, even though it may be for the the same pitch as the previous split point.

WAVE

This command is similar to the line command, but does not prompt for additional information (like type and width). It will draw a wavy line in any direction, which can be used for trills, rolls, and glissandi. It eliminates the need to use the TRIL and LTRL symbols.

Symbols

These symbols are for use in spelling chords with the **Standard** or **Bold** font (Times). They match the ones for use with the **Typewriter** font as follows:

Symbol Name	Matches
SSHR	#
SNAT	CNAT
SFLT	CFLT
SMAJ	MAJ
SDIM	DIM
SHDM	HDIM

These symbols are for use with grace notes. They match the size of grace notes and center correctly:

Symbol Name	Matches
GSHR	SHRP
GNAT	NATR
GFLT	FLAT

COPY

Creates a copyright sign: ©

1PIX & 2PIX

Commands for moving the cursor to the right one or two pixels. They can also be used in combination to move the cursor 3 pixels. (The PF3 and PF4 keys move the cursor 4 pixels.) These commands are handy for centering a symbol between two horizontal positions in the same edit block. 1PIX can be entered immediately before entering a GQNT (a grace note head) in order to position the note head on a stem.

FNG*n*

A command for entering piano or string finger numbers. The *n* is a single digit (0-9) to specify the number. These commands can be programmed into the Extended font keypad banks. The command is available only from the EF Ext Font (CTRL-U, Linefeed).

PDIA

Large diamond percussion note.

Changes to the Symbol Editor

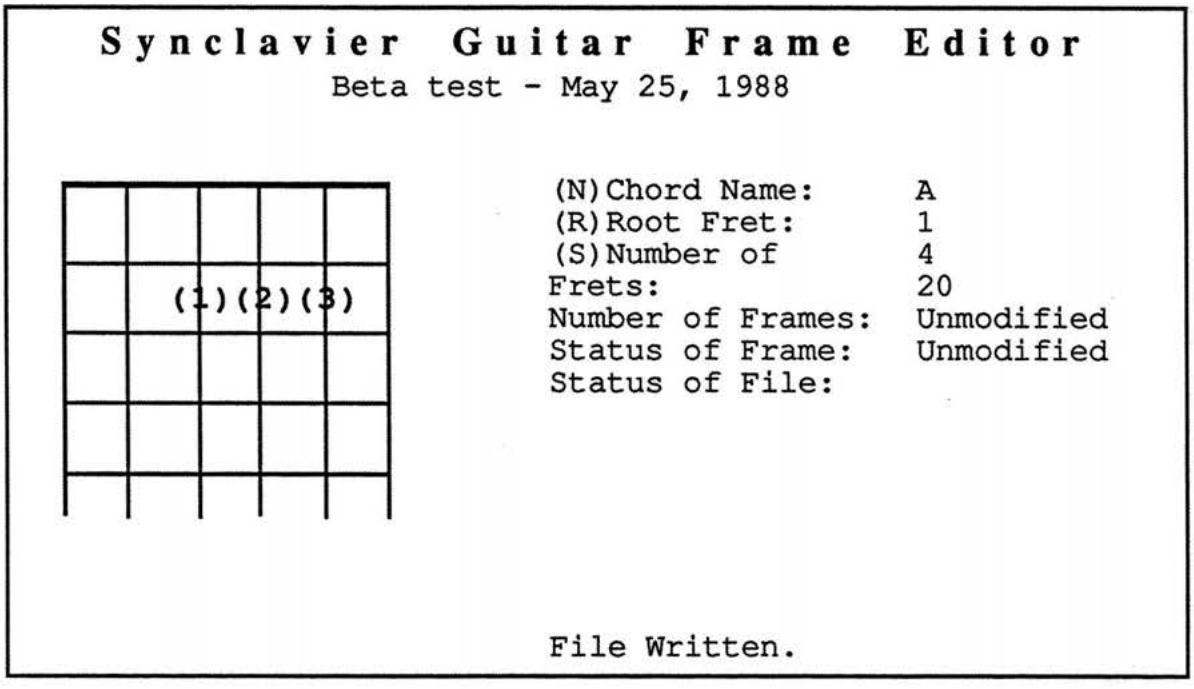
The Symbol Editor has been changed to allow access to the Extended Symbol Library. The **Library** item now switches between **User, System,** and **Extended.** The Character Library is no longer used. The Editor can be used to examine the System and Extended libraries, and can be used to examine and change the User library. Changes made to the System or Extended libraries will appear on the screen of the Pericom and on dot matrix printers (printer types **80 column** and **132 column**) but *not* on the Macintosh screen, laser printers, or typesetters. The Editor in all other ways works as always.

The Guitar Frame Editor

The Guitar Frame Editor is a utility which allows you to create and edit guitar chord frames used in the Music Printing program. It can be used to change frame fingerings, the name of a frame, the root fret of a frame and the number of frets a frame displays. The utility also allows you to add or delete frames in the Frame Library.

Running the Guitar Frame Editor

To run the Guitar Frame Editor, simply type **framed** in response to the Ready > prompt and press the Return key. The screen clears and the frame editor window, shown below, appears with the first frame in the library ready to edit.



The window is comprised of a menu, a fret board and a message line. The menu on the right hand side shows the name of the frame, the root fret, the number of frets that are displayed, the number of frames in the Frame Library and the status of both the current frame and the Library. The fret board, on the left hand side, has horizontal lines representing frets and vertical lines representing strings. The message line, on the bottom in the center, prints any pertinent information.

Editing guitar frames

To change the name of a frame, press the lower case letter **n**. The cursor jumps to the position after the name header in the menu and waits for you to enter a name (up to 12 letters). After typing the name, press Return The new name appears in the menu and the cursor returns to the fret board . Character conventions for symbols are the same as those for CNAM. (See table under "New commands.")

The root fret is the position on the guitar neck shown at the top of the guitar frame (e. g.. the root fret for a C major chord in the first position would be 1). To change the root fret, press the letter **r**. The cursor moves to the menu next to the **Root Fret** heading. Type in the new root fret and press Return. The root fret is the first fret displayed. If the root is greater than 1, the number is placed on the left hand side of the fret board.

The number of frets displayed in a frame can also be altered. To change the number of frets displayed, press the letter **s**. The cursor moves to the menu next to the **Number of Frets** heading. Type in the new number, between 2 and 7, and press Return. The number of frets displayed corresponds to the number specified; the fret board grows and shrinks in size accordingly.

The fingering of a chord frame can be edited using this program. To edit the chord frame, position the cursor over the proper string using the left and right arrow keys. Also, move the cursor from fret to fret using the up and down arrow keys until it is on the right fret. Once the cursor is in position to insert a fingering mark, press the Tab key for an unspecified finger. A **(+)** mark is placed on the fret board and shows up as a dot in the Music Printing program.

To specify a finger, press the proper number (1, 2, 3, 4, or T). The number appears in the proper place with parenthesis around it

Note: In this release, all fingering appears in the Music Printing program as unspecified finger marks. In future releases, however, the fingerings specified will appear.

Editing guitar frames (con't)

Open or damped strings can also be specified. Place the cursor on the top of the frame over the proper string and press lower case **x** to designate a damped string or the letter **o** to designate an open string.

Marks can also be deleted from the fret board as easily as they are inserted. To delete a marker, position the cursor on the string with the fingering marker and press Delete. If you wish to change an existing marker on a string, position the cursor to the new fret on that string and place the new marker. The old marker will disappear, since you can only have one marker per string.

To create a new frame, press lower case **c**. This clears all the markers, erases the name of the frame, places the root fret on 1 and displays the first 4 frets. The previous frame remains in the Library.

After a frame has been created or edited, the frame must be inserted into the Library. To insert the frame into the Library, press the lower case letter **i.** A message appears at the bottom informing you that the frame has been entered into the Library. If a frame currently in the Library has the same name as the frame being inserted, the frame in the Library is replaced by the new frame.

Inserting a frame into the Library only alters the Library in current memory, it does not mean that the Library has been saved to disk. To save the Library, press the Control key simultaneously with the letter **r.** The Library is written to disk saving all changes and all insertions.

You can browse through the Frame Library for a specific frame to edit. To find a specific frame, press the letter **f.** The cursor jumps to the **Chord Name** on the menu bar. Type in the frame you wish to find and press Return. The program searchs for the frame in the Library and returns either the exact frame, or the nearest one if the exact frame is not found. You can move forward and backward through the Library entries by pressing the Period key or the Comma key respectively. (As a mnemonic, the < and > signs over the period and the comma correspond to the direction of travel in the library.) A frame can be deleted from the Library by pressing the letter **d.** This deletes the current frame from the Library.

Always remember to insert the frame you were working on into the Library if you wish to keep the revisions, and always save the Library to disk after you have finished all of your editing. It is a good idea to save the Library occasionally, even if you are not finished with the program so that you minimize the chances of losing both valuable work and time.

Summary of Guitar Frame Editor commands

command	result
left arrow	Moves left on frame (toward low E).
right arrow	Moves right on frame (toward high E).
up arrow	Moves up on frame (toward the nut).
down arrow	Moves down on frame (toward the bridge).
Tab	Marks an unspecified finger (+).
1-4	Marks a numbered finger (Appears in Music Printing as an unspecified finger mark.)
T	Marks a thumb. (Appears in Music Printing as an unspecified finger mark.)
X	Marks a damped or played string.
O	Marks an open string.
Delete	Clears a marker.
N	Names the chord frame.
R	Sets root fret of frame. 1 is default, 2 and up are indicated with a number to the left of the frame.
S	Sets the size of the frame in frets (2-7).
F	Finds a frame with a given name.
,	Moves back one frame.
.	Moves forward one frame.
C	Clears current frame to prepare for new entry.
I	Inserts current frame into Library.
D	Deletes Current frame form Library
CTRL-R	Saves the Library to the disk.

The Laser Communicator

Getting Started

The Laser Communicator is a program which allows communication with any PostScript device, such as your laser printer. It can be used to set the printer baud rate, turn off the start-up page, and test the printer. It will also send any text file to the printer, so a PostScript page description can be written using the Screen Editor and then printed.

PostScript is a page-description/programming language used by laser printers to print text, draw pictures, and perform calculations. For more information on using PostScript with your printer, see the printer manual. Adobe Systems Incorporated publishes two references for the PostScript language: the *PostScript Language Reference Manual* and the *PostScript Language Tutorial and Cookbook.*

Before using the Synclavier with a laser printer, check your cable connections. In particular, you must be certain that no AppleTalk cable is connected to your printer; having an AppleTalk cable connected to the printer may disrupt communications between the printer and the Synclavier.

Also, check the printer communication switch, and be certain that it is set for "serial batch" communications . The appropriate settings are:

Printer	**Switch Position**
QMS-PS800(+)	Position **1**
LaserWriter(+)	Position **9600**
Linotype	Position **1**
Other	*(Consult your printer manual)*

Running LASERCOM

To run the LASERCOM utility, simply type **lasercom** in response to the terminal Ready > prompt, and press Return.

LASERCOM clears your terminal display and presents the main screen:

```
      L a s e r   P r i n t e r   C o m m u n i c a t o r
      LaserCom version 1.1 -- 11/20/87
      To issue a command, press the key that represents that command.

F  Send PostScript file          S  Synchronize baud rates
C  Configure laser printer            R  Reset laser printer
P  Configure communication ports      F  Force idle state
T  Talk to PostScript interpreter     Q or <BREAK> - Return to monitor

Looking for laser printer...
```

Note that if you are using a model D40 communications card, the **'S Synchronize Baud Rates'** option is not present.

The horizontal bar midway down the screen is used for displaying status and error messages from the printer. After starting up LASERCOM, you will see a series of brief messages as LASERCOM interrogates the printer. Finally, LASERCOM displays the printer status:

%%[status: idle]%%

If the printer status is not "idle," consult the *Troubleshooting* section of this manual. Most LASERCOM features do not function unless the printer is in an idle state.

LASERCOM Commands

C -- Configure laser printer

The **Configure laser printer** option is used to change the baud rate and startup page options of your printer. These changes remain in effect until you alter them again, even if the printer is powered off.

LASERCOM does not allow you to change any printer options unless the printer is in an idle state. If LASERCOM is not displaying a "status: idle" message, you should consult the *Troubleshooting* section of this manual.

After pressing **C** from the main menu, the configuration menu appears in the lower half of the screen:

```
Printer Type:  QMS-PS 800+      Pages: 729      PostScript Version:  46.1

    To change an option, move the cursor over the option and press
    the space bar.

                          Startup page:  Disabled

                     Batch baud rate:  38400
                Interactive baud rate:  38400

        Press <BACKSPACE> to cancel, <RETURN> to write configuration
```

In the status bar you see:

Printer Type:	The model of the printer.
Pages:	The number of pages printed by the printer.
PostScript Version:	The version of PostScript built into the printer.

These items are for informational purposes only; they cannot be altered.

C -- Configure laser printer (con't)

Below the status bar are printer options. You may alter these by moving over the option with the terminal arrow keys and pressing the space bar. Every time you press the space bar, the option scrolls to its next available setting. The possible settings for each option are listed below:

Option	Possible Settings	Meaning
Startup Page:	**Enabled, Disabled**	**Enabled:** The printer test page is printed every time the printer is powered on. **Disabled:** The printer does not print a test page at power on.
Batch baud rate:	**300, 1200, 2400, 9600, 19200, 38400**	Sets the "Batch" mode communications baud rate.
Interactive baud rate:	**300, 1200, 2400, 9600, 19200, 38400**	Sets the "Interactive" or "Emulation" mode communications baud rate.

When you are satisfied with the current option settings, press Return to permanently write the settings to the laser printer. If you do not wish to set these parameters, press Backspace to abort the configuration.

Note: If you have a D40 communications card, and have altered the baud rate for the channel you are currently communicating with, you will no longer be able to communicate with the printer. You will have to manually adjust your D40 baud rate to coincide with your recent change. See the section "Setting the Baud Rate."

After a few seconds, the current status of the printer is displayed in the status bar.

P -- Configure communication ports

The **Configure communication ports** option is used to adjust the baud rate of a Synclavier D40Q card. In future releases of LASERCOM, it will also allow you to use a printer connected through the modem port.

After pressing **P** from the main menu, the following dialog panel appears:

```
%%[ status: idle ]%%

    To change an option, move the cursor over the option and press
    the space bar.

                  Communication Port:  Printer
                   Printer Port Baud:  38400

          Press <BACKSPACE> to cancel, <RETURN> to write configuration
```

Note that if you are using a D40 communications card, the **Printer Port Baud** option is not present.

Below the status bar are the Synclavier serial communications options. You may alter these by moving over the option with the terminal arrow keys and pressing the space bar. Every time you press the space bar, the option scrolls to the next available setting. The settings for each option are listed below:

Option	Possible Settings	Meaning
Communication Port:	**Printer**	Communicate through the printer port. (Only option currently available.)
Printer Port Baud:	**300, 1200, 2400, 9600, 19200, 38400**	Sets the Synclavier printer port baud rate.

When you are satisfied with the current option settings, you can press Return to change your ABLE communication settings. The only option changed is the baud rate if you are using a D40Q card; nothing is changed if you are using a D40 card. If you simply want to exit the configuration screen without altering your communications settings, press Backspace.

Note: If you are using a D40Q communications card, the baud rate you set will remain in effect only until you reboot your Synclavier.

F -- Send PostScript file

You can create your own PostScript files with the Screen Editor, and send them to the laser printer with the **Send PostScript file** option. If there are any errors in your PostScript program, the printer displays an error message on the terminal.

After you press **F** from the main menu, the status line asks for the name of the file you wish to send. You may then type in the name of your PostScript file:

File to Send: **poster**

If the file does not exist, or cannot be opened, LASERCOM will print a warning and discontinue the sending operation

When LASERCOM begins sending the file to the printer, the message:

Sending file: 'POSTER'

appears in the status bar. At the bottom of your screen is the message **Press Control-C to abort job.** You may at any time press the **Control-C** combination to stop sending or processing your PostScript job.

After the file has been sent, the message:

Waiting for job completion...

appears in the status bar. At this point, any errors or messages from the PostScript job appear in the lower half of the screen. You still have the option of pressing **Control-C** to stop the processing.

If any text was written to the screen, LASERCOM prompts you to press any key when the job is complete. This is to prevent the screen from clearing before you have had a chance to examine the program output. Press any key to return to the main menu.

If there was no output from the program, LASERCOM automatically returns to the main menu upon completion of the job.

T -- Talk to PostScript interpreter

The **Talk to PostScript interpreter** option is for PostScript users who wish to communicate directly with the PostScript interpreter. Most PostScript interpreters have an "interactive" mode, which prompts the user's terminal for PostScript commands. This is useful for learning PostScript, debugging PostScript routines, and diagnosing printer trouble. For more information on interactive mode, refer to the printer user manual.

After pressing **T** from the main menu, the screen clears, and the printer PostScript interpreter header appears.

```
PostScript(r) Version 46.1
Copyright (c) 1986 Adobe Systems Incorporated.
PS>




                          Press <BackSpace> to escape
```

You may now begin typing PostScript commands to your printer. Any illegal commands cause the PostScript interpreter to print an error message on the screen.

Note that all control keys are sent verbatim. Therefore, you can press **Control-T** to query the printer status, **Control-D** to signal end-of-job, and **Control-C** to abort a running job. The only key which is not transmitted directly is Backspace. Pressing Backspace exits interactive mode and returns you to the LASERCOM main menu.

R -- Reset laser printer

Pressing **R** causes the laser printer to run through its power-up cycle. This has the same effect as turning the printer power off and on again.

The **Reset laser printer** option is useful for PostScript programmers who want to flush the memory of the printer, or any user who wants to re-initialize the state of the printer.

S -- Synchronize baud rates (D40Q only)

The **Synchronize baud rates** command attempts to synchronize the Synclavier D40Q card to the current baud rate of the printer. This is useful if you change the printer switch position (and possibly the baud rate) while running LASERCOM, or re-attach the printer cable to another printer.

After pressing **S** from the main menu, you see the message:

Synchronizing baud rates. Please Wait...

In a few seconds, LASERCOM will synchronize the baud rate and clean up any communication glitches caused by the synchronization process. The message:

Forcing idle state. Please Wait...

appears next, followed by one of the usual status messages.

I

-- Force idle state

Pressing the **I** key causes LASERCOM to abort any active printer job and returns the printer to an idle state. After pressing **I**, you should see the message:

Forcing idle state. Please Wait...

If there is no response within a few seconds, LASERCOM returns with a "Printer Not Responding" error.

Q or <BREAK> - Return to monitor

Pressing the **Q** key or the **Break** key exits the LASERCOM utility and returns to the Synclavier Monitor program.

Setting the Baud Rate

Overview

In order to achieve the highest possible printing speed of your laser printer, you may need to adjust the communication baud rate between the Synclavier and the printer.

The baud rate determines the speed at which data is transmitted to the printer. The baud rate itself is the number of bits of information transmitted per second. The Synclavier has a default rate of 9600 baud, but is capable of communicating with a printer at up to 38400 baud, or four times faster than its default setting.

This section instructs you on changing the default setting of your Synclavier and printer to 38400 baud. The procedure depends on the type of printer communications card installed in your Synclavier. Note that you only have to perform this procedure **once**; the changes you make last even after powering off the Synclavier and laser printer.

There are two models of communications card produced by New England Digital Corporation: the D40 and the D40Q. You can determine the model used in your Synclavier by running LASERCOM. If the **Synchronize baud rate (S)** command is available in the main menu, then you have a D40Q card. If you do not see that command in the main menu, then you have a D40 card.

Setting the Baud Rate with a D40Q

If your Synclavier uses a D40Q communications card, LASERCOM automatically synchronizes the Synclavier baud rate with that of the printer.

You use the **Configure Laser Printer (C)** command to change the baud rate of the printer to 38400. This baud rate setting remains in effect even after the printer is powered off.

You must then alter your Synclavier Profile in order for the Synclavier to power up at 38400 baud.

From the Monitor, type the following dialog. Remember to press Return at the end of each line.

Ready > **enter w0:** *(or* **enter f0:** *for a floppy system)*
Ready > **old profile**
Ready > **resequence**
Ready > **1 prntbaud 38400**
Ready > **replace**
Ready > **boot**

After you type the **boot** command, the Synclavier restarts and automatically sets the printer baud rate to 38400.

Setting the Baud Rate with a D40

If you have already established communication with the printer via LASERCOM, you may skip steps 1 and 2.

1. Adjust the printer to a known default baud rate. Every printer has a switch position that will set the printer to a known, non-adjustable baud rate. The switch positions for commonly used printers are:

Printer	**Switch Position**	**Baud Rate**
QMS-PS800(+)	Position **0**	1200
LaserWriter(+)	Position **1200**	1200
Linotype	Position **3**	9600
Other	*(Consult printer manual)*	

2. Adjust your D40 card to the same baud rate as the printer. Follow the procedure in the section *Setting the D40 communications card Baud Rate*.

3. You should now be able to establish communication with the printer via LASERCOM. Use the **Configure laser printer (C)** command to change the printer baud rate to 38400. Note that the printer no longer responds to LASERCOM after you press Return.

4. Adjust your D40 card to 38400 baud using the procedure in *Setting the D40 communications card Baud Rate* and run LASERCOM. You should now be communicating with the printer at 38400 baud.

Setting the D40 Communications Card Baud Rate

If your Synclavier uses a D40 communications card, any changes to the communications baud rate will have to be made manually. Setting both your Synclavier and laser printer to 38400 baud may involve changing the D40 baud rate more than once. If you require any advice or assistance with this procedure, please feel free to call Customer Service at New England Digital.

1. Disconnect the power from the computer.

   WARNING: To prevent shock hazard and to protect internal circuitry, always unplug the computer before removing any connector panels.

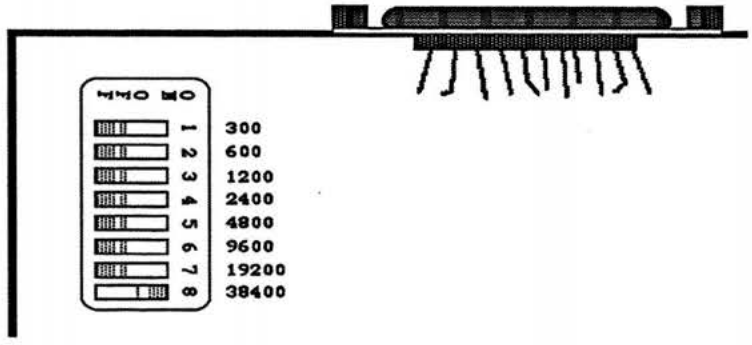
2. Remove the Computer Peripheral Panel by unscrewing the four screws.

3. Remove the Circuit Board Retaining Strip at the bottom of the card bin. It is held in place with three thumb screws.

4. Locate the D40 board. It should be in either the far left or far right hand slot and is connected to the PRINTER connector on the panel with a short gray flat cable. Disconnect the cable at the panel.

5. Remove the board from the bin carefully.

6. Set the desired baud rate switch (located at the end of the D40 board nearest the Computer Peripheral Panel). The switch positions are labeled with their baud rates. Only one switch may be on at a time.



7. Replace the D40 board into its previous location.

8. Replace the Retaining Strip.

9. Replace the computer Peripheral Panel.

Troubleshooting the laser printer

This section diagnoses the common causes of communication breakdowns. Usually, you want the printer to be in an "idle" state in order to use most of the LASERCOM options.

PROBLEM: Printer is not responding

The following is a useful "First Try" checklist for reestablishing communications:

- Is the printer power switched on?

- Is the printer **power** light glowing steadily? LASERCOM will not communicate with a printer that is still warming up. Wait until this light stops blinking for at least 30 seconds.

- Is the printer **status** light on?

  - If the light is glowing steadily, the printer is either out of paper or waiting for a manual paper feed.

  - If the light is blinking with single pulses, there is a job in progress. Pressing the I key will stop the job and return the printer to the idle state.

  - If the light is blinking with double pulses, the printer is waiting for LASERCOM to communicate. This usually indicates the printer is in a waiting state, and needs to be forced to idle. Pressing the I key will return the printer to "idle."

- Check all cable connections.

  - Is the printer cable connected to the **printer** port of the Synclavier?

  - Is the printer cable connected to the correct connector on the printer?

Troubleshooting the laser printer (con't)

- Is the printer switch in the proper position? Proper settings are:

Printer	*Switch Position*
QMS-PS800(+)	Position **0** or **1**
LaserWriter(+)	Position **1200** or **9600**
Linotype	Position **1** or **3**
Other	*(Consult printer manual for "serial batch" settings.)*

- If you have a D40 communications card, does the D40 baud rate match the baud rate of the printer? See "Setting the Baud Rate" if you suspect that this is the problem.

PROBLEM: Printer status shows busy or waiting at Source: Serial 9.

Either another computer is using the printer on the 9-pin serial port, or you have an AppleTalk connector plugged into that port. If the problem is the AppleTalk connector, disconnect it when using the laser printer with the Synclavier.

PROBLEM: Printer status shows waiting at Source: Serial 25.

Pressing **I** from the main menu will return the printer to "idle."

Note: If you absolutely cannot regain control of the printer, it is possible that the printer was left in an unusable state by a PostScript or hardware error. The final test would be to turn off the laser printer, re-boot your Synclavier, and turn the laser printer back on. If these problems persist, please call Customer Service at New England Digital Corporation for further assistance.

Music Printing command and symbol summary

Commands followed by a **V** affect one voice only. If there are two voices, the correct voice must be selected. Commands followed by an **M** are automatically stored in the master edit list. Commands followed by an **L** must be entered in the last block. Commands followed by an **F** should be in the first block and must not be entered in the last block. Commands followed by an **E** are obtained from the extended font.

Commands with an asterisk (*) are obsolete.

Page numbers preceded by an **A** are found in this Addendum. All other page numbers refer to the Music Printing manual.

Sequence commands

DUR		896	Duration change
PTCH	A22	895	Pitch change
MOVE		898	Move a note
TRIM		897	Trim up a note
ADD	A22	893	Add a new note
DEL		894	Delete a note
INSR	A25		Insert time into sequence
REMV	A25		Remove time from sequence
STRN	A29		Guitar string number change

Form commands and symbols

OREP	M	L		937	Opening repeat
CREP	M	L		938	Closing repeat
DBAR	M	L		939	Double bar
EBAR	M	L	A23		End of piece bar
SGNO				1006	Dal Segno sign
CODA				1006	Coda sign
RRTK				1007	Full stop (railroad tracks)
MNOF		F	A26		Measure numbers off
MNON		F	A26		Measure numbers on
BOFF				948	Bar lines off
BON				948	Bar lines on
MREP				1006	Measure repeat
BREP				1006	Beat repeat
NEWL				950	Start a new line
ENDP				950	End of page
COPY			A31		Copyright sign

Display commands

POFF					946	Switch off plotting
PON					946	Switch on plotting
TRAK	V		L	A29	915	Track change
CLEF					917	Clef change
KEY					918	Key change
TIME		M	L		903	Time signature change
CLIK		M	L		904	Click note change
MEAS		M	L	A26	905	Change measure length
SPLT*				A29	919	Grand staff split point change
TSPL				A30		Transposed grand staff split point change
TRAN	V				920	Transposition change
RESO	V		L		907	Resolution change
FORM					921	Format change
ENHR	V			A23	928	Enharmonic change
ACCD	V				928	Accidental change
RACC				A28		Force redundant accidental
HEAD	V			A24		Note head change
NBRK	V				933	Break a note or rest
NMND	V				935	Mend a note
SDIR	V				936	Set stem direction
SLEN	V				937	Set stem length
STOF	V			A29		Stems off
STON	V			A29		Stems on
BBRK	V				930	Break a beam
BMND	V				931	Mend a beam
BDIV	V				932	Divide a beam
BMOF	V			A22		Beams off
BMON	V			A22		Beams on
FLOF	V			A23		Flags off
FLON	V			A23		Flags on
NSPC		M	F		942	Note spacing change
BSPC		M			944	Set edit block spacing
PBSP				A28		Set part specific edit block spacing
ROFF	V			A28	937	Rest positioning (–128 to +128, 0 is invisible)
RSOF	V			A28		Rests off
RSON	V			A28		Rests on
BRST					940	Break a block rest
VOX					924	Voice a chord
TIE					926	Set tie directions of a chord
TUP	V				909	Create a tuplet

Keys and commands for positioning text or symbols

CTRL-X (terminal keys)		880	Move cursor right to nearest last block
CTRL-Z (terminal keys)		880	Move cursor left to nearest last block
CTRL-Y (terminal keys)	A21		Move cursor right one beat (click)
CTRL-T (terminal keys)	A21		Move cursor left one beat (click)
CTRL-F (terminal keys)		880	Flips cursor above or below the staff
CTRL-N (terminal keys)	A21		Center text on edit block
Arrows (terminal keys)		879	Move cursor 1 half space or 1 edit block
PF1 (terminal key)		880	Move cursor to the part above
PF2 (terminal key)		880	Move cursor to the part below
PF3 (terminal key)		880	Move cursor 4 pixels to the left
PF4 (terminal key)		880	Move cursor 4 pixels to the right
1PIX	A31		Move cursor 1 pixel to the right
2PIX	A31		Move cursor 2 pixels to the right
BKSP*			Move cursor 8 pixels to the left
MID*		954	Set midpoint of a long symbol
END		954	Set endpoint of a long symbol

Other terminal commands

CTRL-A		889	Replot from the current measure.
CTRL-B	A20		Step between Big, Box and Big Box.
CTRL-C		875	Select a single edit entry to erase.
CTRL-D		875	Erase all edit entries.
CTRL-E	A20		Switch fonts.
CTRL-F		880	Flip cursor above or below staff.
CTRL-L	A17		Display the sum of vertical spacings.
CTRL-N	A21		Enter center mode.
CTRL-P		829	Return to Real-time performance and play sequence.
CTRL-R		889	Replot.
CTRL-U	A19		Enter and exit extended font mode.
CTRL-V		912	Change tuplet levels.
CTRL-W		889	Jump to a different measure.

Notes and rests

TNOT			Tempo note (quarter note, stem up)
NOTE	1005	953	Note, any value
WNOT*			Whole note head
HNOT*			Half note head
QNOT*			Quarter note head
REST	1005	953	Rest, any value
WRST*			Whole rest
QRST*			Quarter rest
ERST*			Eighth rest
ESTM*			Eighth rest stem
GNOT	1005	953	Grace note, any value
GWNT*			Grace whole note head
GHNT*			Grace half note head
GQNT*			Grace quarter note head
GRAC			Grace note (eighth note, stem up)
GFLG*			Grace flag
GRST			Grace rest, any value
GWRS*			Grace whole rest
GQRS*			Grace quarter rest
GERS*			Grace eighth rest
PDIA*			Percussion diamond note head
XBNT*			Percussion black note head
XWNT*			Percussion white note head
1STU*			8th note or first flag for a single note with stem up
2NDU*			Flag to go above first flag for a 16th note with stem up
1STD*			8th note or first flag for a single note with stem down.
2NDD*			Flag to go below first flag for a 16th note with stem down

Accidentals

DSHR*		1005	Double sharp
SHRP*		1005	Sharp
NATR*		1005	Natural
FLAT*		1005	Flat
DFLT*		1005	Double flat
GSHR	A31		Grace or cue sharp
GNAT	A31		Grace or cue natural
GFLT	A31		Grace or cue flat

Shape notes

WDO*	E		White Do shape
WRE*	E		White Fa shape
WMI*	E		White Mi shape
WFA*	E		White Fa shape
WSOL*	E		White Sol shape
WLA*	E		White La shape
WTI*	E		White Ti shape
WFA*I	E		White inverted Fa shape
BDO*	E		Black Do shape
BRE*	E		Black Re shape
BMI*	E		Black Mi shape
BFA*	E		Black Fa shape
BSOL*	E		Black Sol shape
BLA*	E		Black La shape
BTI*	E		Black Ti shape
BFAI*	E		Black inverted Fa shape

Chord symbols

CHRD*		954	Chord name (letter + accidental only)
CNAM	A22		Chord name (like CHRD, but 12 characters)
GFRM	A23		Guitar chord frame
SSHR	A31		Standard font (times) sharp
SNAT	A31		Standard font (times) natural
SFLT	A31		Standard font (times) flat
SMAJ	A31		Standard font (times) major
SDIM	A31		Standard font (times) diminished
SHDM	A31		Standard font (times) half diminished
# (terminal key)*			Typewriter font sharp
MAJ*		1006	Typewriter font major chord symbol
CFLT*		1006	Typewriter font flat chord symbol
CNAT*		1006	Typewriter font natural chord symbol
DIM*		1006	Typewriter font diminished chord symbol
HDIM*		1006	Typewriter font half diminished chord symbol

Clefs

GCLF*	1005	G clef
CCLF*	1005	C clef
FCLF*	1005	F clef
PCLF*		P clef (percussion)

Note related symbols

SLUR*	A28	956	Slur
NSLR	A27		New slur
HPIN		957	Hairpin (crescendo or decrescendo)
TBAR	A29	958	Tuplet bar
LINE		955	Straight line (any width, any type)
WAVE	A30		Wavey line (any length)
TENU		1007	Tenuto
MARC		1007	Marcato
STAC		953	Staccato (up, down)
FERM		1007	Long fermata (up, down)
MFRM		1007	Medium fermata (up, down)
SFRM		1007	Short fermata (up, down)
DBOW		1007	Down bow
UBOW		1007	Up bow
HARM*		1007	Harmonic
SPIZ		1007	Snap pizzicato
SLSH		1007	Stem slash
MORD		1007	Mordant
SMRD		1007	Slashed mordant
GRUP		953	Grupetto (up, down)
DIAM		1007	Harmonic diamond
DOT			Dot
TREM			Tremolo
COL			Col
LED	A26		Ledger lines
PLEC			Plectrum
PED		1007	Pedal down
STAR		1007	Pedal up
SFOR		1006	Sforzando accent (up, down)
S		1006	S for sforzando
Z		1006	Z for sforzando
SFFZ			Sforzandissimo
SFZ			Sforzando
F		1006	Forte
M		1006	Mezzo
P		1006	Piano

Note related symbols (con't)

TR		953	Trill sign
T*			T for trill
R*			R for trill
TRIL*	A30	953	Wavey line for trills (1 wave)
LTRL*	A30	953	Longer wavey line for trills (4 waves)
8VA		1008	8 for 8va
FNG(0-9)	A31		Small numbers for piano fingering
GFB*			Guitar finger black—fingered
GFW*			Guitar finger white—open
GFX*			Guitar finger X—damp string